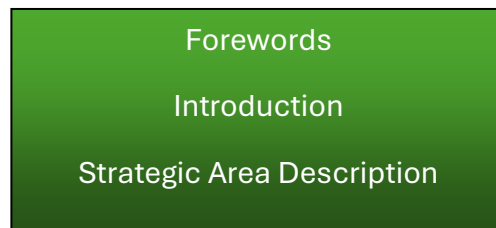




CONSULTATION DRAFT

WARWICKSHIRE LOCAL NATURE RECOVERY STRATEGY

Part 1



Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
--	--------	----------------------	------------------------------------	--------------------

Contents

Foreword LNP Chair	1
Foreword County Councillor	2
Introduction	3
What is a Local Nature Recovery Strategy?	3
What will the Warwickshire LNRS do and not do?.....	3
Governance and Structure LNP Chair.....	3
Why are the LNRSs required?	4
Strategy Area Description	5
Geology	6
Landscape	7
Habitats.....	9
Species.....	10
Water	11
Farming	13
Heritage & Culture	13
Population	14

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
--	--------	----------------------	------------------------------------	--------------------

Foreword LNP Chair

David Lowe: Chair of the Warwickshire Coventry and Solihull Local Nature Partnership (WCS LNP)

The recovery of nature is not a new concept in Warwickshire; nor is partnership working. However, the Warwickshire Local Nature Recovery Strategy (LNRS) heralds a promising new era; a strategic approach to draw together all the threads of activity happening throughout the county and weave a living tapestry as important as that of the Sheldon Tapestry that hangs in the Warwick Museum.

The Warwickshire LNRS has been prepared by the constituent members of the WCS LNP after extensive local group and public engagement to find out what makes Warwickshire's wildlife so important. From these discussions, plus the Local Biodiversity Action Plans fostered by the partnership, we have fashioned a strategy that looks to meet all our hopes and dreams for Warwickshire's past, current and future biodiversity.

Now that we know what we must do it is time for all communities and sectors of society to adopt the aims and objectives within the Warwickshire LNRS's and reconstruct a Warwickshire where natural capital is core to all our understandings. After all, natural capital is what brings us life; the oxygen we need to breathe; the water we need to drink; the stress-release to get us through the day. However, it will not come easy and will need dedication, resources and financing.

The Warwickshire LNRS has been written by the people of Warwickshire for the biodiversity of Warwickshire. It is a strategy that pledges our support to protect, conserve and enhance Warwickshire's wildlife and its habitats. It holds actions, objectives and targets that we must meet should we wish to continue to hear the dawn chorus across our towns and countryside; have clean water to drive industry and grow our food; have pollinators to maximize yields.

As Chair of the WCS LNP, I am honoured to have overseen the production of the Warwickshire LNRS and I, speaking on behalf of the LNP members, pledge to do all we can to help you make all within the strategy a reality.



Chair of the Warwickshire, Coventry & Solihull Local Nature Partnership

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
--	--------	----------------------	------------------------------------	--------------------

Foreword County Councillor

Cllr Darren Cheshire: Portfolio Holder for Environment, Heritage and Culture

To be prepared post-election and appointment of portfolio holder

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
---	--------	----------------------	------------------------------------	--------------------

Introduction

What is a Local Nature Recovery Strategy?

Welcome to the Warwickshire Local Nature Recovery Strategy. Local Nature Recovery Strategies (LNRS) are locally led plans mandated by the Environment Act 2021. They aim to recover nature and improve the environment by focusing on actions with the greatest impact on nature recovery. The Warwickshire LNRS in collaboration with the other 48 LNRS will cover the whole of England, to become a Nature Recovery Network across the country. More information of LNRSs can be found on the UK Government's LNRS webpages¹ and in Appendix A.

What will the Warwickshire LNRS do and not do?

The Warwickshire LNRS will:

- ☒ Identify locations and activities that will have the biggest impact to improve nature recovery over this first iteration of the LNRS (envisaged to be 8 years).
- ☒ Be used by local authorities when developing planning strategies and to inform decision making.
- ☒ Be used to incentivise locations for habitat creation within Biodiversity Net Gain implementation.
- ☒ Continue to support nature recovery actions in Nature Improvement Areas.
- ☒ Provide evidence for farmers, land managers and advisers of which management actions will improve a site for nature.

The Warwickshire LNRS could:

- ☐ Support local or government targeting of funding applications, opportunities and advice.
- ☐ Be used by some funding bodies to target grant awards.

The Warwickshire LNRS will not:

- ☒ Require owners or managers of land to make specific proposed land use changes.
- ☒ Place new restrictions on developing land.
- ☒ Identify areas to be given legal nature protections that create restrictions on how land can be used.
- ☒ Prevent nature conservation work in areas not prioritised by the LNRS.

Governance and Structure LNP Chair

Warwickshire County Council is the principal owner of the Warwickshire LNRS having been appointed by the Secretary of State to oversee its preparation. However, the Warwickshire, Coventry & Solihull Local Nature Partnership (WCS LNP) is the lead delivery organisation to

¹ <https://www.gov.uk/government/publications/local-nature-recovery-strategies/local-nature-recovery-strategies>

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
---	--------	----------------------	------------------------------------	--------------------

promote and enact the strategy. More information on the WCS LNP can be found in Appendix B and on the [LNP website](#)² along with other user-friendly resources.

Why are the LNRs required?

Nature and wildlife are declining at an alarming rate across the UK. The State of Nature (2023) report indicates that one in six species are at risk of extinction in Britain. Since 1970, wildlife has declined by 19% on average, and many important habitats are in poor condition. Yet, nature provides essential ecosystem services- such as clean air and water, pollination, climate regulation, and flood control - that are fundamental to our survival. Without these services, societies would struggle to grow food, maintain health, or adapt to climate change. Protecting and restoring nature is not just an environmental priority, but a human one. Together, all the LNRs around the country will create a national approach to recovering nature.

Figure 1 illustrates the benefits and co-benefits that nature provides as divided into the four ecosystem services divisions.

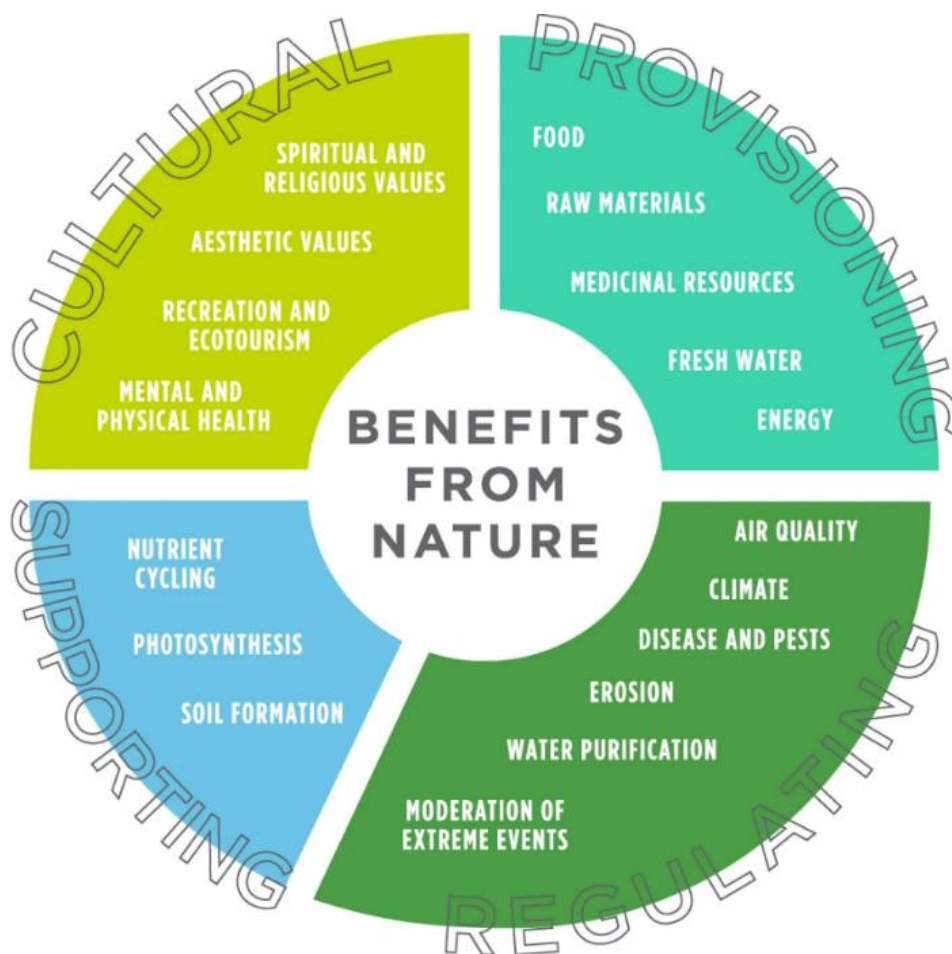


Figure 1: Benefits and co-benefits supported by nature

² [Warwickshire Coventry and Solihull Local Nature Partnership | WCSLNP](#)

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Strategy Area Description

The Warwickshire Local Nature Recovery Strategy (LNRS), as shown in Figure 2, covers the administrative county of Warwickshire and includes the five districts and boroughs of North Warwickshire, Nuneaton and Bedworth, Rugby, Stratford-on-Avon, and Warwick. Solihull and Coventry are not part of the Warwickshire LNRS, as they fall within the West Midlands Combined Authority (WMCA) LNRS.

“Warwickshire enjoys the distinction of being the first county whose antiquities formed the subject of an exhaustive County History...” Sir William Dugdale’s *“...Antiquities of Warwickshire³ which saw the light in 1656.”* This publication “brought to bear not only the intimate local knowledge of the native county, but the genius and industry which made its author perhaps the greatest antiquary England ever produced”.⁴ In ‘The Victoria History of the County of Warwick’ (1904), Herbert Arthur



Figure 2: Warwickshire's five districts (Source: Warwickshire County Council. State of Warwickshire)

Doubleday described the county from its geological, natural history and human antiquities. He listed all the species recorded to that date. His description remains true today albeit exacerbated by the increased fragmentation of the landscape from development, road and rail infrastructure plus the changing climate:

“In treating of the flora of a county, it is well to refer not only to that which is now prevalent; but also, so far as knowledge serves, to that which has prevailed in the past, but whose existence has become impossible owing to altered surroundings. In few of our midland counties have the changes incidental to the growth of population been more marked than in Warwickshire. A glance at a map of the county, and a study of the names of localities, will show that formerly heaths, wastes, commons and marshes existed, indeed were extensive in all parts of the county; and the records of the older botanists show that plants characteristic of such localities, though now in many cases either extinct or very rare, were then of more frequent occurrence; but heaths, wastes and commons have been enclosed and reclaimed, marshes and bogs drained, and the only portions of the county which at the present time really represent these

³ [The antiquities of Warwickshire illustrated : from records, leiger-books, manuscripts, charters, evidences, tombes, and armes : beautified with maps, prospects, and portraictures : Dugdale, William, Sir, 1605-1686 : Free Download, Borrow, and Streaming : Internet Archive](#)

⁴ The Victoria history of the county of Warwick by Herbert Arthur Doubleday, 1904 [The Victoria history of the county of Warwick : Doubleday, Herbert Arthur, 1867-1941 : Free Download, Borrow, and Streaming : Internet Archive](#)

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

past conditions, are some of the wilder portions of Sutton Park [now no longer in the County of **Warwickshire**]. The distribution of plants is to a certain extent determined by climate; proximity or otherwise to maritime influences, altitude, and by the general character of its rocks, whether igneous, calcareous or sandstone. The insular position of Warwickshire, and the absence of any great irregularities in its surface produce a mildness of climate; while it is free from the disturbing influences of either sea or mountain. Although everywhere undulating beautifully, the greatest altitude is only 855 feet above sea-level, and the average altitude about 380 feet above the sea, or well within the lowest zone of climatic influence. Its rocks are varied, beginning with the Cambrian and ending with the Inferior Oolite, but these are often in a degree obscured by the sands, gravels and clays of the drift, and these deposits materially affect the character of the flora. Throughout its area Warwickshire is well covered with trees, many of the woods being extensive, probably remains of the Great Forest of Arden, and are often rich in characteristic plants, as in the well-wooded district around Atherstone and Hartshill.” (Victoria History of the County of Warwick, Herbert Arthur Doubleday, 1904).

The publication continues by noting flora distinctive of each area, which was repeated in the Computer-Mapped Flora in 1971 and Warwickshire’s Wildflowers (S Falk, 2009) afterwards.

Geology

The vegetation, species and crops grown in Warwickshire are influenced by the type of soils and these are determined by the underlying geology. Figure 3 Rock Types in Warwickshire illustrates the occurrences of different rock units as they occur at the surface.⁵ On this map, the yellow patches are the younger Jurassic sandstones, ironstones and limestones; the red corresponds to early Jurassic clays and limestones; the pink is Triassic clay and sandstone; the green is the Carboniferous rock of the Warwickshire Coalfield, and the blue is the ancient Precambrian and Cambrian rocks of north Warwickshire’. Source: Jon Radley (28/01/2016).

The harder ironstones and limestones form high ground. In brief, the soils in Warwickshire range from light to medium silty loams, with sandy soils in the north and centre, and heavier loams in the south.⁶ The corresponding pH levels of these soils



Figure 3: Rock types in Warwickshire

⁵ Heritage and Culture Warwickshire. *The Geology of Warwickshire – Our Warwickshire*. [Online]. 2016. [Accessed 03.12.2024]. URL: < [The Geology of Warwickshire - Our Warwickshire](#) >

⁶ [Countryside survey topsoil_pH_bulkdensity]

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

are primarily neutral, with pockets of acidity and more calcareous alkaline areas along the river Avon and limestone ridges in the south.

Landscape

The County is sub-divided into nine National Character Areas (NCAs),⁷ based on landscape, geology, biodiversity, history, culture and economics.

- The Cotswolds (NCA 107) are dominated by steep scarps crowned by open wold with wooded valleys.
- The Dunsmore and Feldon (NCA 96) is a predominantly open rural, agricultural landscape, crossed by numerous small rivers.
- The Northamptonshire Uplands (NCA 95) is a landscape of gently rolling hills and valleys with open field systems, and distinctive nucleated villages with scattered broadleaved woodlands.
- The Severn and Avon Vales (NCA 106) consists of a low-lying open agricultural vale landscape made up of distinct and contrasting vales.
- The Arden (NCA 97) comprises farmland and former wood-pasture where mature oaks are set in hedgerows. Distinctive field boundaries, historic parklands and narrow river corridors are key features that are all on the doorstep of a heavily urbanised area.
- The Leicester Vales (NCA 94) are an open landscape of gentle clay ridges and valleys which gives way to the Mease/Sence Lowlands (NCA 72) a gently rolling agricultural landscape centred around the rivers Mease, Sence and Anker.
- The Trent Valley Washlands (NCA 69) comprise the river flood plain corridors of the middle reaches of the River Trent's catchment in the heart of England. It is a distinctly narrow, linear and low-lying landscape, often clearly delineated at its edges by higher ground, and it is largely comprised of the flat flood plains and gravel terraces of the rivers.
- The Cannock Chase and Cank Wood (NCA 67) forms a plateau, rising above its surroundings.

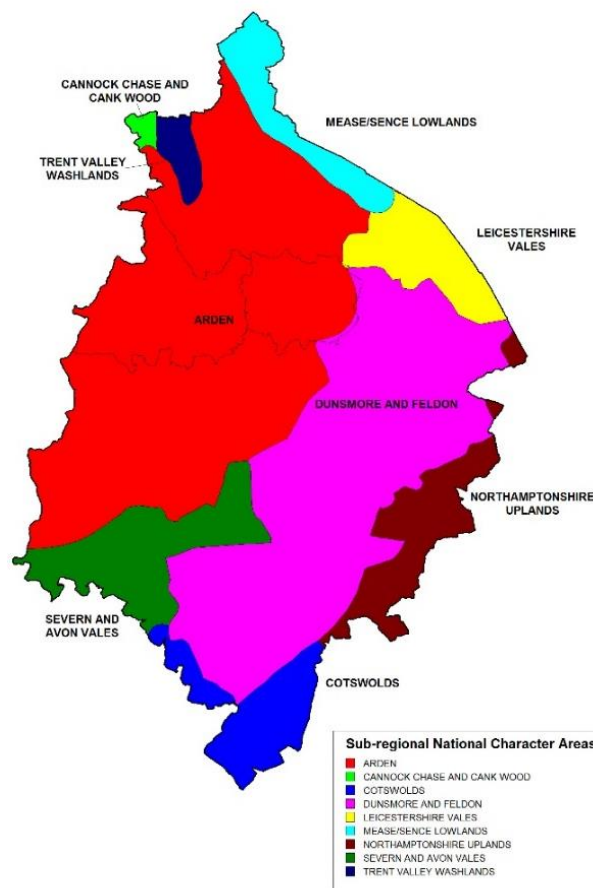


Figure 4: National Character Areas for Warwickshire

⁷ Natural England. *National Character Area Profiles*: [Online]. 2024. [Accessed 23.11.2024]. URL: < [Natural England - National Character Area Profiles - National Character Area Profiles](#) >

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

The Warwickshire Landscape Character⁸ study adds further detail to the NCAs with the seven areas: Arden, Avon Valley, Feldon, Cotswolds, Mease Lowlands, High Cross Plateau and Dunsmore. These are further divided into areas for which there are specific recommendations to retain and enhance their individual features of importance, of which many are brought forward in this strategy.

The Warwickshire Landscape Character areas have made a significant contribution in the designation of the Nature Improvement Areas and project areas brought forward and approved by the Local Nature Partnership of which there are four that include Warwickshire and cross into the West Midlands, Staffordshire and Worcestershire LNRs.

- Tame Valley Wetlands NIA - The Tame Valley Wetlands landscape covers the Tame Valley between Birmingham and Tamworth, in North Warwickshire and south-east Staffordshire, following 29 km of the middle River Tame, and lower sections of tributaries including the River Anker, Bourne, Cole and Blythe SSSI. [The Tame Valley Wetlands](#) has a wide variety of habitats that host a rich diversity of [wildlife](#) and rare species. Home to several of the most important [wildlife sites](#) in the Midlands, this regionally important river corridor is also a vital north-south migration route, providing essential resting and feeding places for hundreds of migrating birds.
- Dunsmore Living Landscape NIA - At the heart of the Dunsmore area lie 20 woodlands covering 618 hectares. They represent more than 10% of the whole of Warwickshire's ancient woodland. These woodlands are a treasure trove of biodiversity, home to many species of insect, butterfly, plants and birds. This area also tells a fascinating story of prehistoric Heidelberg man and the rise and fall of empires. From the discovery of a half a million year old hand axe in a quarry near Bubbenhall, to Roman barracks at Baginton, Saxon settlements at Wappenbury and Norman fortifications at Brinklow, a visitor to the area is able to discover much of the nation's history. Grand landscape designs at Coombe



Figure 5: Warwickshire Landscape Character Map

⁸ Warwickshire County Council. *Landscape architecture service – landscape character and guidelines*. Online. 2024. [Accessed 23.11.2024]. URL: [Landscape architecture service - landscape character and guidelines – Warwickshire County Council](#)

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

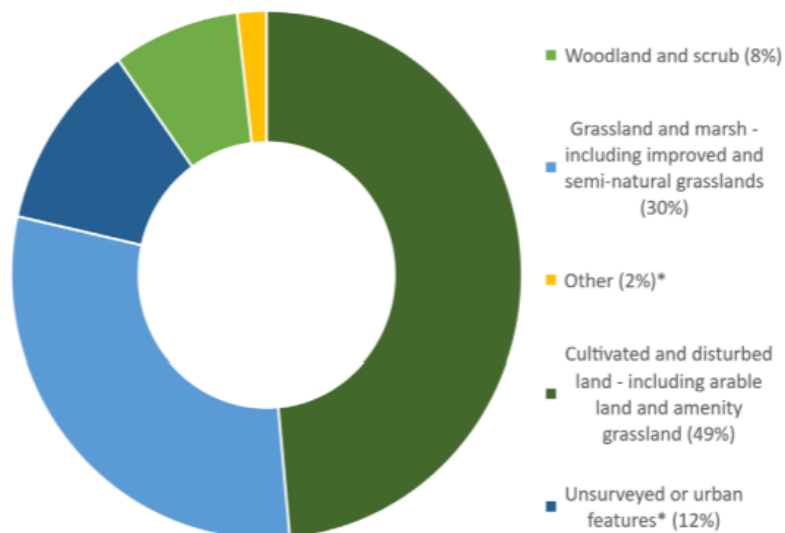
Abbey and Stoneleigh Abbey have also left their mark, not least in the nationally important collections of veteran and ancient trees.

- South-West Warwickshire NIA (in draft) – an ancient landscape area of wooded river valleys and pastures that makes a significant contribution to species movement through the country; linking the south of Warwickshire to the northern Tame Valley Wetlands through Solihull and Coventry’s ‘Meriden Gap’ that separated the urban settlements of Birmingham and Coventry.
- Sherbourne Valley – covering an urban living landscape area where people, nature and culture can thrive. The Sherbourne and its minor tributaries flow from Corley Moor, right under and through the heart of Coventry city centre and out to Whitley Abbey, this 9 mile waterway is rich in built, natural and cultural heritage; from scheduled monuments to precious natural habitats and unique histories.

Habitats

Warwickshire’s habitats and Local Wildlife Sites (LWSs) have been systematically mapped and updated annually since 1997 by the Natural Capital Assessment Partnership.⁹

Warwickshire has 92 sites with national statutory protection of which 28 are Local Nature Reserves (LNRs), 63 are Sites of Special Scientific Interest (SSSIs) and 1 Special Area of Conservation (SAC). These sites account for 1% of Warwickshire’s 197,756 hectares.¹⁰ When including the 489 Local Wildlife Sites, which are of county-level importance, the total area coverage rises to 3%. An additional, 1,210 potential LWSs await surveying. Of the 489 Local Wildlife Sites, 237 were assessed as being in good or favourable management condition at the time



*Urban features, e.g. buildings / roads and other ‘artificial’ surfaces are not included in the Phase 1 survey process and so are included in un-surveyed areas. ‘Other’ includes ‘heathland’, ‘mire’ and ‘swamp, marginal and inundation’ wetlands, ‘tall herbs’, ‘open water’ and ‘rock exposure & waste’.

Figure 6: Proportion of Broad Habitats across Warwickshire (NCAP, 2019)

⁹ Natural Capital Assessment Partnership (previously the Habitats Biodiversity Audit), 1997 - 2025. [Natural Capital Assessment Partnership \(NCAP\) | Warwickshire Wildlife Trust](#)

¹⁰ Ordnance Survey. OS Boundary-Line: Warwickshire District and Borough Boundaries [Data set – Open Govt license]. Ordnance Survey, 2024.

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

of survey; the remaining sites, either lack data or require improved management.

Heathland and wetlands are the rarest broad habitat types across Warwickshire. Heathland covers less than 0.01% of the local authority area (10 hectares), with 35% found in North Warwickshire Borough Council and 55% found in Stratford District Council. The wetland habitats of ‘mire’ and ‘swamp, marginal and inundation’ habitats collectively represent 0.1%.

The most widespread habitat type is ‘cultivated and disturbed land’, comprising 49% of Warwickshire. This category includes ‘amenity grassland’, ‘arable land’, and ‘introduced shrub’. In contrast, the ‘Woodland and Scrub’ category - which encompasses ‘parkland’, ‘woodland’, ‘recently felled woodland’, and ‘wet woodland’ - covers 7% of the county¹¹, compared to a national average of 13%.¹²

Urban features such as roads and buildings cover approximately 7% of Warwickshire. When considering ‘improved grassland’, set-aside, and arable land as the primary agricultural land uses across the sub-region, these collectively account for an estimated 69% of the county. Additionally, around 10% of Warwickshire’s grasslands are classified as semi-natural, supporting distinctive plant communities associated with calcareous, neutral, acid, or marshy grassland types.

Species

Warwickshire’s central location in the midlands sees the movement of species both northward and southward, resulting in a significant overlap of both northern and southern notable species distributions. The colonisation of species is continuing with those that utilising the River Avon and Tame and their tributaries and wetlands. These species include the migratory fish listed within the Special Areas of Conservation and RAMSAR designations associated with the Humber and Severn estuaries. The Worcestershire and Gloucestershire colonisers also include Beckstein and lesser horseshoe bats and other mammals such as otter. From the north, Warwickshire has seen the arrive of invertebrates such as the Black Darter dragonfly and potentially beavers.

Monitoring colonisers verses visitors can be problematic and, therefore, it is often easier to document local extinctions than to confirm the establishment of new arrivals. Figure 7 illustrates the timeline of local extinction for 78 plant species recorded as lost from Warwickshire.

A similar trend is observed among larger moth species. Nineteen species are considered extinct, with an additional 24 likely lost before 1950. Over the past 30 years, a further 41 species have experienced significant declines. However, since 1980, there has been a positive shift, with 33 species showing population increases and 29 new species establishing residency in the county. (David Brown, Larger Moths of Warwickshire, 2006).

¹¹ These figures are derived from historic environment and local habitat datasets and not taken from the National Forestry Inventory

¹² Forest Research. Woodland Area & Planting. In: Forest Research. Forestry Statistics 2023. Midlothian: Forest Research, 2023.

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

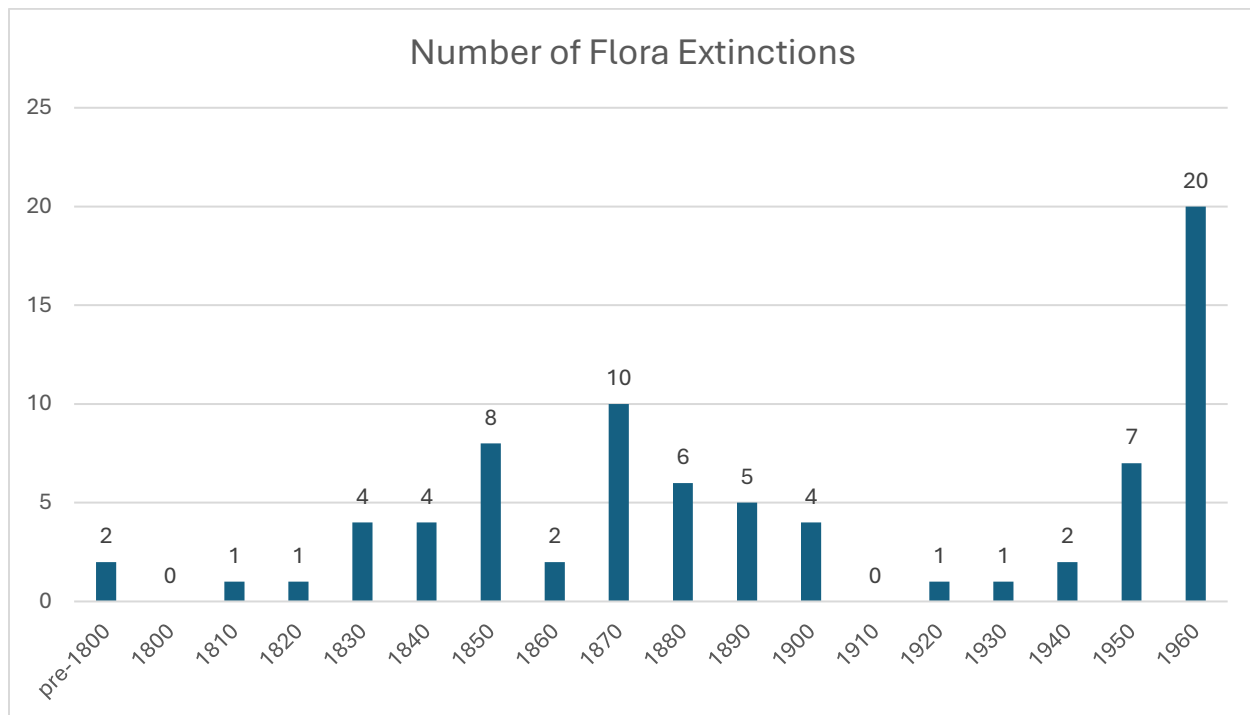


Figure 7: Last recorded decade for 78 Warwickshire extinct native plants, 1670-1960 (S Falk, 2009)

Water

Warwickshire contains 72 river water bodies, either fully or partially within its boundaries.

According to the Water Framework Directive (2022), only one of these is classified as having ‘good’ ecological status. Of the remainder, 42 are rated as ‘moderate’, 22 as ‘poor’, and 2 as ‘bad’.

Phosphates account for approximately 70% of the reasons for not achieving ‘Good’ with 71 out of 72 river water bodies failing for this reason, and 54 out of 72 failing for nutrient pollution. The top two significant water management issues are diffuse source and point source pollution, with the top diffuse source reasons being attributed to poor livestock management, urbanisation and poor nutrient management respectively, and the top point source reasons being attributed to sewage discharge (continuous and intermittent sources respectively).

Warwickshire’s water environment is essential to nature’s recovery. While water is available for new abstractions within the county’s catchments, it is subject to regulatory restrictions.¹³ Any new consumptive abstraction is likely to be restricted by abstraction conditions requiring abstractors to stop when flows fall below a pre-set threshold. This is required to protect river ecology at lower flows and is set at an appropriate flow according to the resource balance in the Trent/Severn catchment downstream and at the local assessment point. Restrictions vary between watercourses, with some being more sensitive than others—particularly during dry conditions,

¹³ [Tame Anker & Mease ALS](#) and the [Warwickshire Avon ALS](#).

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

when enforcement is more likely. Some watercourses have been closed completely to new abstraction; for the Tame Anker & Mease these include the River Anker (upstream of the confluence with the Sence), Bourne Brook, Darnford Brook and the Darklands Brook and for the Warwickshire Avon they include the River Leam plus some smaller tributaries such as the River Sherbourne, Finham Brook, Canley Brook, Blockley Brook, Batchley Brook and Upper Bow Brook.

Warwickshire's aquifers are also under pressure. Overall, in the Tame Anker and Mease catchments there is limited water availability for further licensing from the principal aquifers. Whereas in the Warwickshire Avon there is a very limited water availability for further licensing. This demand on water coupled with the impacts of climate change means that water security, quality and aquifer recharge will continue to be significant concerns if the county's water supply is to meet the needs for humans, livestock and crops as well as nature.

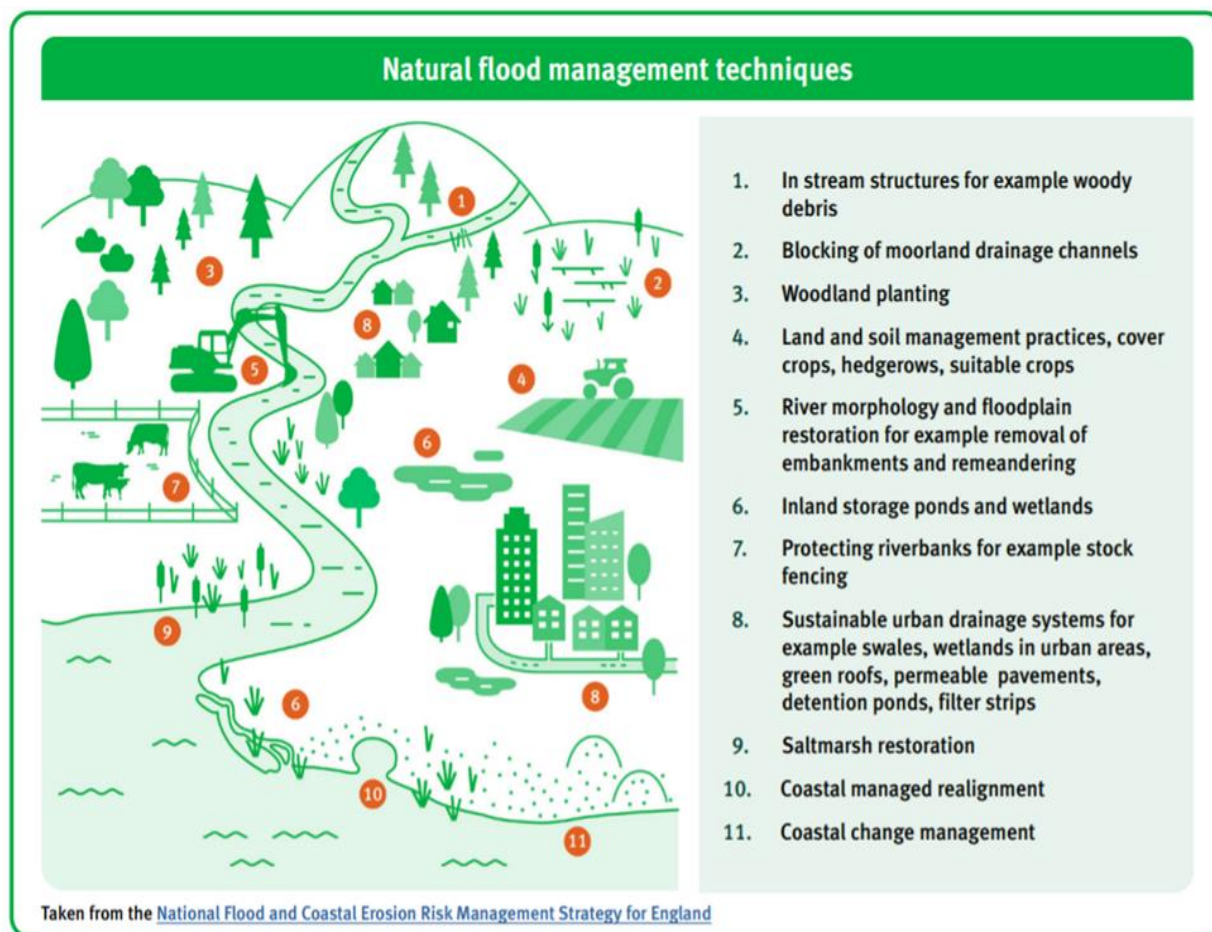


Figure 8: Natural flood management techniques essential for water resilience

Warwickshire has also seen excessive rainfall causing localised flooding that damages homes, crops as well as road and rail infrastructure. Causal factors being the historical deepening and straightening of watercourses and heavily modifying waterbodies that has reduced the natural processes of erosion and deposition affecting the way the watercourse interacts with its floodplain.

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

There is, therefore, a need to make land available for natural flood management and making the most of nature-based solutions to help with the natural regulation of hydrological systems.

Warwickshire has a significant canal infrastructure which connects with the Warwickshire Avon at Stratford-on-Avon enabling some connectivity across natural water catchments areas as well as providing nature rich habitat. They, along with watercourses, are essential in connecting people with nature through recreation and tourism opportunities.

Farming

Warwickshire is traditionally a farming county, with rich fertile soils which support arable and pasture farming. However, horticultural industries are flourishing in the vales, together with tree nurseries supplying stock to meet tree planting commitments.

Warwickshire is the home to the National Farmers Union and the acclaimed Warwickshire Rural HUB that encourages farmers to adopt sustainable farming practices that enhance biodiversity, including pollinators, and minimise environmental impacts.

Agriculture plays an important role in the attractive rural location that underpins our wider economic base. With approximately 2000 farm holdings, managing 160,000 hectares of land, the local farms support 6,000 people, generating £138 million towards the Warwickshire economy. Warwickshire agricultural businesses are well placed to take advantage of the advancements of Agri-tech given their proximity to the University of Warwick's Wellesbourne Campus, a centre for innovation in Agri-tech.

The rural economy in Warwickshire consists of a wide variety of businesses from artisanal food and drink producers to hospitality businesses and farmers, contributing to a thriving community of businesses. Overall, 38.33% of employment and 37.8% of places of work are within a rural setting which means over 1 in 3 workplaces is based rurally in the county, and these make up 38% of the county's total Gross Value Added (approx. £7.4bn of £19.6bn total (Office of National Statistics/Inter-Departmental Business Register).

It is essential that nature's recovery is considered collectively within farm diversification, the growing variety of farming systems and those landowners that wish to maintain their current identity and prestige. Nature and environmental farming practices need to support landowner's income.

Heritage & Culture

Warwickshire's nature is intrinsically linked to its heritage and culture as evidenced through historic sites such as Warwick Castle and its parklands that is one of the best Medieval Castles in the country attracting visitors from all over the world. Warwickshire has a landscape of designed parklands, buried settlements, barrows and ridge and furrow, which can be viewed throughout the county. Other historic sites include Edgehill where the first battle of the English Civil War took place, Shakespeare's Birthplace on Henley Street in Stratford upon Avon and Anne Hathaway's

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

(Shakespeare’s wife) Cottage in Shotton, Charlecote Deer Park on the banks of the River Avon, plus Kenilworth Castle and its Elizabethan Garden, where fossils are evident in some parts of the surrounding sandstone walls.

Warwickshire also has historic market towns such as Henley in Arden, Alcester, Stratford upon Avon and Warwick. Royal Leamington Spa has regency buildings, mineral waters, historic buildings and the Jephson Gardens. Furthermore, with Shakespeare in the south, J R R Tolkien visiting the west, and George Eliot in the north of Warwickshire’s landscapes, nature has been a source of inspiration to be immortalised in English literature.

The beautiful rural setting also attracts visitors to the country parks and to cycle along a growing number of established routes throughout Warwickshire taking in rustic local villages and towns. There is a growing demand for ‘outdoor’ experiences. Warwickshire has a world-class reputation for its visitor economy based on the iconic attractions of Shakespeare’s Stratford and Warwick Castle in the south. To the east, Rugby School boasts the birthplace of the game that bears its name. In the north of the county, business tourism has traditionally been strong, supported by significant meetings and events industry clustered around Birmingham, Coventry, and the NEC. Other visitor attractions of national significance include The Belfry Golf Course in the North Warwickshire and the British Motor Museum at Gaydon.

Scheduled Monuments are protected through Historic England and are equivalent to the nationally important ecological and geological Special Sites of Scientific Interest. They are preserved for education and culture.¹⁴ There are many historical sites in Warwickshire such as Baddesley Clinton, Stoneleigh Abbey and Coughton Court. Other local Monuments, Statues and Follies in Warwickshire can be found by going to the Heritage and Culture website.¹⁵ All of these and other places are visitor attractions and add to the cultural heritage, vibrancy and economy of the county.

Nature has played its part in creating Warwickshire’s communities yet the disconnection with biodiversity has been never greater. Nature’s recovery can only be successful if humans and nature can reconnect in a positive way to understand how wildlife and nature has shaped our lives and home.

Population

In 2024, Warwickshire had an estimated human population of 632,207 (Office for National Statistics, 2025)¹⁶ projected to increase to 716,378 by 2040 (Office for National Statistics, 2025).¹⁷ Eighty four percent of the area of Warwickshire is classified as rural, with 31% of the population living in these areas.¹⁸ The highest population density is in Nuneaton and Bedworth Borough with

¹⁴ Ancient Monuments. *Scheduled Ancient Monuments in the Historic County of Warwickshire*. [Online]. 2024. [Accessed 09.01.2025]. URL: [Scheduled Ancient Monuments in the Historic County of Warwickshire](#)

¹⁵ Heritage & Culture Warwickshire. *Our Warwickshire. Monuments, Statues and Follies*. [Online]. 2024. [Accessed 07.01.2025]. URL: <https://www.ourwarwickshire.org.uk/content/subject/monuments-statues-follies>

¹⁶ ONS (2025) [Estimates of the population for England and Wales - Office for National Statistics](#)

¹⁷ ONS (2025), [Population projections](#)

¹⁸ ONS (2025), [2021 Rural Urban Classification](#)

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

1,794 people per square kilometre compared to 150 people per square kilometre in Stratford-on-Avon District.

Warwickshire is projected to have a population of nearly 675,000 by 2032, an 11% increase from 2022. This is a greater percentage increase than the 6.4% England average. Over the ten-year period from 2022 to 2032 Stratford-on-Avon District is projected to have the 3rd highest rate of population growth in England at 17.4% increase.¹⁹ The projected population change for Warwickshire is illustrated in Figure 9.

The age composition of the population is also projected to change over the next 20-25 years with both the proportion of working age adults (16-64 yrs) and those on state pension increasing, with the proportion of children (0-15 yrs) decreasing.

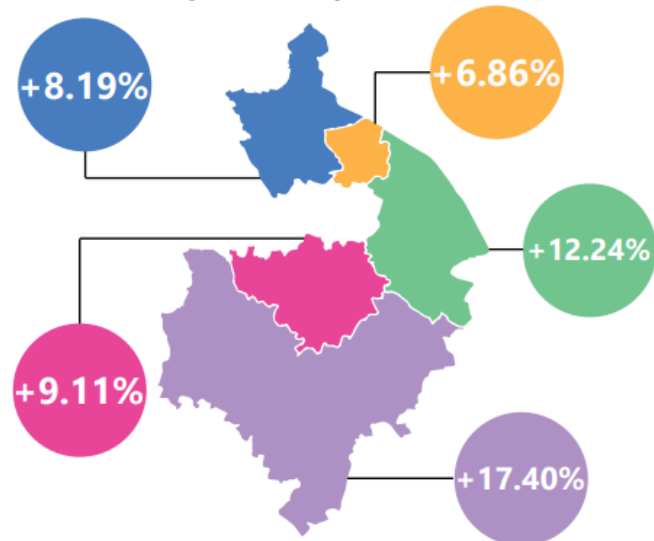


Figure 9: Projected population change between 2022 and 2032

It is anticipated that most of the population increase in Warwickshire will be focused within or around existing major settlements although inevitably new settlements will be promoted. It is, therefore, essential for nature to be integral to the place-making of all large and small developments. Place-making that retains and conserves natural assets such as trees, ponds, hedgerows and nature rich habitat, whilst integrating them with new wildlife features like sustainable urban drainage, wildlife boxes and hedgehog highways with public spaces for nature to ensure that wildlife connectivity reaches the heart of the community.

The human connection with nature is crucial for the health and wellbeing of Warwickshire's current and future population.

¹⁹ Warwickshire 2022-based Sub-National Population Projections, WCC Business Intelligence [2022 based sub-national population projections Briefing Note](#)



CONSULTATION DRAFT

WARWICKSHIRE LOCAL NATURE RECOVERY STRATEGY

Part 2

Overarching Themes

Habitat Priorities

Species Priorities

Previous:
Introduction & Strategy
Area Description

Next:
Targets, Monitoring &
Delivery



Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
---	--------------------------------	------------------------------------	--------------------

Contents

Overarching Themes	1
Climate Change Adaptation, Mitigation and Resilience	6
Alignment of the Warwickshire Local Nature Recovery Strategy Overarching Principles with the Environmental Improvement Plan (EIP) goals	6
Habitat Priorities and Actions	8
Species Priorities List	18
Species Priorities.....	19
Priority Assemblages	29
Possible Reintroduction / Translocation Species	47

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Overarching Themes

The Warwickshire LNRS is built upon a set of Overarching Themes designed to guide collective efforts where all members of society (“we”) can take actions to conserve and enhance the natural environment and deliver the LNP Vision:

“The natural, historic, urban, and farmed environments are in a vibrant condition that enables the economy, nature and people to thrive. A place where everyone is empowered to reverse wildlife losses and create beneficial connections with nature and where nature can flourish in a stable climate.”

These themes are the key opportunities for nature improvement in Warwickshire. They serve as the foundation for priorities, actions and initiatives, ensuring a cohesive and effective approach to nature recovery. By adhering to these themes and their priorities, the aim is to address existing problems for nature in Warwickshire and create a resilient and thriving natural landscape that supports biodiversity, mitigates climate change, and enhances the well-being of our communities whilst supporting strong business growth. The Warwickshire LNRS Overarching Themes are:

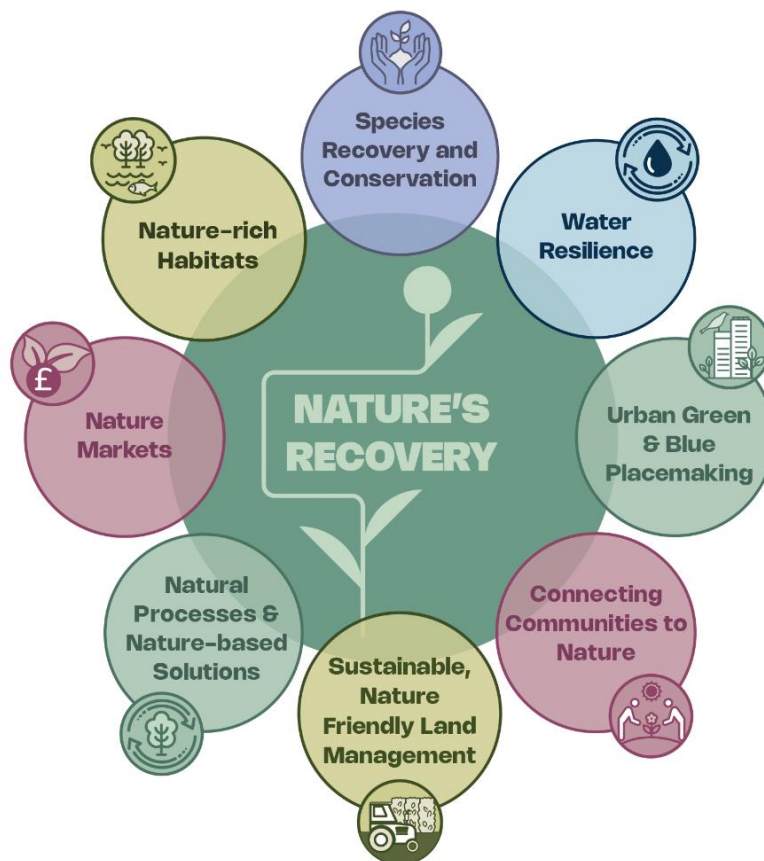


Figure 1: Warwickshire LNRS's Overarching Themes

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

The Overarching Themes and their Priorities to be taken forward by the actions within the strategy are as followed:

Nature-rich Habitat



Nature-rich Habitats

Warwickshire can make meaningful and significant contributions to support the international and government 30 by 30 targets¹ plus those in the Environmental Improvement Plan (EIP). We already celebrate and value existing nature rich habitat be it on designated sites, temporary incentivised management prescriptions, gardens and farms having comprehensively collated and mapped assets since 1997. From this data, scientific modelling and local knowledge we have identified and mapped opportunities for biodiversity to grow the essential building blocks that will enable nature to thrive in a connected landscape. For example, our connectivity modelling has and can be used to identify green bridges and underpasses at critical locations to defragment road and rail infrastructure at specific locations. We will also look to safeguard these habitats, through the promotion of biosecurity measures to prevent and control invasive species as well as appropriate, meaningful and proportional policies and strategies. We will also look to create nature rich habitats to enhance and strengthen ecological corridors at local levels, such as hedgerows, and at the landscape scale, such as the ‘Meriden Gap’ that separates Coventry from Solihull.

Priorities: Warwickshire will identify, conserve, create, restore, enhance and maintain nature-rich habitats at scale to create resilience and connectivity.

Species Recovery and Conservation



Species Recovery and Conservation

Through extensive amateur and professional expert engagement we have identified key and species priorities that need more than well managed nature rich habitat to thrive, i.e. species that require specific actions or requirements. These species could be ones that are holding on in the county, special to Warwickshire or have recently moved in. We will also enable a ‘warm welcome’ to those species that are at our boundaries and support any reintroductions within neighbouring Local Nature Recovery Strategies or national programmes. Within Warwickshire we will look to support those species reintroduction programs listed in this strategy. We have and will continue to map specific action areas through existing Nature Improvement Area responsibilities and created Species Action Areas where more direct actions will be targeted.

¹ <https://www.gov.uk/government/publications/criteria-for-30by30-on-land-in-england/30by30-on-land-in-england-confirmed-criteria-and-next-steps#confirmed-criteria-for-30by30-on-land-in-england>

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Priorities: Warwickshire will identify bespoke opportunities and actions in combination with the nature-rich habitat actions to support the recovery, establishment or re-establishment of species priorities and those that have the potential for reintroduction.

Water Resilience



Water Resilience

Warwickshire faces growing flood risk, poor water quality, and biodiversity loss driven by land use pressures, ageing infrastructure, and climate change. While flooding is the immediate concern, future climate-driven drought and water shortages could threaten food security and economic growth. These impacts hinder sustainable development, harm public health, and degrade quality of life and natural habitats. Without a functioning hydrological system on all watercourses as well as maximising rainwater harvesting techniques

Warwickshire will continue to experience human, plant and animal health issues that will significantly affect the local and national economy.

Priorities: Warwickshire will deliver a catchment that is resilient to climate and nature-related water risks delivering tangible benefits for Nature, People, and the Economy. It will identify sustainable and holistic land and water management interventions which tackle water security challenges including flooding, water quality and water availability across the catchment.

Urban Green and Blue Placemaking



Urban Green & Blue Placemaking

Nature plays an integral role in shaping and defining where and how we live. The Warwickshire Director of Public Health Annual Report 2024² focused on the built and natural environment and recommended promoting the health and wellbeing benefits of the natural environment to improve community access and use of rural and urban green spaces across Warwickshire. Having biodiversity on our doorstep and accessible nature-rich greenspace within 15 minutes of stepping out of our homes is vital to our health and wellbeing³.

These spaces also help combat climate change and urban heat island effects. In addition, watercourses and canals also play important roles in shaping our towns and villages, evident as namesakes, e.g. Royal Leamington Spa and Stratford-on-Avon. Often integrated with parks and nature reserves, these blue infrastructure features enhance urban environments, support biodiversity, and bring vitality to community spaces.

Priorities: Warwickshire will promote access for all to nature through existing greenspace to address health inequalities. We will identify areas of nature deficiency and encourage new areas of green spaces in urban and peri-urban areas. We will map green and blue corridors to connect urban green spaces together as well as the wider countryside to encourage wildlife into our urban fabric and conurbations over the border. We will also promote nature-friendly developments and

² [Director of Public Health annual report 2024 – Warwickshire County Council](#)

³ [Green Infrastructure Standards for England Summary](#)

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
Part 1			Part 2		Part 3

projects that seek nature-based solutions such as the reopening of culverts be they voluntarily or mandatorily through appropriate, meaningful and proportional policies within spatial strategies.

Connecting Communities to Nature



Connecting Communities to Nature

A population that has a close relationship with nature and recognises their shared futures will greatly improve our ability to take meaningful action on the climate and improve the future for wildlife. Nature needs people and organisations that take the challenge of transforming the human relationship with nature seriously. Benefits of being connected with nature include, improved mental wellbeing, more pro-environmental behaviours, greater vitality and happiness, more pro-nature conservation behaviours, more satisfied with life and a greater meaning and purpose in life⁴. The Warwickshire

Director of Public Health Annual Report 2024⁵ recommended that community-based services and amenities actively tackle social isolation, improve social connectivity and enable individuals and groups to take an active part in society. Another way for communities to connect with nature is social accountability by having an active role in decision making and the future of the nature that surrounds them.

Priorities: Warwickshire will advocate putting social accountability at the heart of decision-making by actively involving existing and future local communities in nature recovery projects. We will promote the environmental education, events and practical activities to raise awareness about the importance of nature recovery and the benefits it gives us to help us reach our targets and we will facilitate and support citizen science initiatives to help us monitor them. We will enable and empower local nature groups and organisations to assist in this role. We will build on the new and existing partnerships with universities, local authorities, environmental Non-Government Organisations, farm clusters, and other relevant stakeholders to foster a collaborative approach to nature's recovery. We will promote active involvement of businesses in practical support through social responsibility and through engaging with local community projects.

Sustainable, Nature-Friendly Land Management



Sustainable, Nature-Friendly Land Management

Sustainable farming practices that enhance soil health and biodiversity with minimising environmental impacts is critical for Warwickshire's nature recovery. This includes increasing habitat and features for pollinators and wider farmland bird assemblages. As farming is critical to the county's economy all biodiversity priorities must be considered alongside food security, production and profitability. Environmental farm advisors cover the whole of the county who promote and encourage the establishment of farm

⁴ University of Derby, The Nature Connection Handbook, 2022

⁵ [Director of Public Health annual report 2024 – Warwickshire County Council](#)

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

clusters to enable landowners to share good practice and attract significant green investment.

Priorities: Warwickshire will support farmers and landowners to adopt and advocate good soil health, the importance of biosecurity, pollinators and other good farm and farmyard management practices, such as pollution pathway management, to support biodiversity. We will encourage sustainable riparian management along watercourses. Warwickshire will also promote the research, investment and use of new innovative technological advances that has demonstrable environmental benefits encouraging sustainable intensification alongside increased biodiversity. We will work with the Warwickshire RuralHUB and environment farm advisors plus other existing partnerships and organisations that support sustainable farm practices to enhance farmland for nature recovery.



Natural Processes & Nature-based Solutions

Natural Processes and Nature-based Solutions

Enabling Warwickshire's landscape to function naturally, such as through natural colonisation and regeneration, has been demonstrated as the most successful mechanism to deliver nature-rich habitats. While these approaches may take time and often conclude once the desired habitat is achieved, they support long-term ecological resilience. Natural processes like hydrological flow and nutrient cycling can be enhanced through nature-based solutions, such as allowing floodplains to flood or planting woodlands in upper

catchments to retain water. These interventions help restore the landscape's natural balance and functionality. Wherever possible, nature-based solutions should be prioritised over hard engineering, offering more sustainable and adaptive outcomes.

Priorities: Warwickshire will advocate naturally functioning landscapes through by restoring natural processes and utilising nature-based solutions to support resilience against both ecological and for projected climate change impacts.

Nature Markets



Nature Markets

The previous funding models have failed to recover nature, and the cost of inaction is clear, for example flooding has significant immediate and long-term economic costs and undermines economic growth. A new approach is required to complement the existing grants, incentives and philanthropic mechanisms to deliver nature projects in Warwickshire. Establishing Nature Markets through the blending of public and private finance through green investment is this new approach. Warwickshire has gained extensive knowledge and experience of establishing nature markets through

implementing Biodiversity Net Gain since 2012. A regulated Carbon Market is forming, and water markets are being explored within a Nature4Water project.⁶ The blending of regulatory markets with

⁶ <https://nature4water.org/>

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
Part 1			Part 2		Part 3

voluntary markets and environmental rewarding corporate responsibility partnerships is essential to support nature's recovery.

Priorities: Warwickshire will encourage the 'scaling up' of high integrity green investment to enact the actions detailed in this strategy and other nature recovery projects. We will build upon the Local Authorities Natural Capital Investment Strategy and support the establishment of other partnerships to attract investment and encourage corporate environmental responsibility - benefiting both wildlife and the businesses, particularly farming.

Climate Change Adaptation, Mitigation and Resilience

Organisations across Warwickshire have acknowledged a climate change emergency is upon us and made pledges to reduce their carbon impacts. The biodiversity emergency, which this strategy looks to address, is complementary and requires similar pledges and commitments from individuals, organisations and businesses across the county.

The themes, priorities and actions, and data modelling used to produce the maps have all been carefully developed with consideration for climate change addressing both mitigation and adaptation. Thereby, all supporting sectorial guidance documents to be produced to enhance this strategy will also be in consideration to the effects that climate change is having on our species and habitats.

In essence, this strategy's overarching aim to follow the Lawton Principle of "more, bigger, better and joined' will enable species to move through the county.

Alignment of the Warwickshire Local Nature Recovery Strategy

Overarching Principles with the Environmental Improvement Plan⁷ (EIP) goals

The LNRS is a comprehensive framework designed to enhance and restore natural habitats, promote biodiversity, and engage communities in environmental stewardship. By aligning its themes and overarching priorities with the EIP goals shown in Figure 2, the Warwickshire LNRS demonstrates a strong commitment to achieving a sustainable and resilient natural environment.

Table 1 shows this alignment and whilst the Warwickshire Local Nature Recovery Strategy (LNRS) aligns with many of the Environmental Improvement Plan (EIP) goals, not all EIP goals are fully addressed by the LNRS. Some EIP goals such as Goal 4: 'Managing exposure to chemicals and pesticides' and Goal 5: 'Maximise our resources, minimise our waste' are not directly addressed by the LNRS principles, but some actions may be indirectly linked.

⁷ <https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf>

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

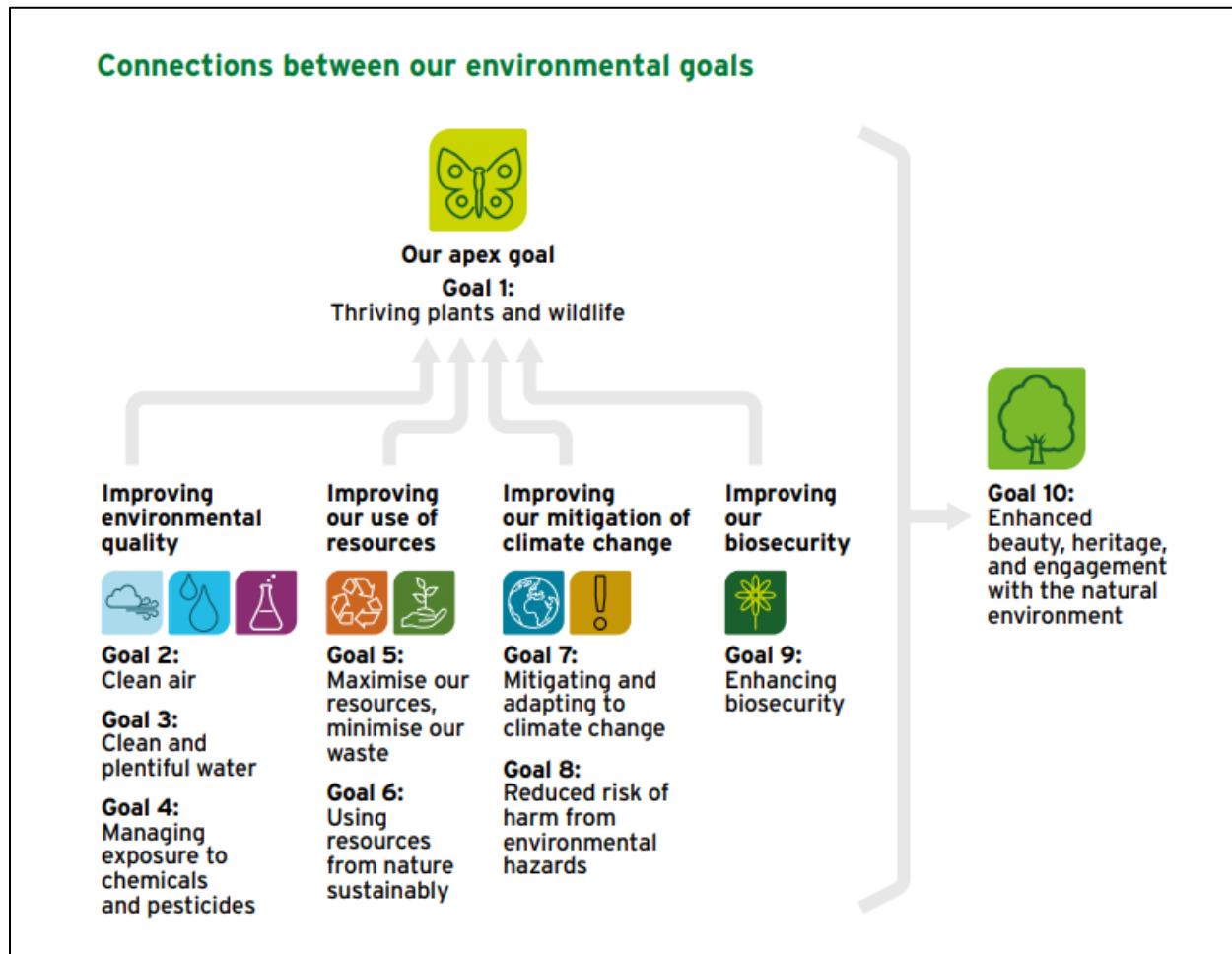


Figure 2. Diagram showing the Environmental Improvement Plan Goals and their connections

Whilst the LNRS contributes significantly to many environmental goals, a comprehensive approach involving additional strategies and policies is necessary to achieve all EIP goals.

Table 1. Warwickshire alignment with the Environmental Improvement Plan Goals

Warwickshire LNRS Themes	EIP Goals
Nature-rich Habitats	1, 2, 3, 6, 7, 8, 9, 10,
Species Populations	1, 7, 9, 10
Water Resilience	1, 3, 6, 7, 10
Urban Green and Blue Placemaking	1, 2, 5, 6, 7, 10
Connecting Communities to Nature	1, 6, 10
Sustainable, Nature-Friendly Land Management	1, 2, 3, 5, 6, 7, 8, 9, 10
Natural Processes and Nature-based Solution	1, 2, 3, 6, 7, 10
Nature Markets	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
------------------------	---------------------	--------	----------------------	---	--------------------

Habitat Priorities and Actions

The Warwickshire LNRS identifies a range of Habitat Priorities that will deliver the Themes identified: habitats essential for supporting biodiversity and ecosystem services. Each of these habitats play a crucial role in maintaining ecological balance, supporting species, and providing environmental and social benefits to our communities. Our approach focuses on conserving, creating, enhancing, and maintaining these habitats, and by connecting them together, to ensure their resilience at landscape scale. The Habitat Priorities and their associated Actions have been prepared with wide partnership engagement to ensure alignment with both local and national environmental objectives, existing plans and strategies, Local Biodiversity Action Plans (LBAPs) plus local groups and organisations to ensure that they meet each partner's objectives. In so doing the Warwickshire LNRS aims to support all partners in their campaigning, objective setting, funding bids and most importantly delivery on the ground.

The tables that follow show the 'habitat-focused' priorities and actions that can be mapped to various degrees on the Local Habitat Map. To view the priorities and actions for the Areas that Could Become of particular importance (ACB), visit the online map here [\[link\]](#):

The list below outlines Habitat Priorities in accordance with the LNRS guidance.

- **Habitat Priorities** are the key habitats in Warwickshire identified as being at risk or of particular importance for conservation focus.
- **Potential Actions** are the targeted, practical steps—referred to as 'measures' in statutory guidance, designed to support the recovery and protection of Habitat Priorities.

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
Part 1			Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
All Habitats  Connecting Communities to Nature  Sustainable, Nature Friendly Land Management Guidance: LNRS guidance Environment Improvement Plan Goals          	Encourage community engagement, education, natural play and other activities that benefit Natural Health and Wellbeing and the appreciation of the natural environment where they are sympathetic to the management or species objectives of the site.	Unmappable
	Encourage the uptake of Local Nature Action Plans currently being led by parish and town councils.	Unmappable
	Encourage the development of regulatory and voluntary Nature Markets and Farm Assurance Schemes that are of High Integrity and adhere to relevant British Standards Institute standards.	Unmappable
	Promote the control of invasive species to enable native species to thrive and preserve their genetic heritage.	Unmappable
Built Environment  Nature-rich Habitats  Species Recovery and Conservation  Water Resilience  Urban Green & Blue Placemaking  Natural Processes & Nature-based Solutions  Nature Markets Guidance: Urban & Built Environment Environment Improvement Plan Goals       	Identify, create, enhance and maintain nature-rich green and blue space and other nature opportunities (such as public parks and public green spaces, avenues, raingardens, green roofs and living walls) within urban and peri-urban environments to maximise biodiversity benefits for people and bring wildlife into urban centres.	Unmappable
	Encourage new developments to make meaningful, positive contributions to nature and nature's recovery on and above those required under planning and other regulations.	Unmappable
	Encourage the retrofitting of nature-based solutions and other wildlife friendly measures into existing urban and peri-urban areas.	Unmappable
	Encourage wildlife friendly gardening to assist in maximising the benefits of nature for people and bring biodiversity into urban centres or contribute to rural ecosystem service functioning (such as pollinators).	Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
Roadside Verges    Nature-rich Habitats Species Recovery and Conservation Urban Green & Blue Placemaking Guidance: Roadside Verges Environment Improvement Plan Goals      	Conserve, create, enhance, and maintain nature-rich road verges and streets to act as ecological oases and corridors through both rural and urban environments. Native species are to be promoted in rural areas whereas pictorial mixes may be considered appropriate within urban settings.	Unmappable
Sacred Grounds and Memorial Sites     Nature-rich Habitats Species Recovery and Conservation Urban Green & Blue Placemaking Connecting Communities to Nature Guidance: Places of Worship Environment Improvement Plan Goals    	Create, enhance, and maintain nature-rich sacred grounds (including places of worship, burial grounds etc.) and memorial sites in ways that supports biodiversity.	Unmappable
Farmland & Horticulture (excluding Grassland)      Nature-rich Habitats Species Recovery and Conservation Water Resilience Sustainable, Nature Friendly Land Management Urban Green & Blue Placemaking Guidance: Farmland & Horticulture Environment Improvement Plan Goals        	Encourage nature friendly, sustainable, and environmental farming practices that reduce the impacts of intensive farming and increase the biodiversity value of farmland. Actions include establishment and proactive management of nature-rich headlands, in-field trees, flora plots and pollen and nectar mixes plus reduced reliance on the use of chemicals.	Unmappable
	Promote best practice to create, enhance and maintain healthy soils, through maintaining a natural biological, chemical and physical balance.	Unmappable
	Identify, conserve, and manage above and below ground archaeological and historic monuments and features (such as tythe barns, ridge and furrow and barrows) though nature-rich habitat enhancements and management practices.	Unmappable
	Encourage tree planting, where appropriate, to increase canopy cover in farmland including by means of 'agroforestry' or by planting small copses or trees within existing hedgerows.	Priority Woodland Creation Areas

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
Grassland (Acid, Calcareous & Neutral)       Guidance: Grasslands Environment Improvement Plan Goals    	Encourage the conservation of existing nature-rich habitat through secured management plans and appropriate policies in spatial strategies focusing on the important grassland types to any particular area. Identify, create, restore, enhance, and maintain nature-rich grassland prioritising those in strategic areas or would make significant contributions to nature's recovery.	Existing Acidic Grassland Existing Calcareous Grassland Existing Semi-Improved Grassland Existing Acidic Grassland Existing Calcareous Grassland Existing Semi-Improved Grassland Priority Grassland Creation Areas
Floodplain Meadows        Guidance: Floodplain Meadows Environment Improvement Plan Goals     	Encourage the conservation of existing nature-rich floodplain meadows through secured management plans and appropriate policies in spatial strategies. Identify, create, restore, enhance, and maintain nature-rich floodplain meadows prioritising those that reconnect the watercourse to the floodplain and make significant contributions to nature's recovery.	Unmappable Priority Areas for Floodplain Meadow Creation
Lowland Heathland     	Encourage the conservation and buffering of existing lowland heathland through secured management plans and appropriate policies in spatial strategies focusing on the important grassland types to any particular area. Identify, create, restore, enhance and maintain lowland heathland.	Existing Lowland Heath Existing Lowland Heath

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
  Natural Processes & Nature-based Solutions Nature Markets Guidance: Lowland Heathland Environment Improvement Plan Goals 	Expand and connect ericaceous vegetation/ heathland and also associated habitats such as mire, acid grassland and boggy woodland.	Existing Lowland Heath Priority Grassland Creation Areas
Watercourses & Canals        Guidance: Watercourses & Canals Environment Improvement Plan Goals 	Expand, restore, enhance, and maintain riparian habitat to improve water quality through secured management plans and appropriate policies in spatial strategies. Promote industry good practice to reduce pollution events, such as through re-routing or retrofitting nature-based solutions or pollution traps. Restore, enhance, buffer, and maintain watercourses to improve their morphology, substrate, aquatic vegetation to bring all watercourses towards at least 'good' Water Framework Directive standards. Promote, encourage, and restore natural flow regimes, re-naturalisation and enable natural flood management and natural flood alleviation measures. Increase watercourse connectivity through the removal of artificial barriers and, where restoration of natural function is not feasible, implement fish, eel and lamprey etc passages. Restore, enhance, and maintain canals to improve their aquatic vegetation and marginal habitat especially along hard engineered banks.	Existing Rivers, Ditches and Watercourses Canals Existing Rivers, Ditches and Watercourses Canals Existing Rivers, Ditches and Watercourses Canals Priority Areas for Floodplain Reconnection and Restoration Priority Areas for Floodplain Reconnection and Restoration Leaky barrier River Obstacles Canal

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
Ponds, Scrapes and Reedbeds        Guidance: Ponds, Scrapes & Reedbeds Environment Improvement Plan Goals     	Conserve, create, enhance, and maintain existing nature-rich ponds, scrapes, reedbeds and other wetland habitat including on disused mineral excavation sites or as part of restoration schemes and through secured management plans and appropriate policies in spatial strategies. Identify and restore existing ponds and ghost ponds (where it would not be detrimental to other priority or important species or habitat). Promote sensitive management and industry good practice to reduce pollution.	Ponds, pools and scrapes Ponds, pools and scrapes Ponds, pools and scrapes
Standing Water, Lakes and Reservoirs     Guidance: Standing Water, Lakes & Reservoirs Environment Improvement Plan Goals       	Encourage the use of nature-based solutions for rainwater harvesting, whether through new or existing lakes and reservoirs, regardless of whether these water bodies are intended for drinking water or agricultural use, by ensuring they are designed and managed in ways that also benefit nature.	Unmappable
Traditional Orchards      Guidance: Traditional Orchards Environment Improvement Plan Goals    	Encourage the conservation of existing traditional orchards through secured management plans and appropriate policies in spatial strategies. Create, restore, enhance, and maintain traditional orchards and promote or encourage them to meet the People's Trust for Endangered Species Grade 1 condition.	Existing Traditional Orchard Existing Traditional Orchard

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
Part 1			Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
Ancient Woodlands  Guidance: Woodlands & Ancient Woodlands Environment Improvement Plan Goals 	Restore, enhance, and maintain existing Ancient Woodland, Ancient Semi-Natural Woodland (ASNW) and Plantations on Ancient Woodland Sites (PAWS). Including the restoration of PAWS to more natural woodland conditions where appropriate. Encourage natural regeneration to create buffer zones and sites beside ancient woodland to retain local provenance	Existing Ancient Woodlands Existing Ancient Woodlands
Woodland (newly created, plantation & commercial)  Guidance: Woodlands & Ancient Woodlands Environment Improvement Plan Goals 	Encourage the conservation of existing nature-rich woodland through secured management plans and appropriate policies in spatial strategies. Create, restore, enhance, buffer, and maintain woodland to maximise its nature potential, through increasing structural and species diversity and the control of invasive non-native species (including grey squirrel and deer), prioritising those that would make significant contributions to nature's recovery and sites which will reconnect woodlands. Identify and encourage woodland creation sites, prioritising historic woodland sites and where they would improve woodland connectivity using species that are resilient to climate change and conform to the Warwickshire Landscape Guidelines where the creation site is located. Establish and promote local markets for woodland produce from woodlands that evidence their commitment to the nature's recovery focusing primarily on nature semi-natural ancient and other broad-leaved woodlands.	Existing Woodland Existing Woodland Priority Woodland Creation Areas Floodplain reconnect and restoration Priority Woodland Creation Areas Existing Woodland Floodplain reconnect and restoration Priority Woodland Creation Areas
Wet Woodland	Encourage the conservation of existing nature-rich wet woodland through secured management plans and appropriate policies in spatial strategies.	Wet woodland

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
------------------------	-------------------------------	--------	----------------------	------------------------------------	--------------------

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
       Guidance: Woodlands & Ancient Woodlands Environment Improvement Plan Goals 	Create, restore, enhance, and maintain wet woodland to maximise its nature potential, prioritising those in strategic creation areas or would make significant contributions to nature's recovery. Identify and encourage wet woodland creation sites prioritising sites that will improve the water quality of any hydrologically connected watercourse.	Wet woodland Priority Areas for Floodplain Reconnection and Restoration Priority Woodland Creation Areas Priority Areas for Floodplain Reconnection and Restoration
Wood Pasture and Parkland       Guidance: Wood Pasture & Parkland Environment Improvement Plan Goals 	Encourage the conservation of existing Wood Pasture and Parkland⁸ through secured management plans and appropriate policies in spatial strategies. Create, restore, enhance, and maintain Wood Pasture and Parkland to maximise its nature potential, prioritising those in strategic areas or would make significant contributions to nature's recovery. Identify and encourage Wood Pasture and Parkland creation sites prioritising historic sites and where they would improve woodland or grassland connectivity using species that are resilient to climate change and conform to the Warwickshire Landscape Guidelines where the creation site is located.	Wood Pasture & Parkland Wood Pasture & Parkland Priority Woodland Creation Areas Wood Pasture & Parkland Priority Woodland Creation Areas
Ancient and Veteran Trees    Guidance: Ancient & Veteran Trees Environment Improvement Plan Goals 	Identify, conserve, and maintain existing and future Ancient and Veteran Trees through secured management plans and appropriate policies to maximise their nature potential. Maintain genetic provenance of Warwickshire Ancient and Veteran trees through seed collection and cuttings	Areas Particular Importance for Biodiversity (APIB) Unmappable

⁸ These locations are derived from historic environment and local habitat datasets and not taken from the National Forestry Inventory

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
	Part 1		Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
Scrub    Nature-rich Habitats Species Recovery and Conservation Natural Processes & Nature-based Solutions Guidance: Scrub Environment Improvement Plan Goals     	Create, restore, enhance, and maintain scattered and dense scrub to maximise its nature potential, prioritising those where they make significant contributions to nature's recovery.	Unmappable
Hedgerows      Nature-rich Habitats Species Recovery and Conservation Urban Green & Blue Placemaking Sustainable, Nature Friendly Land Management Natural Processes & Nature-based Solutions  Nature Markets Guidance: Hedgerows Environment Improvement Plan Goals      	Encourage, create, restore, enhance, and maintain species-rich hedgerows prioritising those that link existing habitat together, contain standard trees and are managed to compliment other nature benefit management objectives (such as pollinators, species priorities and assemblages).	Hedgerows
Open Mosaic Habitat    Nature-rich Habitats Species Recovery and Conservation Urban Green & Blue Placemaking Guidance: Open Mosaic Habitat Environment Improvement Plan Goals   	Encourage the conservation of existing Open Mosaic Habitat through secured management plans and appropriate policies in spatial strategies. Create, restore, enhance, and maintain species-rich Open Mosaic Habitat, particularly on disused mineral excavation sites or their restoration.	Open Mosaic Habitat Open Mosaic Habitat

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
Part 1			Part 2		Part 3

Priority Habitat and Themes	Potential Actions	Key Action Areas (Linked to LNRS Mapping) LNRS
Quarries, stone walls, rock, stone habitat   Guidance: LNRS guidance Environment Improvement Plan Goals   	Conserve, restore, enhance, and maintain existing old quarries and areas of rock/cuttings that are nature-rich and does not conflict with any geological interest.	Unmappable

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
Part 1			Part 2		Part 3

Species Priorities List

Warwickshire is home to many notable, threatened and near-threatened species and require significant habitat improvements, increased connectivity, and the creation of new habitats to facilitate their population recovery and expansion. The Warwickshire LNRS's Habitat Priorities and associated actions will inherently support these species. By implementing these actions, we can establish a more extensive, interconnected, and ecologically valuable network of habitats across Warwickshire and neighbouring LNRSs which will benefit a broad range of species.

However, some species need more targeted conservation efforts beyond general habitat-based actions. These are grouped as:

- **Species Priorities:** Individual species in Warwickshire that are at risk or of particular conservation importance.
- **Priority Assemblages:** Groups of species that share similar habitat needs and face similar threats, allowing them to be addressed collectively.

Each Species Priority or Species Assemblage is supported by one or more **Actions**—targeted, practical steps designed to aid their recovery and long-term viability. These actions are usually bespoke and go beyond the general habitat actions provided for Habitat Priorities, ensuring that the specific needs of these species or groups are met.

The tables below includes:

- **17 Species Priorities** identified for Warwickshire,
- **16 Priority Assemblages** of associated species for Warwickshire, and
- **3 Species for Potential Reintroduction or Translocation** within Warwickshire.

The methodology used to select these species is detailed in LNRS Appendices.

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
---	--------------------------------	---	--------------------

Species Priorities

Species (<i>latin name</i>)	Species Detail and Background	Actions that will be promoted and encouraged	Key Action Areas (Linked to LNRS Mapping)
Bittern (<i>Botaurus stellaris</i>)	Bittern are regular winter visitors to Warwickshire, but their breeding numbers remain low. To improve this, we need to focus on managing and enhancing their habitat, particularly reed beds, to encourage breeding. Current efforts include improving reedbed habitat at Brandon Marsh Site of Special Scientific Interest (SSSI), creating deeper pools where they can hunt and breed and at Middleton Lakes, on the Staffordshire border. The Species Recovery Programme Fund is currently funding a project for Bittern in Warwickshire targeting actions to ensure its survival. Bitterns are also included in several neighbouring Responsible Authorities' LNRS's highlighting the regional importance of their conservation.	• Increase Fish Populations: Enhance fish stocks in wetlands to provide a reliable food source for Bitterns. • Create, Manage and Enhance Reedbeds: Develop and restore reedbed habitats to create suitable breeding and feeding grounds. Including practices such as lowering reedbeds at risk from drying out and managing the reed structure to achieve diversity within the reedbed (aiming for no more than 30 per cent being older than 7 years and no more than 5 per cent of the area being scrub). Manage the reedbed through cyclical cutting of different sections of reed over time and regularly remove willow.	Unmappable
Black poplar (<i>Populus nigra</i>)	The Black Poplar is Britain's rarest native timber tree. In Warwickshire, most specimens have been deliberately planted, including in urban parks and streets. Some of the oldest rural trees may be descendants of naturally occurring ones. Since 2005, the 'Big Tree Hunt' has significantly increased the number of recorded specimens from 30 to nearly 600, one of the highest figures for any county.	• Establish a tree nursery: for growing local provenance black poplar with the intention of increasing the number of trees (in particular females) in Warwickshire. • Increase the numbers of black poplar in Warwickshire by planting new specimens, preferably using those established in a Warwickshire tree nursery. • Retain dead and dying poplars: where feasibly possible and don't remove or burn deadwood.	Black Poplar Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
	About a third of our trees are within floodplains, with important concentrations of mature trees occurring along parts of the River Blythe, River Tame, River Alne, lower River Avon and the lower River Dene. Notable specimens can be seen at Coombe Country Park and the Moathouse Car Park in Stratford-upon-Avon. Despite this, only about 20 female trees have been confirmed.			
Brown Hairstreak <i>Thecla betulae</i>	The brown hairstreak butterfly, a rare species in the UK, is experiencing a promising spread from a population in Oxfordshire. As a neighbouring county to Oxfordshire, Warwickshire plays a crucial role in supporting the expansion of this species. The main threat to the brown hairstreak is the poor management or removal of mature blackthorn habitats, which are essential for their survival. These butterflies benefit from long-term habitat restoration and the creation of sheltered (but unshaded) stands of blackthorn, which should be allowed to grow to about 5 meters in height. Populations do not readily spread away from blackthorn, so connecting habitats is key to their expansion. In Warwickshire, the brown hairstreak has been rediscovered in the Princethorpe area and the Heart of England Forest, with populations spreading in both areas. Conservation efforts in Warwickshire are vital to ensure the continued expansion and survival of this species.	• Retain Existing Blackthorn Thickets: Preserve current thickets of blackthorn and mature hedges containing blackthorn. • Plant New Blackthorn: Establish new thickets and hedgerows with blackthorn. • Manage and Coppice: Implement management and coppicing routines for hedges, trees, and thickets suitable for the species. • Increase Habitat Connectivity: Enhance connectivity by creating and extending stands, trees, and hedgerows with blackthorn to link existing areas. Develop wide rides, glades, and scrub edges in and around woodlands. • Correct Hedgerow Management: Manage blackthorn-rich hedgerows with a rotational cutting cycle of 3 years (or 4-5 years if necessary). • Citizen Science: Utilise citizen science for recording and mentoring efforts. • Establish New Orchards: Create new orchards as it is a useful habitat for the species. Blackthorn is the primary food plant, but fruit trees are also utilised.	Unmappable	

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes	Priorities	Habitat Actions Species Actions	Delivery Part 3
Common Lizard <i>Zootoca vivipara</i>	The Common Lizard is a severely declining species in the Warwickshire Strategy Area. They are found in various habitats, including heathlands, grasslands, and woodlands. However, their populations have been dwindling due to habitat loss and fragmentation.	• Safeguard and appropriately manage key habitats such as Baddesley Common and Kenilworth Common. • Maintain railway lines and other corridors to ensure they remain viable pathways for lizard movement. • Expand suitable habitat on adjacent to corridors and know recent records			Common Lizard Action Areas
Eurasian Curlew <i>Numenius arquata</i>	The Curlew is critically endangered and highly dependent on wet grassland and marsh for breeding and feeding. In Warwickshire, the species faces severe challenges due to habitat loss and degradation and predation of fledgelings. As of 2024, only five pairs were identified in the Strategy Area, highlighting the urgent need for conservation efforts. Fencing techniques have proven successful in supporting curlews to hatch chicks with a good success rate in neighbouring Counties. Warwickshire's farmers, nature recovery organisations, and volunteers should continue to adopt and support these methods to aid in the recovery of curlew populations.	• Fencing: Erect protective (electric) fencing around known nests to prevent disturbance and predation. • Conservation Grazing: Apply appropriate conservation grazing practices to maintain suitable habitat conditions for Curlews. • Predatory Control: to increase adult and chick survival rates • Expand suitable habitat: to increase breeding areas and increase breed success as well as increased breeding pairs.			Curlew Action Areas
Eurasian otter <i>Lutra lutra</i>	Otter is recovering well within the Strategy Area but there are hot spots where road traffic collisions (specifically where roads cross watercourses) are causing high incidents of mortality.	• Retrofit mammal ledges: at known road-watercourse intersections to reduce road traffic accidents. • Erect fences alongside roads to direct otters to safe crossing points			Otter Action Areas
European Beaver <i>Castor fiber</i>	While beavers are not currently found in Warwickshire, their natural arrival is feasible due to dispersal from established populations elsewhere in the UK.	• Enhance riparian habitats: to support the natural arrival and spread of beavers. Allow natural revegetation of buffer zones next to watercourses to provide space for beavers to forage, build dams			Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
	Beavers play a pivotal role in the restoration of riverine habitats and the enhancement of ecosystem health. Their activities, including dam construction and wetland creation, foster a diverse range of wildlife, establishing them as a keystone species. This strategy endorses the natural arrival of beavers, ensuring their integration into the local environment is appropriate. Key initiatives should focus on engaging with landowners, managing potential conflicts, and monitoring the impacts of beavers on the landscape.	and create wetlands. Suitable habitats include a mix of woodlands, trees, shrubs, grasses, and water-dependent vegetation. • Encourage beavers to settle in locations that offer significant ecological benefits: including improved ecosystem structure, hydrology, water quality, and freshwater ecology. • Plant suitable tree species that coppice easily: for example, willow, aspen, poplar to encourage beavers to settle in suitable locations. • Raising Public Awareness: Educate the public about the benefits of beavers and their role in natural flood management (NFM). • Engage landowners: in supporting return of beavers to the county and support a system to address any conflicts that may arise in the future.	
Hazel dormouse <i>Muscardinus avellanarius</i>	Despite their expected presence in large, deciduous, semi-natural woodlands in the Strategy Area, dormice are known only in a few sites. Efforts to reintroduce dormice began in 1998 with 65 individuals introduced to Bubbenhall Wood. Surveys in 1999/2000 found dormice in Brandon Wood and four other isolated locations. Subsequent introductions in 2009-2010 at Windmill Naps and in 2012 at Alne Wood have shown mixed success. Further releases in 2017 and 2018 aimed to restore habitat continuity through the Dunsmore Living Landscape Partnership Scheme. There has been successful natural breeding, retaining the population. Despite these efforts, dormice are struggling to expand from the relocation areas,	• Appropriate hedgerows management-: to allow existing populations to expand (increasing landscape connectivity). • Coppicing and thinning of regenerating woodland: Regular coppicing and thinning help maintain a dense understorey and create a mosaic of different habitat types and ages, ensuring continuous food supply and nesting sites. Keep some standards throughout the woodland. • Deer management: Manage deer populations to prevent overgrazing or implement ways to protect young trees and shrubs from deer browsing, ensuring the growth of a diverse and dense understorey. • Monitoring: continue to maintain knowledge of the population and breeding success.	Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
	highlighting the need for continued conservation focus.				
Hedgehog <i>Erinaceus europaeus</i>	Hedgehogs will benefit from general habitat improvements such as hedgerow creation and appropriate land management, as well as nature-friendly farming techniques. However, bespoke actions are essential to support hedgehogs in urban and semi-urban areas, where they face unique challenges.			● Promote Wildlife-Friendly Gardening: ○ Reduce the use of pesticides. ○ Provide 'untidy' areas in gardens. ○ Create compost, log, and leaf piles. ○ Ensure ponds are not steep-sided or have ramps to allow hedgehogs to climb out. ○ Encourage allotments to retain hedgerows and shelter areas ● Increase Habitat Permeability: Promote the creation of 'hedgehog highways' (13cm x 13cm holes in fences). These should be listed as a planning condition on new-build sites. ● Professional Guidance: Ensure greenspace managers, landscapers, and other professionals receive specific guidance or training on hazards, mitigation, and appropriate timings for habitat clearance. ● Public Awareness: Educate public on needs of hedgehogs and the simple actions to maintain and expand populations.	Hedgehog Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions Part 3	Delivery Part 3
Lesser horseshoe (<i>Rhinolophus hipposideros</i>)	The lesser horseshoe bat is rare in the British Isles, primarily found in Wales, western England, and western Ireland. In Warwickshire, these bats are at the northernmost edge of their range in the UK. They are particularly sensitive to disturbance, especially at their maternity and hibernation roosts. This species will benefit from general habitat improvements and increased connectivity between habitats but conservation efforts for lesser horseshoe bats should focus on protecting their roost sites and ensuring the availability of suitable feeding habitats.	• Identify, safeguard, manage and create suitable habitat around maternity roosts within the Core Sustenance Zone (CSZ); such as broadleaved woodland, wooded riparian corridors, as well as along mature tree lines and tall hedgerows that have associated hedge margins that support prey insects. • Identify, safeguard and/or create suitable hibernation roosts; to secure populations and enhance colonisation.	Lesser horseshoe Action Areas
Osprey (<i>Pandion haliaetus</i>)	Ospreys are visitors to Warwickshire, using known migratory pathways through the region. They occasionally stop to hunt in the area's wetlands and reservoirs. Despite the presence of potentially suitable habitats, Ospreys are not known to breed in Warwickshire. Conservation efforts should focus on encouraging Ospreys to breed within the Strategy Area.	• Install nest platforms: in suitable locations near large waterbodies and other suitable habitat.	Unmappable
Slow worm (<i>Anguis fragilis</i>)	The slow worm is a declining species in Warwickshire, facing challenges from habitat fragmentation and loss. Slow worm will benefit from general habitat improvements such as appropriate grassland and	• Raise awareness: of the importance of gardens and allotments for wildlife • Promote Wildlife-Friendly Gardening: ○ Promote creation of wildlife ponds in gardens and allotments ○ Avoid using pesticides	Slow worm Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions Part 3	Delivery Part 3
	woodland management and creation. However, bespoke actions are essential to support slow worm in urban and semi-urban areas, where they face unique challenges.	○ Create compost heaps / rotting vegetation/ brash	
Snipe (<i>Gallinago gallinago</i>)	The snipe, listed on the UK Amber List of Birds of Conservation Concern is declining markedly throughout the county and is experiencing a significant decline in Warwickshire due to habitat loss Whilst this species will benefit from general wetland management and improvements, bespoke actions are required to help this species thrive. Snipe is also a species priority in neighbouring RAs, highlighting the regional importance of their conservation.	● Appropriate Habitat Management: Implement suitable cattle grazing practices to maintain optimal ground conditions. ● Maintain Water Tables: Ensure water tables are within 20cm of field level throughout the breeding season to provide soft, damp soils.	Snipe Action Areas
Water vole (<i>Arvicola amphibius</i>)	Water voles have experienced drastic declines in England. By 2010, water vole numbers in Warwickshire had plummeted by up to 95%, with fragmented colonies primarily in the Coventry/Nuneaton area and a few isolated colonies elsewhere. However, by 2018, the situation had improved due to mink displacement by otters and targeted habitat enhancements. Water voles have since expanded their range along the Coventry and Oxford canals, with significant populations at the Hawkesbury and Marston junctions. The isolated population on Noleham Brook remains, and extending the potential Local Wildlife Site at Long Marston could further aid their dispersal.	● Monitor and Reduce Mink Numbers: Monitor mink distribution and reduce their numbers to lessen their impact on water vole and other native wildlife. ● Reduce Livestock Grazing: Fence off buffer zones of 2m or more from the water's edge to reduce trampling. Create designated livestock drinking areas or use off-stream watering troughs or pasture pumps. ● Control Trees and Scrub: Manage the number of trees and scrub along waterways to prevent them from dominating the banks or overshadowing vegetation that water voles rely on for food and shelter. ● Habitat Management: If required, cut bankside vegetation on a two-year rotation (or longer), leaving one bank uncut each year. Cutting should take place in late summer, from late September.	Water vole Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions Part 3	Delivery Part 3
	The Species Recovery Programme Fund is currently funding a project in Warwickshire aimed at ensuring the survival of water voles. Conservation efforts, including reconnecting fragmented populations and extending potential Local Wildlife Sites, are crucial for their continued survival.	De-silt ditches on a five-year rotation, avoiding machinery that could crush fragile banks. • Encourage Grassy Buffer Strips: Create buffer strips of 4-6m wide along watercourses, ditches, and in-field ponds, especially along intensively managed grassland or cultivated fields. • Remove Redundant Hand Engineered Embankments: To allow water voles to dig burrows and for vegetation to grow. • Soften Engineered Embankments: Establish vegetation along hard engineered embankments to give food plants and access to and from canals.	
White clawed crayfish (<i>Austropotamobius pallipes</i>)	The UK is home to approximately a quarter of the world's population of white-clawed crayfish, the country's only native crayfish species. However, it is under threat due to the spread of invasive non-native crayfish, which are driving native crayfish towards extinction through the spread of crayfish plague and competition for resources (refuges in particular). Ensor's Pool in Nuneaton, a Special Area of Conservation, was once a notable site for white-clawed crayfish but surveys in 2014 and 2015 found no native crayfish, likely due to non-native crayfish infection. In Warwickshire, white-clawed crayfish are only surviving in very localised areas and are vulnerable to extinction. Key locations include the River Alne and its tributaries, the Coventry Canal, and possibly Newbold Quarry. Populations may also exist in several other rivers and at Middleton Hall.	• Strategic Approach: Develop a regional strategy to retain the species – including reintroduction / translocation actions (see Potential Reintroduction/ Translocations table below). • Implement Biosecurity Actions: Control crayfish plague by promoting the 'Check Clean Dry' biosecurity campaign at all known, white-clawed crayfish sites. • Control Invasive Signal Crayfish: Implement actions to control the population of invasive signal crayfish if suitable techniques emerge. • Disease Control: Focus on controlling crayfish plague through community and angler awareness of biosecurity actions. • Prioritise Habitat Needs: Ensure consistent, steady flows of good quality water. Offer numerous natural (or artificial where appropriate) refuges along riverbanks to provide hiding spots from predators.	White clawed crayfish Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
	The River Blythe population is thought extinct, replaced by signal crayfish. Local Wildlife Sites for white-clawed crayfish include the River Alne, and Perch Hill Quarry. The Species Survival Fund is currently funding a project for white clawed crayfish in Warwickshire targeting reintroductions to Ark sites.	
White-letter Hairstreak (<i>Satyrus w-album</i>)	The white-letter hairstreak butterfly has faced significant declines over recent decades, largely due to the loss of elm trees to Dutch Elm Disease. Elm trees, which are now relatively rare, are crucial for the survival of this species. Targeted conservation actions around remaining, or newly planted elm sites are essential. In Warwickshire, the white-letter hairstreak is widespread and holds a nationally significant population, making the region a core area for this species in the UK. Efforts to protect and enhance elm habitats, are vital for the continued survival of this butterfly in Warwickshire.	• Retain and Plant Elm Trees: Preserve existing elm trees and plant new disease-resistant elms, especially within 2km of existing elm woodlands. • Avoid Felling Healthy Elms: Do not cut down mature, healthy elm trees as a precaution against Dutch Elm Disease. • Encourage Elm Suckers: Where appropriate, allow elm suckers to grow wherever they appear. • Monitor and control the spread of Dutch elm disease • Introduce Coppicing: In areas affected by Dutch Elm Disease, implement coppicing on a 10-year cycle. • Manage Hedgerow Shelterbelts: Maintain hedgerow shelterbelts containing elm and avoid cutting edges where new elm suckers appear. • Enhance Woodland Rides and Glades: Improve rides and glades and create extensive networks within woodlands. • Connect and expand Habitats: Link habitats with hedgerows containing Wych Elm (<i>Ulmus glabra</i>) and disease-resistant elms as hedgerow trees. • Plant other hosting species; consider the planting of suitable non-native species where appropriate.
		White-letter Hairstreak Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions Part 3	Delivery Part 3
Willow tit (<i>Poecile montanus</i>)	The willow tit, whose core range includes mid-Wales and the Midlands, is extremely rare and on the brink of extinction in Warwickshire. Climate change is significantly impacting their survival; however, they are present in very low numbers in the Tame Valley NIA. The Species Recovery Programme Fund is currently supporting a project aimed at implementing targeted actions to secure the survival of the willow tit in the region. This species will benefit from general actions to improve, create and connect wet woodland but bespoke, immediate and effective conservation actions are essential to ensure the species' continued presence in Warwickshire.	• Surveying: Identification and safeguarding of key remaining nesting sites and population strongholds. • Increase availability of specialist nest sites: in key population strongholds – such as rotting logs in suitable positions. • Retain and create a successive supply of deadwood: such as tall stumps, within and around wet woodland and scrub. • Create structural diversity and promote dense scrub growth: near willow tit nesting sites through selective felling or the reintroduction of coppicing within damp woodlands. • Restore wet woodlands: by reversing drainage where suitable. • Improve Connectivity: To improve the stability of willow tit populations, link up suitable habitats by creating or retaining scrub lined river corridors and mature hedgerows.	Willow tit Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction	Area Description	Themes	Priorities	Habitat Actions Species Actions	Delivery
Part 1			Part 2		Part 3

Priority Assemblages

Assemblages	Assemblage Detail and commentary	Actions needed help the assemblage to recover	Action Areas
Aspen (<i>Populus tremula</i>) Assemblage A leaf-rolling weevil (<i>Byctiscus populi</i>) <i>Sciota hostilis</i> , <i>Phyllonorycter sagitella</i> Light Orange Underwing <i>Archiearis notha</i> Dusky clearwing <i>Paranthrene tabaniformis</i>	Aspen is an important species for a number of invertebrates in the West Midlands. Leaf-Rolling Weevil: Feeds on Aspen, with Oversley Wood part of a key woodland alignment in the West Midlands. Whilst ideally the population size and range in Warwickshire should be increased by further reintroductions to historic and appropriately managed sites, the current population at Oversley Wood is not strong enough at present to source reintroductions. Details on how the Forestry Commission are managing Oversley Wood are detailed within this document: warwickshire woodlands forest plan 24-34 web use.pdf Both <i>Sciota hostilis</i> and <i>Phyllonorycter sagitella</i>: require mature Aspen for their survival. Light Orange Underwing: This species also depends on mature Aspen. Dusky Clearwing: Recently rediscovered in Warwickshire in 2021, this species prefers wet woodlands and	• Retention and Planting: Retain and plant Aspen within woodlands to support the survival of various invertebrate species. • Regeneration for Leaf-Rolling Weevil (<i>Byctiscus populi</i>): ○ Implement coppicing to provide young Aspen, which is crucial for this species. ○ Encourage suckering and sapling stages of Aspen growth, preferred by the weevil. ○ Allow Aspen suckers at the edge of rides to mature by clearing around them during ride management. ○ Maintain sheltered, warm pockets of woodland edge habitat. • Habitat management for <i>Sciota hostilis</i>, <i>Phyllonorycter sagitella</i> and Light Orange Underwing: ○ Ensure mature Aspen with longer rotation periods for coppice with standards. • Habitat management for Dusky Clearwing: ○ Maintain wet woodland, broad-leaved woodland, and river valleys where Aspen and Poplar grow. • Diverse Aspen Ages: ○ Various ages of Aspen are required to support all these species. ○ Practice coppicing on long rotations, allowing some Aspen to grow older, leaving some as standards, and coppicing others to encourage new growth.	Aspen Assemblage Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes	Priorities	Habitat Actions Species Actions	Delivery Part 3
	river valleys with Aspen, making it crucial for the survival of the Dusky Clearwing.	○ Tailor management to specific species where known.			
Bats Western Barbastelle <i>Barbastella barbastellus</i> Serotine <i>Eptesicus serotinus</i> Bechstein's Bat <i>Myotis bechsteinii</i> Brandt's Bat <i>Myotis brandtii</i> Daubenton's Bat <i>Myotis daubentonii</i> Whiskered Bat <i>Myotis mystacinus</i> Natterer's Bat <i>Myotis nattereri</i> Leisler's Bat <i>Nyctalus leisleri</i> Noctule <i>Nyctalus noctula</i> Nathusius's Pipistrelle <i>Pipistrellus nathusii</i> Common Pipistrelle <i>Pipistrellus pipistrellus</i> Soprano Pipistrelle <i>Pipistrellus pygmaeus</i> Brown Long-eared Bat: <i>Plecotus auritus</i>	There are 18 species of bat in the UK and 14 bat species have been recorded in Warwickshire. Bats can be found in almost all habitat types and general habitat improvement actions / appropriate management/ improved connectivity will benefit this assemblage. However, human disturbance needs to be addressed particularly the effects of light and noise in key areas/corridors, particularly around roost sites.	● Mitigate effects of light and noise in key areas/corridors: especially near known roost sites for all species, by maintaining unlit areas, reducing light trespass, and implementing dimming or partial night lighting. ● Dark Corridors: Restore and retain dark corridors along waterways. Where lighting is unavoidable, use best practice guidance and avoid the use of white and blue light. ● Safeguard roost sites: particularly maternity and hibernation roosts of rarer species. ● Create hibernation and maternity roosts: create purpose built bat barns and towers in or adjacent to core sustenance zones. ● Community Engagement: Promote wider understanding of the problem by identifying community members who will pioneer light management. ● Hedgerows with high vegetation and trees: Promote tall hedges with standard trees to provide important commuting and foraging corridors for bats. ● Night-flowering species: Encourage the planting of night flowering species such as campions and honeysuckle that attract moths and other night flying invertebrates. ● Connectivity: Promote the creation, enhancement and bat-friendly maintenance of hedgerows and			Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes	Priorities	Habitat Actions Species Actions	Delivery Part 3
Part 2					
Lesser Horseshoe Bat (also see Species Priorities)		other connectivity features to link woodlands and other roost sites to for foraging sites and zones.			
Birds of Wet Woodland Willow Tit (also see Species Priorities) Marsh Tit (<i>Poecile palustris</i>) Lesser Spotted Woodpecker (<i>Dryobates minor</i>)	The birds within this assemblage, will benefit from the actions set out for wet woodlands including the creation of new wet woodlands. However, to help these species group thrive, additional actions are necessary in woodlands where they are present or could potentially frequent. These actions include targeted conservation actions and habitat enhancements tailored to their specific needs.	• Identify and Safeguard Nesting Sites: Protect key remaining nesting sites and areas where populations are still present. • Monitor Populations: Regularly monitor these areas, focusing on the impacts of competition and predation. • Increase Nest Site Availability: Enhance the availability of specialist nest sites in key areas. • Create areas of dense under canopy and ample dead wood within new and existing Wet Woodlands: to provide specific habitat nesting. • Improve Habitat Connectivity: Enhance connectivity of remaining populations by creating new wet woodlands in targeted areas. See willow tit in the Species Priorities table above for more details specific to willow tit.			Birds of Wet Woodlands Action Areas
Deadwood Assemblage Species dependent on deadwood (dead, dying, and decaying) including detritovores, invertebrates, fungi and lichen	This assemblage will benefit with proper management of ancient and long-established woodlands, wood pasture, parklands, and ancient and veteran trees, all of which include deadwood. However, some additional actions have been provided to ensure this assemblage group is able to thrive in Warwickshire.	• Retain Older Trees: Preserve older trees that are typically removed for health and safety reasons or for tidiness. • Keep or Introduce Dead, Decaying, or Dying Wood: As far as safe and possible, retain or introduce dead, decaying, or dying wood in the environment. Ensure a range of sizes and ages of deadwood, including standing deadwood (upright trees, trunks, or stumps), fallen deadwood (wood on the floor), and deadwood branches on live trees. Where management of dying trees is necessary look to manage the declining tree by reducing the height			Deadwood Assemblage Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
		of dead and dying trees in stages to make them safe and prolong the presence of dead and dying wood in the location. • Vernalisation technics: consider the deliberate damaging or wounding of ‘younger’ trees to accelerate the development of microhabitats typical of large, old trees (veterans) • Minimise Land Use Intensification Impacts: Implement actions to reduce the impacts of land use intensification, such as minimising root damage or concentrating defaecation in shaded areas increasing nitrogen impacts that impacts lichens • Avoid Cutting Up Dead Limbs and Fallen Trunks: Prevent changes in the microclimate of the heartwood decay environment by not cutting up dead limbs and fallen trunks. • Manage woodland grazing appropriately: ensure grazing levels enable regeneration. Where there is no grazing in woodlands, consider introducing and carefully maintain grazing in woodlands to prevent older trees from being smothered by secondary growth. • Avoid chemical use: Avoid using fungicides, pesticides and fertilizers to allow and encourage fungal growth on deadwood.

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3	
Scarce Wall Ferns Brittle bladder-fern <i>Cystopteris fragilis</i> Maidenhair Fern <i>Adiantum capillus- veneris</i>	These ferns typically grow in mortar crevices, often on historic walls and within churchyards. Their survival is increasingly at risk due to modern preferences for urban cleanliness and tidiness, the replacement of aging structures where they are found, and the destruction of their habitats through re-plastering or other excessive and uninformed 'tidying' practices.	• Identify, monitor, and safeguard sites for scarce wall ferns, ensuring sites are not disturbed, removed, or restricted. • Promote public awareness and inspire community stewardship to help safeguard these plants.	Unmappable
Farmland Birds Corn Bunting <i>Emberiza calandra</i> Yellowhammer <i>Emberi za citrinella</i> Linnet: <i>Linaria cannabina</i> Yellow Wagtail <i>Motacilla flava</i> Tree Sparrow <i>Passer montanus</i> Skylark <i>Alauda arvensis</i> Lapwing <i>Vanellus vanellus</i> Barn Owl <i>Tyto alba</i> Grey Partridge <i>Perdix perdix</i>	A substantial number of our characteristic farmland birds have declined dramatically in range and number over recent decades. Approximately 49% of Warwickshire is classified as Phase 1 'cultivated and disturbed' land, encompassing habitats like amenity grassland, arable land, and introduced shrub. Given that a significant portion of Warwickshire's land is used for agriculture, it is crucial to focus on species that can benefit from sustainable farmland management to achieve population recovery. The species in this assemblage are expected to benefit from wider habitat action across the county to create and appropriately manage habitats including	• Enhance Arable Land: Create wildflower, grass, and nectar-rich margins or plots to boost insect populations and provide other food resources for breeding birds. • Retain Habitat Diversity: Maintain diverse habitats and unfarmed wild corners to support birds that feed on invertebrates. Keep and/or plant trees, hedgerows, ditches, grass banks, scrub, bramble, and/ or gorse to provide diverse habitats and foraging opportunities. • Provide and Maintain Seed Sources: Support birds by providing seed during late winter or allowing plants to go to seed in suitable areas. • Manage Ploughing: Reduce, delay, or avoid ploughing after harvest to increase winter stubble cover. Spray (where necessary) and cultivate stubbles as late as possible in spring. Consider not using pre-harvest desiccants enabling greener	Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
Turtle Dove <i>Streptopelia turtur</i> Reed Bunting <i>Emberiza schoeniclus</i> Swallow <i>Hirundo rustica</i>	grasslands, hedgerows, wetland-edges, and floodplain meadows, however, appropriate management of farmland is crucial for this assemblage group.	stubbles. Consider sowing or establishing winter cover crops. • Manage Hedgerows: Avoid cutting hedgerows before March to provide winter berries. Also cut hedges on a rotational basis, leaving some areas of the farm uncut each year. • Boost Seed Food: Provide uncut areas on grasslands, a mix of crops, stubbles, or seed-rich wild bird cover crops. • Avoid Nesting Sites during the Cutting or Grazing Silage in Spring: identify and protect ground nests prior to cutting. • Increase Crop Rotation Diversity: Include a range of crops in rotation, such as winter wheat and spring cereals, where possible to create a variety of crops over the farm. • Restore and Maintain Wet Features: Maintain wet features like open wet ditches, ponds, and scrapes. • Reduce Over-Grazing: Lower grazing levels to prevent over-grazing of pasture to maintain a varied sward structure all allow plants to flower and set seed. • Reduce Herbicide and Insecticide Use: Minimise herbicide and broad-spectrum insecticides use to protect arable plants and insect prey. • Create Skylark Plots: Establish Skylark plots within winter cereals. • Create Corn Bunting plots: Establish corn bunting plots away from hedgerows or trees. • Install Nesting Boxes: Offer nesting boxes specific to local species, such as Swallows, Tree Sparrows and Barn Owls.

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes	Priorities	Habitat Actions Species Actions	Delivery Part 3
Part 2					
Freshwater invertebrates This includes dragonflies, damselflies, snails, sponges, mayflies, stoneflies, caddisflies, alderflies, pond skaters, some beetles, freshwater woodlice, shrimps and more. Freshwater habitats include ponds, springs, seepages, ditches, lakes, rivers and streams. Specific species include: Mere Wainscot <i>Chortodes fluxa</i> Fen Wainscot <i>Arenostola phragmitidis</i> Cream-bordered Green Pea <i>Earias clorana</i>	Freshwater invertebrates play a vital role in maintaining clean water – helping to break down and filter organic matter. They are also an important food source for fish, birds and mammals. Their presence is the standard indicator of the health of the habitat they live in. However, many of our freshwater invertebrates are declining in the face of pollution, watercourse straightening and hard engineering, invasive species, abstraction and development, and are already being affected by climate change with an increase in water temperature. This assemblage will benefit from water quality improvements to rivers and other freshwater habitats. However, some additional actions have been provided to ensure this assemblage group is able to thrive in Warwickshire.	• Introduce Large Woody Debris: Add logs and branches into watercourses to create shelter, feeding areas, and breeding sites for invertebrates. • Plant Riparian Trees: Establish native trees along riverbanks to provide shade, regulate water temperature, and allow roots to extend into the water, enhancing habitat complexity. • Encourage Riparian Vegetation: Promote the growth of plants that overhang or extend into the water’s edge, offering cover, food sources, and microhabitats for aquatic invertebrates. Foodplants for Specific Species: ○ Mere Wainscot - wood small-reed (<i>Calamagrostis epigejos</i>) ○ Fen Wainscot - common reed (<i>Phragmites australis</i>) ○ Cream-bordered Green Pea - various willows (<i>Salix</i>), including osier (<i>S. viminalis</i>)	Freshwater Invertebrates Action Areas		
Garden Invertebrates Garden Tiger <i>Arctia caja</i>	Some of the species in this assemblage are considered Nationally Scarce in Britian. They will benefit from general	• Include Larval Foodplants: The food plants of the species in this assemblage should be considered for inclusion/ promotion when designing gardens to support these invertebrates in Warwickshire.	Unmappable		

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes	Priorities	Habitat Actions Species Actions Part 2	Delivery Part 3
Golden Plusia <i>Polychrysia moneta</i>	habitat improvements but are reliant on specific food plants for survival. The garden tiger moth, once a quite common moth in most of Britain, has declined in many places in the last few years. The golden plusia was first discovered in south-east England in 1890, this classic 'invasion' moth species rapidly spread north-westwards, reaching Scotland, but has shown signs of range decline in recent decades.			Foodplants for Each Species: - o Garden Tiger: The larvae are generalists and feed on a wide variety of herbaceous plants, including foxglove, nettles, dock, and plantain. - o Golden Plusia: The larvae feed on Delphiniums, Larkspur, and Aconitum.	
Hedgerow Invertebrates Small Eggar <i>Eriogaster lanestris</i> Pretty Chalk Carpet <i>Melanthia procellata</i> Pinion-spotted Pug <i>Eupithecia insigniata</i> Mocha <i>Cyclophora annularia</i> Dusky-lemon Sallow <i>Xanthia gilvago</i> Lesser-spotted Pinion <i>Cosmia affinis</i> Clouded Magpie <i>Abraxas sylvata</i>	Some of the species in this assemblage are considered Nationally Scarce in Britian. They will benefit from general habitat improvements but are reliant on specific food plants for survival.			• Include Larval Foodplants: The food plants of the species in this assemblage should be considered for inclusion/ promotion when designing the habitat (i.e. hedgerows) to support these invertebrates in Warwickshire. Foodplants for Each Species: - o Small Eggar: Hawthorn (<i>Crataegus</i>) and Blackthorn (<i>Prunus spinosa</i>) - o Pretty Chalk Carpet: Traveller's-joy (<i>Clematis vitalba</i>) - o Pinion-spotted Pug: Hawthorn and Apple (<i>Malus</i>) - o Mocha: Evergreen Oak (<i>Quercus ilex</i>) - o Dusky-lemon Sallow: Wych Elm and English Elm (<i>Ulmus procera</i>) - o Lesser-spotted Pinion: English Elm and Wych Elm - o Clouded Magpie: Wych Elm and English Elm - o Scarce Tissue: Various species of Prunus, including Almond, Cherry, Blackthorn, and Hawthorn	Hedgerow Invertebrates Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
------------------------	---------------------	--------	----------------------	------------------------------------	--------------------

Scarce Tissue <i>Rheumaptera cervinalis</i>			
Invertebrates of calcareous grasslands Adonis Blue <i>Lysandra bellargus</i> , Chalkhill Blue <i>Lysandra coridon</i> , Duke of Burgundy <i>Hamearis Lucina</i> , Grizzled Skipper <i>Pyrgus malvae</i> Small Blue <i>Cupido minimus</i> Green hairstreak <i>Callophrys rubi</i> Dark Green Fritillary <i>Speyeria aglaja</i> Dingy Skipper <i>Erynnis tages</i> chalk carpet moth <i>Melanthia procellata</i> light feathered rustic <i>Agrotis cinerea</i> Dark brocade <i>Mniotype adusta</i> <i>Osmia aurulenta</i> <i>Osmia spinulosa</i> , Red-tailed Mason Bee <i>Osmia bicornis</i> ,	Calcareous grasslands in Warwickshire are vital for invertebrates, supporting over 500 calcareous species, including many that are nationally or regionally scarce. Key species include flies, bees, wasps, moths, beetles, and bugs. Important sites for calcareous insects include the Bishops Hill – Bishops Bowl complex and Southam Quarry, which are significant for their rich invertebrate populations. Southam Quarry is particularly notable as the richest bumblebee site in the Midlands. Warwickshire is a crucial region in the Midlands for the conservation of these species, providing essential habitats for a diverse range of invertebrates. The adonis blue is not currently present in Warwickshire but is spreading northwards. It is a Species Priority in the Oxfordshire LNRS (a neighbouring RA). Invertebrates within this assemblage will benefit from calcareous grassland actions and other neutral / semi-improved grassland habitat priorities, however, bespoke actions are also required.	• Manage Grassland Mosaic: Create a mosaic of long and short grassland sward heights and bare earth areas through rotational livestock grazing, ensuring appropriate stocking densities to avoid overgrazing to encourage a wide range of invertebrates from this assemblage group. • Appropriate Grazing and Cutting: Ensure grazing and cutting practices support the spread of required food plants. • Scrub management: Scrub-edge conditions are required to provide shelter for many warmth-loving invertebrates associated with calcareous grassland but should be managed to ensure it does not take over. • Continue to Create Habitat for Adonis Blue: Continue to prepare habitats for the adonis blue i.e. warm south facing slopes with sheltered hallows. • Include Larval Foodplants: Incorporate larval foodplants in seed mixes or allow them to colonise naturally to encourage invertebrate colonisation. Foodplants for Each Species: ○ Adonis Blue: Horseshoe vetch ○ Chalkhill Blue: Horseshoe vetch ○ Dingy Skipper: Common birds-foot trefoil ○ Dark Green Fritillary: Violets ○ Duke of Burgundy: Cowslip/primrose ○ Small Blue: Kidney vetch ○ Red-tailed Mason Bee: Bird's-foot-trefoils and vetches	Invertebrates of Calcareous Grassland Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 1	Themes Part 2	Priorities Part 2	Habitat Actions Species Actions Part 2	Delivery Part 3
Yellow-shouldered Nomad Bee <i>Nomada fulvicornis</i> , Dotted Bee-fly <i>Bombylius discolor</i> , Clover stilt <i>Parectopa ononidis</i> <i>Ethmia dodecea</i> <i>Pancalia schwarzella</i> <i>Coleophora squamosella</i> <i>Stephensia brunnichella</i> <i>Commophila aeneana</i> <i>Aethes williana</i> <i>Notocelia incarnatana</i> Rock-rose Pot Beetle (<i>Cryptocephalus primarius</i>) Rugged Oil Beetle (<i>Meloe rugosus</i>) Light Feathered Rustic <i>Agrotis ciner</i> , Bordered Sallow <i>Pyrrhia umbra</i> , Ruddy Carpet <i>Catarhoe rubidata</i> , Netted Pug <i>Eupithecia venosata</i> , Shaded Pug <i>Eupithecia subumbrata</i> , Chalk Carpet <i>Melanthia procellata</i> ,				○ Yellow-shouldered Nomad Bee: Willows ○ Dotted Bee-fly: Ground-ivy, violets, coltsfoot ○ Clover Stilt, <i>Ethmia dodecea</i>, <i>Pancalia schwarzella</i>, <i>Stephensia brunnichella</i>: Path edges ○ <i>Coleophora squamosella</i>: Blue fleabane ○ <i>Commophila aeneana</i>: Ragwort ○ <i>Aethes williana</i>: Wild carrot ○ <i>Notocelia incarnatana</i>: Rose, particularly burnet rose ○ Rock-rose Pot Beetle: Common rock-rose ○ Rugged Oil Beetle: Species-rich grasslands ○ Light Feathered Rustic: Wild thyme ○ Bordered Sallow: Restharrow ○ Ruddy Carpet: Bedstraw ○ Netted Pug: Bladder campion ○ Shaded Pug: Field scabious, hawk's-beard ○ Chalk Carpet: Common bird's-foot-trefoil, other trefoils, clovers, vetches ○ Reddish Light Arches: Grass roots ○ Marsh Fritillary, Narrow-bordered and Bee Hawk-moth: Devil-bit scabious	

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
Reddish Light Arches <i>Apamea sublustris</i>. Including invertebrates dependent on Devil's-bit scabious (<i>Succisa pratensis</i>): Marsh fritillary <i>Euphydryas aurinia</i>, Narrow-bordered Bee <i>Hemaris Tityus</i>, Hawk-moth (<i>Hemaris tityus</i>)		
Open Mosaic Habitat Invertebrates (including post-industrial sites) Dark Spinach (<i>Pelurga comitata</i>) Wormwood (<i>Cucullia absinthii</i>) Annulet (<i>Charissa obscurata</i>) bloody-nosed beetle (<i>Timarcha tenebricosa</i>) common glow-worm (<i>Lampyrus noctiluca</i>) cinnabar moth (<i>Tyria jacobaeae</i>)	Open Mosaic Habitats in Warwickshire provide essential habitats for diverse invertebrates. These areas, characterised by bare ground, flower-rich meadows, patchy grassland, scrub, and wet areas, create high biodiversity value when combined. They occur on previously developed sites or heavily modified ground. In the Midlands, these habitats are among the best for invertebrates, including many nationally rare species. Some species in this assemblage are Nationally Scarce in Britain and rely on specific food plants for survival, benefiting from general habitat improvements and some bespoke actions are required.	• Include Larval Foodplants: When designing habitats, especially brownfield sites, include and promote food plants that support the species in this assemblage in Warwickshire. • Create Structural Diversity: Develop and sustain a variety of sward heights and areas of bare ground through periodic ground disturbance and rotational scrub clearance, so that scrub is present but does not dominate. • Identify and monitor invertebrates at key sites. Food plant: - Dark Spinach: Larvae feed on orache (<i>Atriplex</i>) and goosefoot (<i>Chenopodium</i>). - Wormwood: Mugwort. - Annulet: Common Bird's-foot Trefoil (<i>Lotus corniculatus</i>), Wild Strawberry (<i>Fragaria vesca</i>). - Bloody-nosed Beetle: Cleavers. - Common Glow-worm: Ragwort.

Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes	Priorities	Habitat Actions Species Actions	Delivery Part 3
Part 2					
grizzled skipper (<i>Pyrgus malvae</i>) dingy skipper (<i>Erynnis tages</i>) small blue (<i>Cupido minimus</i>)				○ Cinnabar Moth: Ragwort. ○ Small Blue: Kidney Vetch. ○ Dingy Skipper, Green Hairstreak: Common Bird’s-foot Trefoil. ○ Dingy Skipper: Greater Bird’s-foot Trefoil. ○ Grizzled Skipper: Wild Strawberry, Creeping Cinquefoil, Agrimony.	
Open Mosaic Habitat Plants Including bare ground/ disturbed ground plant specialist and post-industrial site plants	Open mosaic habitat plants face several significant threats, primarily due to changes in land use and lack of appropriate management. As these habitats often occur on previously developed land such as old industrial sites, they are frequently targeted for redevelopment, leading to direct habitat loss. When left unmanaged, natural succession allows scrub and woodland to encroach, outcompeting the specialist plant species that rely on open, disturbed ground. Additionally, a general lack of awareness and understanding of the ecological value of these sites often results in neglect or inappropriate management, further endangering the unique plant communities they support.			● Maintain and Restore Open Mosaic Habitats: Actively manage sites by clearing encroaching scrub and trees, using controlled disturbance techniques like light grazing or soil scraping, and restoring degraded areas—such as former industrial or brownfield sites—through reintroduction of native plant species and appropriate habitat management. ● Safeguard Sites Through Planning and Development Collaboration: Protect key habitats from redevelopment by incorporating them into local planning policies, and work with developers to integrate open mosaic habitat features into new projects wherever possible. ● Raise Awareness and Involve Communities: Educate the public and landowners about the ecological value of open mosaic habitats and encourage citizen science initiatives to involve volunteers in monitoring and conservation efforts.	Unmappable
Pollinators Pollinating insects, including, but not limited to bees,	Pollinating insects are widely recognised for their benefits to food production. In Warwickshire, pollinators such as bees, butterflies, beetles, and wasps are essential for the health of our			Actions for Landowners and Farmers: ● Safeguard and Restore Wildflower-Rich Grasslands: Prioritise safeguarding existing	Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
hoverflies, butterflies, moths and flower-visiting beetles. Including Warwickshire's Rare Bumblebees: Red-shanked Carder Bee <i>Bombus ruderarius</i>, Brown-banded Carder Bee <i>Bombus humilis</i>, Large Garden Bumblebee <i>Bombus ruderatus</i> Associated species: Necklace Ground Beetle <i>Carabus monilis</i>.	environment and the food we eat. However, they face significant challenges due to habitat loss, urban growth, climate change, and pesticide use. Efforts like the #Plant4Pollinators campaign aim to support these vital species by encouraging the planting of pollinator-friendly plants. Supporting pollinators is crucial for maintaining biodiversity and ensuring the sustainability of food production in Warwickshire. Red-Shanked Carder Bee: One of the sub-region's rarest surviving bumblebees, showing severe national declines. Brown-Banded Carder Bee: Another rare bumblebee species facing national declines. Large Garden Bumblebee: Warwickshire is designated as the second national stronghold for this species, which thrives on red clover and agricultural field margins. Necklace Ground Beetle: Although not technically a pollinator, this beetle is included due to the impact from pesticides and its need for good field margins. It has a stronghold in the	wildflower-rich grasslands and restore abandoned or heavily grazed areas. Preserve permanent pastures with diverse flowers and features like anthills. Protect existing flower-rich meadows from ploughing, spraying, or fertiliser input. • Reduce Pesticide Use: Minimise the use of pesticides to protect pollinators. • Create Bee Banks and Hotels: Establish bee banks for ground-nesting bees and set up bee hotels for solitary bees. • Promote Wild Grasslands: Allow areas of grassland to grow wild or create wildflower meadows. • Manage Hedgerow Cutting: Rotate the cutting of hedgerows on a three-year basis to ensure continuity of food resources. • Enhance Hedgerows: Plant shrubs and trees that flower at different times of the year and manage hedgerows to provide continuous food resources and shelter. • Maintain Flower-Rich Margins: Create uncultivated flower-rich margins of at least 5m width, cutting only after flowering in autumn and removing cut material. Flower-rich margins may shift with crop rotation; however, the aim should be to provide the same amount of habitat across the landscape (no more than 500m between patches). • Scarify Permanent Margins: permanent margins can benefit from occasional scarification to maintain diversity of flowering plants. • Sow Spring Oilseed Rape: Sow Oilseed Rape in the spring to extend its value to foraging pollinators into midsummer.

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 2	Themes Priorities Habitat Actions Species Actions Part 3	Delivery Part 3
	Midlands and is at risk of going extinct in Britain in the next decade.	• Encourage Wildflowers in Crops: Allow wildflowers like mayweeds, dead-nettles, poppies, and pansies to grow within crops for additional food sources and can provide a valuable late summer bloom between harvesting and ploughing. • Use Fodder and Seed Mixes: Plant fodder crops, wild bird seed, and 'bumblebird' mixes that contain valuable food plants for pollinators; such as legumes, brassicas, borage and fodder radish. • Delay Hay-Cutting: Delay hay-cutting until late summer to extend foraging value and improve seed production. • Leave Uncut Patches: Leave patches or margins uncut to create refuges for invertebrates and overwintering opportunities. • Common Ragwort and Thistles: Where legally acceptable, allow these plants to grow as they provide important foraging resources for pollinators. • Limit Worming Medications: Reduce the use of worming medications like avermectin to protect invertebrates, including dung beetles which help to maintain healthy soils. Specific actions for Warwickshire's Rare Bumblebees and Beetles include: • Create flower-rich habitats with legumes and labiates • Create field margins with red clover • Connect field margins with well managed hedgerows.	

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1		Themes	Priorities	Habitat Actions Species Actions	Delivery Part 3
			Part 2		
		Actions for Community Groups and Individuals: • Use Pollinator-Friendly Planters: Place planters with pollinator-friendly plants in heavily urbanised areas. • Promote Wild Grasslands: Allow areas of grassland to grow wild or create wildflower meadows/ verges. • Relax Mowing Regimes: Implement a relaxed mowing schedule for areas like road verges, mowing after the end of May. • Plant Nectar-Rich Flora: Introduce a variety of nectar-rich flowers, shrubs, and trees.			
Scarce arable plants Including: Blue Pimpernel (<i>Anagallis arvensis</i> ssp. <i>foemina</i>) Corn Buttercup (<i>Ranunculus arvensis</i>) Corn Gromwell (<i>Lithospermum arvense</i>) Corn Marigold (<i>Chrysanthemum segetum</i>) Corn Spurrey (<i>Spergula arvensis</i>) Dwarf Spurge (<i>Euphorbia exigua</i>) Field Woundwort (<i>Stachys arvensis</i>)	Since the mid-twentieth century, arable weeds have experienced the most significant decline among British plants, primarily due to modern farming practices and possibly climate change. Many arable plants grow not only in arable fields but also in small-holdings, roadsides, waste places, allotments, parks, and gardens. However, some specialised species are almost entirely dependent on arable land and have significantly declined or become extinct due to intensive farming and horticulture. These species often reappear after ploughing releases old seedbanks. The best sites for arable weeds tend to have lighter, often calcareous soils.	• Create conditions for existing plant populations to flourish, enabling natural seedbank replenishment and local range expansion. Where necessary, supplement with carefully selected local provenance seed mixes to support habitat restoration and maintain genetic integrity. • Reduce Herbicide and Fertiliser Use: Minimise herbicides and fertilisers, and leave untouched field margins by not ploughing up to the base of the field boundary. • Allow Natural Recolonisation: At appropriate locations after works (e.g., road works), let bare soil recolonise naturally from the seed bank and avoid topsoiling. • Implement Good Farming Practices: Maintain field margins, beetle banks, conservation headlands and adopt minimal tillage systems at appropriate locations. • Manage Arable Plants as Crops: Treat arable plants with the same care as commercial crops to create			Unmappable

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 2	Themes Priorities Habitat Actions Species Actions Part 3	Delivery Part 3
Large Hemp-Nettle (<i>Galeopsis speciosa</i>) Narrow-Leaved Hemp-Nettle (<i>Galeopsis angustifolia</i>) Night-Flowering Catchfly (<i>Silene noctiflora</i>) Prickly Poppy (<i>Papaver argemone</i>) Shepherd's Needle (<i>Scandix pecten-veneris</i>) Small Flowered Buttercup (<i>Ranunculus parviflorus</i>) Spreading Hedge-Parsley (<i>Torilis arvensis</i>) Stinking Chamomile (<i>Anthemis cotula</i>) Wild Pansy (<i>Viola tricolor</i> hybrids) Others Include: Sharp-Leaved Fluellen (<i>Kicksia elatine</i>) Round-Leaved Fluellen (<i>Kicksia spuria</i>) Venus' Looking Glass (<i>Legousia hybrida</i>) Mousetail (<i>Myosurus minimus</i>)	Warwickshire still boasts a moderately diverse range of these plants. Whilst this assemblage is likely to benefit from general habitat improvements to farmland, particularly field margins, bespoke actions are required.	areas with annual flowers, supporting invertebrates, small mammals, and farmland birds. • Select Appropriate Cultivation Timing: Choose autumn or spring cultivation to favour target species and fit with cropping regimes. Rotate cultivation around the farm to avoid continuous autumn or spring cropping. This can help control some pernicious weeds, such as autumn germinating grasses and Bristly Oxtongue. • Ploughing for Arable Plants: At historic sites, traditional ploughing may be necessary to stimulate the germination of arable plant species, as minimal tillage often fails to sufficiently disturb the soil. This can result in dense grass cover that shades out smaller, less competitive arable plants. It's important to consider the earlier point about adopting minimal tillage systems where appropriate, recognising that different sites may require tailored approaches based on their specific conditions and conservation goals. • Cultivate Plots with Care: Cultivate plots to a fine tilth, providing the best growing medium for arable plants, similar to cereal crop cultivation. Without cultivation, arable plants won't germinate, and weeds like Creeping Thistle can dominate. • Rotate Plots: Rotate plots to manage weed problems and maintain low fertility soils, which are ideal for arable flowers.	

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
Please note this is not a comprehensive list of the sub-region's scarce arable plants. Falk (2009) provides a checklist of plants strongly associated with local arable land plus a county checklist revealing which ones, additional to the fifteen listed above, are considered scarce at a county level.		
Urban Nesting Birds Swift <i>Apus apus</i>, House martin <i>Delichon urbicum</i>, Starling <i>Sturnus vulgaris</i>, House sparrow <i>Passer domesticus</i>,	This bird assemblage, while associated with various habitats, will benefit from actions aimed at improving urban nesting sites. Many of these birds migrate from Africa to the UK each summer to breed. They require good foraging habitats, particularly along rivers, which are being enhanced through wider habitat improvements. Swifts and House Martins, found in towns and cities across Warwickshire, present an opportunity for local communities to support urban wildlife. Hotspots for swift 'screaming parties' and nest locations include Nuneaton, Rugby, Warwick, Harbury, Stratford-	• Install Bird Boxes: Support species by installing homes for wildlife on buildings, such as swift bricks, swift boxes, and house martin nesting cups. • Identify, monitor, and safeguard nesting sites, ensuring nests are not disturbed, removed, or restricted. • Mitigate Redevelopment Impacts: Where older buildings are being renovated or demolished, incorporate new nesting features into the design of replacement structures. • Engage Local Communities: Raise awareness and encourage residents, schools, and businesses to participate in urban bird conservation.
		Urban Nesting Birds Action Areas

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Habitat Actions Species Actions Part 2	Delivery Part 3
	upon-Avon, Shipston-on-Stour, and Stockton. To support their recovery, providing additional nesting spaces (such as boxes, swift bricks, and spaces in buildings) and retaining existing sites is crucial. Renovation or redevelopment of older buildings can lead to the loss of nesting sites, but new nesting spaces can mitigate this. These efforts also benefit other urban birds like house sparrows and starlings.	
Woodland Inverts Autumn Green Carpet <i>Chloroclysta miata</i>, Cloaked Carpet <i>Euphyia biangulata</i>, False Mocha <i>Cyclophora porata</i>, Mottled Grey <i>Colostygia multistrigaria</i>, White-marked <i>Cerastis leucographa</i>, Oak Lutestring <i>Cymatophorina diluta</i>, Angle-striped Sallow <i>Enargia paleacea</i>, Dark Brocade <i>Mniotype adusta</i>.	Some of the species in this assemblage are considered Nationally Scarce in Britain. They will benefit from general habitat improvements but are reliant on specific food plants for survival.	• Include Larval Foodplants: The food plants of the species in this assemblage should be considered for inclusion/ promotion when designing the habitat (i.e. woodlands) to support these invertebrates in Warwickshire. Foodplants for Each Species: ○ Autumn Green Carpet: Rowan (<i>Sorbus aucuparia</i>) and Sallow (<i>Salix</i>). ○ Cloaked Carpet: Various chickweeds (<i>Stellaria</i> spp.). ○ False Mocha: Oak (<i>Quercus</i> spp.). ○ Mottled Grey: non-invasive Cotoneaster. ○ White-marked: A variety of tree species including Oaks, Black Locust, Hackberry, Hickory, and Willow. ○ Oak Lutestring: Oak (<i>Quercus</i> spp.). ○ Angle-striped Sallow: Birch (<i>Betula</i> spp.) and Aspen. ○ Dark Brocade: A variety of herbaceous and woody plants, including Bog-myrtle, Heather, and Alder.
		Woodland Invertebrates Action Areas

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions	Delivery Part 3
---	--------------------------------	------------------------------------	--------------------

Possible Reintroduction / Translocation Species

Species	Species Detail (specific to Warwickshire – existing problems/ projects etc.)	Actions needed help the assemblage to recover	Action Areas (link to mapping)
Black-veined White <i>Aporia crataegi</i>	This species was believed to have gone extinct in the UK due to climatic conditions. However, the current weather has become suitable for its return. The last known site of this species prior to its extinction was on the Worcestershire/ Warwickshire border. The Heart of England Forest has since created numerous suitable habitats to support its re-establishment.	The Heart of England Forest has established a diverse range of high-quality habitats, including structurally varied, flower-rich hedgerows and rides. Subject to the availability of appropriate funding and opportunities, Heart of England Forest sites could serve as a strategic location for reintroduction initiatives for this species	Unmappable
European beaver <i>Castor fiber</i>	Although this species is not currently present in Warwickshire, suitable sites within Warwickshire may be identified for the release and subsequent reintroduction of beavers. Certain areas of Warwickshire would benefit from beaver reintroductions as a Nature-based Solution (NbS).	Consider (re)introducing beaver into habitats which are identified as suitable.	Unmappable
White clawed crayfish (<i>Austropotamobius pallipes</i>)	The UK is thought to support a quarter of the world's population of White-Clawed Crayfish - the UK's only native crayfish species. It is under threat due to the spread of invasive non-native species which quickly eradicates native crayfish populations. The Species Recovery Programme Fund is currently funding a project for white-clawed crayfish in Warwickshire targeting actions to ensure its survival, including looking at Ark sites for reintroductions.	Establish ARK sites: identify suitable locations to relocate native crayfish and build a population in Warwickshire. Control INNS: Take suitable effective actions to exclude American Signal Crayfish if effective techniques emerge.	Unmappable



CONSULTATION DRAFT

WARWICKSHIRE LOCAL NATURE RECOVERY STRATEGY

PART 3

Delivery &
Monitoring

Previous:
Priority Species and
Actions

Next:
Glossary



Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions	Delivery & Monitoring Part 3
---	--------------------------------	------------------------------------	---

Contents

Delivering the LNRS.....	3
Introduction	3
Targeted Approach	3
Mapping	5
Delivery Mechanisms Overview	5
Key Delivery Mechanisms:	5
Monitoring	7
Tracking our progress	7
Citizen Science	7
Surveillance.....	8
Modelling and Research	8
Recording LNRS Activity	8

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery & Monitoring Part 3
------------------------	---------------------	--------	----------------------	------------------------------------	---

Delivering the LNRS

Introduction

Warwickshire's Local Nature Recovery Strategy (LNRS) is designed to empower and enable everyone and every organisation in Warwickshire to collectively contribute positively and meaningfully to nature's recovery locally and nationally.

Warwickshire have over 25 years of spatial habitat data. This data has been used to track land use and habitat changes across the county. Similarly, it has a strong amateur expert community that supports the Warwickshire Biological Record Centre (WBRC)

As a county, Warwickshire lacks large contiguous areas designated for nature or landscape purposes, such as National Nature Reserves (NNRs), Sites of Special Scientific Interest (SSSIs), National Landscapes, or National Parks. This, among other factors, has led to increasing fragmentation across the county over time, exacerbated by large national infrastructure projects, urban sprawl, new settlements and general development, both residential and commercial. This fragmentation contrasts with other Strategy Areas where extensive land is designated and/ or protected for their ecological or landscape importance.

Warwickshire, however, remains crucial for nature conservation. Centrally located in England, Warwickshire is essential for ecological connectivity at both regional and national levels. This connectivity is crucial for facilitating species and habitat range shifts in response to the changes in climate. Therefore, the Warwickshire LNRS must prioritise enhancing connectivity across the entire landscape to support biodiversity and environmental resilience.

Nationally LNRS's are mandated to spatially target conservation efforts to achieve better localised outcomes for nature over the lifetime of the strategy; envisaged to be eight years. This will be accomplished by focusing actions within targeted areas coupled with Biodiversity Net Gain strategic areas based on scientific modelling and local knowledge. However, given Warwickshire's pivotal position within the country, this should not preclude broader activities across the county. Together these approaches will deliver our Overarching Themes and contribute to the Local Nature Partnership's (LNP) vision.

Targeted Approach

The Warwickshire LNRS will target action in three ways:

- **Areas of Importance for Biodiversity (APIB)** – mapped locations where valuable habitat exists and should be conserved, enhanced and buffered as well as used to inform wider land management decisions to create a resilient, ecologically connected landscape.

Warwickshire Local Nature Recovery Strategy

Introduction Area Description Part 1	Themes Priorities Part 2	Habitat Actions Species Actions	Delivery & Monitoring Part 3
--	--------------------------------	------------------------------------	---------------------------------

- **Potential Actions for Nature Recovery** - mapped areas that could become of particular importance (ACB), mapped locations where specific actions could help achieve one or more LNRS Overarching Themes identified will be focused, plus unmapped locations and areas where nature recovery actions will be promoted. These include
 - Habitat Action Areas – mapped existing habitat of biodiversity value that could be restored or buffered to compliment the APIB sites.
 - Species Action Areas – mapped locations where specific species actions have been identified
 - Nature4Water – mapped locations and actions that would promote water environment benefits to support water resilience
 - Nature Improvement Areas (NIAs) and Project Areas – although unmapped the Warwickshire LNRS will continue to support the focused Priority Habitat and Species actions in these areas to consolidate and further their well-established achievements.
- **Biodiversity Net Gain Strategic Areas** – areas where habitat banks are encouraged for the purpose of compensating for Biodiversity Net Gain as prescribed in the Warwickshire Coventry and Solihull Green Infrastructure Strategy.¹ These areas have been divided into three broad habitat classes:
 - Grassland Strategic Areas
 - Grassland BNG squares²
 - Flood Plain Meadow Creation
 - Flood Plain reconnect and restoration
 - Grassland Acidic
 - Grassland Calcareous
 - Grassland Semi-improved
 - Invertebrates of Calcareous Grassland
 - Traditional Orchard
 - Woodland Strategic Areas
 - Woodland BNG squares³
 - Ancient Woodland
 - Wood Pasture & Parkland
 - Aspen Assemblage
 - Birds of Wet Woodlands

¹ [Warwickshire Coventry & Solihull Green Infrastructure Strategy Sub Regional Green Infrastructure Strategy - Publications – Warwickshire County Council](#)

² Appendix - LNRS Mapping Layers - Method statements for those habitats classified as grassland

³ Appendix - LNRS Mapping Layers - Method statements for those habitats classified as woodland

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 1	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery & Monitoring Part 3
------------------------	-------------------------------	--------	----------------------	------------------------------------	------------------------------------

- Deadwood Assemblage
- Woodland Invertebrates
- Pond Strategic Areas – Warwickshire until the Great Crested Newt District Level Licence is approved by Natural England

However, this does not preclude nature recovery actions from taking place outside the above mapped and unmapped areas, which covers 48% [to be updated post consultation] of Warwickshire.

Mapping

The APIB, Potential Actions for Nature Recovery and the Biodiversity Net Gain Strategic Areas that can be mapped are publicly accessible online:

Warwickshire LNRS Maps [[LNRS](#)].⁴

The Warwickshire LNP will also look to provide partner focused online mapping with more informative datasets to assist with their decision making on what is best for nature and their own objectives. For example, the Warwickshire Coventry & Solihull Green Infrastructure mapping⁵ has maps specific to spatial planners and developers.

Delivery Mechanisms Overview

The LNRS supports the implementation of a range of nature-recovery delivery mechanisms. These are essential for achieving habitat and species targets and the overall goal of thriving plants and wildlife.

Recognising the varied needs and priorities of different stakeholders, it is imperative that these mechanisms are adaptable and versatile, enabling stakeholders to employ the most suitable approaches or a combination thereof to achieve the desired outcomes.

Some of the key delivery mechanisms are outlined below.

Key Delivery Mechanisms:

Policy and Regulatory Frameworks

Implementing Biodiversity Net Gain (BNG) policies will ensure that new development projects contribute positively to biodiversity. Additionally, exploring opportunities to apply broader Environmental Net Gain (ENG) principles, through the establishment of and other Nature Markets, will consider a wider range of environmental benefits beyond biodiversity through, for example, nature-based solutions. This mechanism will primarily benefit developers and local planning

⁴ <https://maps.warwickshire.gov.uk/LNRS>

⁵ [Green Infrastructure - Warwickshire, Coventry and Solihull](#)

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 1	Themes Part 2	Priorities Part 2	Habitat Actions Species Actions Part 2	Delivery & Monitoring Part 3
------------------------	-------------------------------	------------------	----------------------	--	------------------------------------

authorities by providing clear guidelines and incentives for incorporating biodiversity enhancements into their projects.

Integrating the Warwickshire LNRS into local planning policies will guide development and ensure that nature recovery is considered at all stages of the planning process, benefiting local authorities and planners by embedding nature recovery into the planning framework.

Financial Mechanisms and Incentives

Recognising the need for financial support, the Warwickshire LNRS and its partners emphasise securing funding from diverse sources, including government initiatives and schemes. Although LNRSs are spatial strategies rather than delivery plans, this Delivery section of the Warwickshire LNRS aims to identify mechanisms that offer the best chance of achieving the strategy's goals.

Securing funding from various sources, including government grants, charitable trusts and private sector investment will support nature recovery projects. This approach will benefit conservation organisations, local authorities, businesses and community groups by providing the necessary financial resources to implement nature recovery initiatives.

Utilising environmental land management schemes will enable farmers and landowners to adopt nature-friendly practices. These schemes will directly benefit farmers and landowners by offering financial incentives for sustainable land management practices.

Exploring opportunities to participate in emerging regulatory and voluntary nature markets, such as carbon markets and biodiversity net gain, can also generate income for nature recovery projects, benefiting landowners, businesses, and conservation organisations by creating new revenue and capital streams.

Partnership and Collaboration

Effective delivery of the LNRS requires collaboration among various stakeholders, including local authorities, parish councils, Non-Government Organisations, businesses, community groups, and landowners and farmers. Forming or utilising existing relevant partnerships, cooperatives, farm clusters and networks with appropriate structures for collaborative decision-making and continued engagement is crucial. These partnerships can help mitigate conflicts over land use decisions and enable multifunctional land use that supports a collective approach for both nature recovery and economic/social uses.

Parish councils across Warwickshire are being encouraged to prepare Local Nature Action Plans, which are their plans to declare what they will do to help nature's recovery. Each plan will be slightly different, depending on location and resource availability. These plans will directly relate to the LNRS and have shared ambition.

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description Part 1	Themes Part 2	Priorities Part 2	Habitat Actions Species Actions Part 2	Delivery & Monitoring Part 3
------------------------	-------------------------------	------------------	----------------------	--	---

Engaging local businesses to promote biodiversity on their premises, reduce their environmental impact, and support local nature recovery initiatives is essential. This approach will benefit businesses by enhancing their corporate social responsibility and contributing to local conservation efforts.

Working closely with farmers and landowners through existing channels such as the Rural Hub and the Warwickshire Wildlife Trust, farm advisors will help implement sustainable land management practices and create wildlife-friendly habitats. This collaboration will benefit farmers and landowners by continuing to provide expert advice and support for nature-friendly practices.

Encouraging public participation in nature recovery through citizen science, volunteering, and community-led projects will further enhance the strategy's impact, benefiting local communities by fostering a sense of ownership and involvement in nature recovery efforts.

Monitoring

Tracking our progress

Tracking our progress is crucial to understand our successes or alter our priorities or approaches if necessary. The Convention on Biological Diversity, draws attention to the need to identify and monitor ecosystems, habitats, species, communities, genomes and genes. However, it is not possible nor practical to monitor all species, communities, and ecosystems. Therefore, there must be some kind of prioritisation. The LNP will provide this direction and will produce a LNRS monitoring framework and report appropriately. The framework will need to be resourced and financed.

Citizen Science

Warwickshire has a strong ecological recording community that will continue to be supported and will enable species and habitat targets to be monitored. This community comprises of amateur experts and is open to all. The public, through citizen science, contributes most species records within the Warwickshire Biological Record Centre and this community spirit will remain a core philosophy of this strategy.

The LNP will continue to encourage and support local, parish and county recording schemes and events that will foster community recording of all wildlife and their habitats and not just those specifically mentioned in this strategy.

Warwickshire Local Nature Recovery Strategy

Introduction Part 1	Area Description	Themes	Priorities Part 2	Habitat Actions Species Actions	Delivery & Monitoring Part 3
------------------------	---------------------	--------	----------------------	------------------------------------	---

Surveillance

The LNRS monitoring framework will include a long-term, systematic survey program. This will enable the collection of ecological data in a standardized manner at regular intervals over time on dedicated sites across the county. It will comprise both traditional and modern survey techniques.

The LNP will continue to work with research establishments and county recording groups to develop and deliver the long-term systematic survey program.

Modelling and Research

The LNP will endeavour to ensure that all data gathered through the LNRS Framework will be open to all and made available to those that wish to research past, present, and future ecological trends

Recording LNRS Activity

The LNRS monitoring framework will also include how everyone can register the actions they have taken to fulfil the LNRS. It will look to promote one or more platforms on to which actions can be recorded and celebrated.



CONSULTATION DRAFT

WARWICKSHIRE LOCAL NATURE RECOVERY STRATEGY

Glossary

Previous:
Priority Species and
Actions

Next:
Glossary



LNRS Glossary

Terms

Term	Definition
Agroforestry	A land-use system that integrates trees and shrubs into farming systems.
Ancient Semi-Natural Woodland (ASNW)	Ancient semi-natural woodland (ASNW) is where the stands are composed predominantly of trees and shrubs native to the site that do not obviously originate from planting. However, woodlands with small planting of trees native to the site would still be included in this category. The stands may have been managed by coppicing or pollarding in the past or the tree and shrub layer may have grown up by natural regeneration.
Arable reversion	The process of converting land previously used for arable (crop) farming back to semi-natural habitats such as grassland, heathland, or woodland. It is often used to restore biodiversity, improve soil health, and support nature recovery efforts.
Areas of Particular Importance for Biodiversity (APIBs)	Within the Warwickshire Local Nature Recovery Strategy (LNRS), these are areas <i>already</i> recognised as being of particular importance for biodiversity. They include sites for nature and irreplaceable habitats that are protected through local, national, or international designations—such as Local Wildlife Sites, Sites of Special Scientific Interest (SSSIs), and ancient woodlands. These areas form a vital foundation for nature recovery across the county.
Areas that Could become of particular importance for Biodiversity (ACBs)	As part of the LNRS process in Warwickshire, we’ve identified and mapped areas that could become particularly important for biodiversity. These are places where targeted actions for nature recovery are likely to have the greatest impact, helping to restore habitats, support species, and strengthen ecological networks across the county.
Biodiversity	Variety of all living organisms ranging from the genes of an individual to entire ecosystems and biospheres.
Biodiversity net gain	Approach to land development and management that holds developers accountable for contributing to the net gain of biodiversity.
Carbon Market	Market dedicated to the trading of carbon emission allowances to promote fewer carbon dioxide emissions by improving awareness.

Warwickshire Local Nature Recovery Strategy

Glossary

Carbon sequestration	Uptake/ storage of carbon e.g. absorption of carbon dioxide in plants through natural processes like photosynthesis.
Climate Change	A pattern of change in response to natural processes or human activity on global and region climates.
Climate Resilience	The ability of a system—such as a community, ecosystem, or economy—to anticipate, prepare for, respond to, and recover from the impacts of climate change. It involves adapting to climate risks while maintaining essential functions and minimising long-term damage.
Ecological resilience	The capacity of an ecosystem to absorb disturbances- such as extreme weather, pollution, or human activity- while maintaining its essential structure, functions, and processes. A resilient ecosystem can recover from disturbance events and continue to support biodiversity and ecosystem services.
Ecosystem services	Direct and indirect ways that humans benefit from the natural environment.
Green infrastructure	Integration of innovative multi-functioning greenspaces within a community whether that be rural or urban. For example, community gardens.
Habitat Biodiversity Audit (HBA)	Now known as the Natural Capital Assessment Partnership (NCAP). Please see below.
Habitat Fragmentation	The process by which large, continuous habitats are broken into smaller, isolated patches, often due to human activities like agriculture, urban development, or road construction. It reduces biodiversity, disrupts wildlife movement, and weakens ecosystem resilience.
Husbandry	The practice of farming, including cultivation of soil, raising livestock, and other agricultural practices.
Intensive farming	A type of agriculture that involves intensive use of inputs, such as fertilisers, pesticides, and machinery, to maximize output.
Natural Capital	Economic metaphor of likening the value of living and non-living aspects of ecosystems to that of stock.
Natural Capital Assessment Partnership (NCAP)	Established in 1995 and formerly known as the Habitat Biodiversity Audit (HBA), the Natural Capital Assessment Partnership (NCAP) has collected and collated over 25 years of habitat data.

Warwickshire Local Nature Recovery Strategy

Glossary

	With its primary remit being habitat mapping and conservation, NCAP data covers the vast majority of Warwickshire. It offers comprehensive and continuously updated habitat data through 'Phase 1 surveying', which is crucial for tracking habitat changes, identifying connectivity opportunities, and supporting wildlife movement. Additionally, NCAP manages Local Wildlife Sites (LWS).
Natural capital assets	All the environmental factors and natural resources e.g. rain, sun, biodiversity that is needed to provide marketable goods or environmental benefits.
Natural capital depletion	Increase of capital gain and standards of living at the expense of natural capital.
Natural capital investment	The allocation of financial resources into the protection, restoration, or sustainable management of natural assets—such as forests, wetlands, rivers, soils, and biodiversity—with the goal of generating both environmental and economic returns.
Natural capital stocks and flows	Flows of services from stocks of natural capital that overtime provide marketable goods, or positive interactions between an individual and their ecosystem (from water purification to recreational benefits).
Nature Based Solutions	Using nature as a technique to help solve environmental issues
Nature Markets	Private investment into nature by funding ecological services for example restoration projects.
Net Zero	Equal balance between carbon dioxide emissions and mitigation, so there is no overall net gain or loss.
Non-Government Organisations (NGOs)	Independent entities that operate separately from government control. They are typically non-profit organisations focused on addressing social, environmental, cultural, or humanitarian issues. NGOs can work locally, nationally, or internationally, and they often rely on donations, grants, and volunteers to carry out their missions.
Nutrient cycling	The natural process by which essential nutrients (like nitrogen, phosphorus, and carbon) are transferred between living organisms and the environment, supporting ecosystem health and productivity.
Open Mosaic Habitat	A unique type of habitat predominantly found on brownfield sites, consisting of a complex mix of unvegetated or sparsely vegetated surfaces interspersed with more densely vegetated areas. This creates a dynamic ‘mosaic’ of habitats that can support a diverse range of species.

Warwickshire Local Nature Recovery Strategy

Glossary

	Open Mosaic Habitats (OMH) are recognised for their high ecological value.
Planetary boundaries	A scientific framework outlining nine environmental limits within which humanity can safely operate. Breaching these boundaries (e.g., climate change, biodiversity loss) risks destabilising Earth's systems.
Plantation on Ancient Woodland Sites (PAWS)	Plantations on ancient woodland sites (PAWS, also known as ancient, replanted woodland). These are areas of ancient woodland where the former native tree cover has been felled and replaced by planted trees, predominantly of species not native to the site. These will include conifers such as Norway spruce or Corsican pine, and also non-native broadleaves such as sweet chestnut. These sites often retain some ancient woodland features such as soils, ground flora, fungi, and woodland archaeology – and they can respond well to restoration management.
Range Shifts	The movement of species and habitats in response to climate change, involving shifts to higher latitudes or elevations to maintain suitable climate conditions.
Responsible Authority	The designated public body appointed by the Secretary of State for Environment, Food and Rural Affairs to lead the preparation, publication, and maintenance of a Local Nature Recovery Strategy (LNRS) within a defined area in England. This authority is typically a local authority, combined authority, or the Mayor of London, depending on the region. The responsible authority is tasked with coordinating stakeholders, gathering evidence, and developing strategic plans to enhance biodiversity and support nature recovery at the local level.
Ridge and Furrow	An ancient ploughing technique for cultivating arable land, depicting the raised earth banks and intervening depressions that result from prolonged ploughing activities.
Scheduled Monument	A nationally important archaeological site or historic building that has been given legal protection by the government. In the UK, this designation is made under the Ancient Monuments and Archaeological Areas Act 1979.
Silage	A fodder crop (such as grass or clover) preserved in airtight conditions, typically in a silo.
Spring topping	A land management practice typically used in grassland, heathland, or conservation areas to control the growth of certain plants - especially

Warwickshire Local Nature Recovery Strategy

Glossary

	coarse grasses, bracken, or early-flowering species—without completely removing vegetation. It helps maintain open habitats for ground-nesting birds, pollinators, and a variety of invertebrates by promoting plant diversity.
Stocking density	The number of animals kept per unit area of land, typically expressed as animals per hectare. It influences grazing pressure, pasture health, and animal welfare, and is a key factor in sustainable land management.
Strategic Area	The defined geographic boundary within which a Local Nature Recovery Strategy (LNRS) is developed. Each strategic area is assigned a responsible authority and is designed to ensure full national coverage without overlaps or gaps. It serves as the spatial framework for identifying local biodiversity priorities, mapping valuable habitats, and planning targeted actions to support nature recovery.
Supporting Authority	A public body that must be involved in the preparation of a LNRS, though it is not the lead organisation. This includes Local Planning Authorities (LPAs), Environment Agency, Forestry Commission, and Natural England. Supporting authorities are required to collaborate with the responsible authority to help shape the strategy, ensure it aligns with local priorities, and contribute relevant data, expertise, and feedback throughout the process.
Sustainable development goals (SDGs)	A set of 17 global goals adopted by the United Nations to end poverty, protect the planet, and ensure peace and prosperity for all by 2030. They cover areas such as health, education, climate action, and economic growth.
Sustainable Urban Drainage Systems (SUDS)	A set of water management practices designed to mimic natural drainage processes in urban areas. SuDS help manage surface water runoff, reduce flood risk, improve water quality, and enhance biodiversity by using features like permeable surfaces, swales, green roofs, and wetlands.
Vegetative succession	The process of gradual change in plant and animal communities in an area over time.
Wetland	An area of land where water covers the soil or is present near the surface for part or all of the year.

Acronyms

Acronym	Definition
ACB	Areas that Could become of particular importance for Biodiversity
APIB	Areas of Particular Importance for Biodiversity
ASNW	Ancient semi-natural woodland
EIP	Environmental Improvement Plan
HBA	Habitat Biodiversity Audit
LNR	Local Nature Reserve
LNRS	Local Nature Recovery Strategy
NCAP	Natural Capital Assessment Partnership
NCA's	National Character Areas
NGOs	Non-Government Organisations
NIA	Nature Improvement Area
OMH	Open Mosaic Habitat
PAWS	Plantation on Ancient Woodland Site
RA	Responsible Authority
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
SUDS	Sustainable Urban Drainage Systems