Surrey Nature Recovery

# Local Nature Recovery Strategy

Part 1: A Description of the Strategy Area

March 2026

SURREY COUNTY COUNCIL

# Contents

# Acknowledgements

The development of the Surrey Local nature Recovery Strategy has been made possible through the input of countless individuals and organisations, too many to note individually. With special thanks to the steering group who have provided key guidance throughout the process and willingly given up their time to ensure the success of this strategy:-

- Surrey County Council
- Surrey Nature Partnership
- Surrey Hills National Landscape
- Surrey Wildlife Trust
- Guildford Borough Council
- Surrey Biodiversity Information Centre
- Natural England
- Environment Agency
- Forestry Commission
- National Farmers Union
- CLA
- Hampton Estate

## Executive Summary

The Surrey Local Nature Recovery Strategy (LNRS) is a plan for the restoration, recovery and enhancement of nature across the whole county. It is one of 48 new strategies being created in England that, together, will form a national Nature Recovery Network across the country. All the strategies share the same aim of halting and reversing the decline of nature but have bespoke measures unique to the landscapes of each area.

Surrey County Council were appointed by DEFRA as the Responsible Authority leading on the preparation of the LNRS, working alongside a steering group of core partners and supported by the Districts and Boroughs of Surrey.

This map-based strategy follows the Lawton Principles of more, bigger, better and joined-up spaces for nature. It identifies key areas in the county where action should be targeted to have the greatest positive impact on nature recovery. The focus is not on those areas already protected for nature, but instead the strategy prioritises identifying locations that could become a high-quality extension to the network that already exists in the county.

# Executive Summary

Accompanying the map is the description of the strategy area, outlining the state of nature in Surrey and the key threats and opportunities it faces. The statement of biodiversity priorities sets out 18priorities for nature recovery, split across five key themes, along with potential measures or actions for achieving these outcomes. Such actions include creating new areas of wildlife rich habitat, reintroducing native species and adopting nature-friendly land management practices.

Once published, the LNRS will equip local authorities, farmers, developers, landowners and Surrey communities with the information to make informed decisions that bring maximum possible benefit to nature. Whether that be through allocation of funding and investment, guiding planning decisions and local action plans or informing landowners about wildlife-friendly management techniques they can pursue.

The LNRS was a true community co-creation, with stakeholders from all walks of life contributing thousands of individual pieces of data during a series of 11 workshops as well as an online survey. This consultation (Summer 2025) provides a further, and final, opportunity for the community to have their say at a formative stage of this important plan. Extensive collaboration with partners has brought the strategy into alignment with programmes already underway across the county, ensuring that none of the great work already being done goes under the radar.

Surrey contains some extremely rare and critically threatened habitats such as ancient woodland, chalk grassland and internationally important lowland heathland. As the most wooded county in England, Surrey is undeniably a county rich in biodiversity, however, even here the overall state of the county's nature remains concerning. Pressure from threats such as development, pollution and climate change have caused habitats to decrease in size and quality and become increasingly fragmented. As a result, wildlife that survives in these habitats is also under threat.

Despite the situation much of the county's nature finds itself in, the LNRS seeks to create a future full of hope, where every action, from building a new garden pond to the creation of a nature reserve, combines to create an abundant, thriving and diverse county that can be enjoyed by all, for generations to come.

This strategy is the product of hundreds of hours of time, expertise and support from partners, stakeholders and individuals. But, this is just the beginning, the collaborative relationship will continue following the publication of the strategy, creating a firm foundation from which to deliver a positive future for nature in Surrey.

# Introduction

# What is nature recovery and why is it important?

Nature recovery is the activity of helping the natural world repair and grow by restoring damaged habitats, protecting wildlife, and allowing ecosystems to thrive again. It involves actions like cleaning rivers, reintroducing native species, and changing how we use and manage land to be more nature-friendly.

Nature recovery activities can range from small actions such as the creation of a bug hotel in a garden or school to the creation of areas of new habitats at a landscape scale – we can all play a role in making space for nature.

## What does nature do for us?

As well as a space for wildlife to thrive, nature provides a wide variety of benefits to society, with many essential to our survival, well-being and economy. These benefits are sometimes referred to as Ecosystem Services or, for the purposes of the LNRS, Wider Environmental Benefits. The table below outlines some key Wider Environmental Benefits that nature provides.

### Provisioning services
*the raw materials nature provides*

- Food
- Wood / Timber
- Water Supply
- Renewable and non-renewable energy

### Regulating Services -

- Flood Reduction
- Clean Air
- Clean Water
- Pollination

### Cultural Services
*the social and non- material benefits from nature*

- Physical health and Mental Wellbeing
- Tourism
- Recreation
- Sense of Place

### Supporting Services
*the foundation of all other services*

- Space for Wildlife
- Nutrient Cycling
- Healthy soils

# What is nature recovery and why is it important?

The ability for nature to provide these benefits depends on the condition, extent and location of different habitats - By recovering our natural assets, or increasing our Natural Capital, and targeting activity in the right places we can increase the delivery of Wider Environmental Benefits. When creating this strategy, we have integrated the delivery of Wider Environmental Benefits – seeking win-win situations for people and nature. The table below provides examples of actions and policy areas:

| Natural Flood Management (NFM) | Access to Natural Greenspace | Nature Friendly Land Management |
|---|---|---|
| By creating and restoring wetland habitats, slowing the flow of water across the landscape and holding back water in the right places, we can work with nature to reduce flood peaks during heavy rainfall.<br><br>Making space for nature with NFM in mind can help protect our own homes helping us to adapt to the worst impacts of climate change. | It is increasingly recognised that interaction and connection with nature can improve both physical and mental health, with over 70% of UK adults saying that being close to nature improves their mood.<br><br>Expanding the quantity and quality of accessible, natural spaces where people need it can create healthier vibrant communities and ease the pressure on our health services. | Farming policy has long seen nature as an obstacle to increased outputs. Leading to increased chemical use and a diminishing home for wildlife across our landscapes.<br><br>Adopting nature friendly farming methods can turn the tide, increasing soil quality, locking up carbon, improving water quality and creating a connected, thriving landscape.<br><br>But our farmers and land managers need appropriate support to make this choice possible. |

# What is nature recovery and why is it important?

## An Economy Underpinned by Nature

Our economy is heavily reliant on a healthy environment, it is estimated that over half of the world's GDP is dependent on nature.[1] Analysis published by the Green Finance Institute shows that damage to the natural environment is slowing the UK economy and in the coming years could lead to a bigger reduction in GDP than Covid-19. The Dasgupta Review of the Economics of Biodiversity[2] starkly warned of our overuse of our natural assets, estimating that we would need 1.6 Earths to maintain our current way of life.

The most recent UK Natural Capital Account estimated the annual value of ecosystem services to be £87 Billion.[3]

Investing in nature is not just something that should concern wildlife enthusiasts. It is absolutely vital to sustaining and improving every aspect of society, ensuring we can adapt and thrive in our changing environment now, and for many generations to come.

# What is a Local Nature Recovery Strategy?

Local Nature Recovery Strategies (LNRS) are a new approach to restoring and conserving nature in England. Identifying key threats and pressures to nature and setting out the priorities and specific measures we need to take to combat them.

48 Local Authorities and Councils were made 'Responsible Authorities' by the Department for Environment, Food and Rural Affairs (DEFRA) to develop a strategy for their local area. Together these strategies will provide the building blocks for a seamless national Nature Recovery Network across England.

Surrey County Council is the responsible authority assigned by DEFRA to create the LNRS for Surrey (the Strategy Area).

The sites identified within the LNRS will inform future plans (e.g. Local, Minerals and Waste, and Neighbourhood plans), and guide future development, by identifying natural spaces that have potential to be connected and restored.

The LNRS will strive to support the recovery of local populations of Surrey's most threatened and rare species, ultimately increasing biodiversity. The strategy will work to make Surrey more resilient to external challenges such as climate change, pests and diseases. It will also seek to provide greater opportunities for people to access natural spaces, improving well-being and quality of life.

# What is a Local Nature Recovery Strategy?

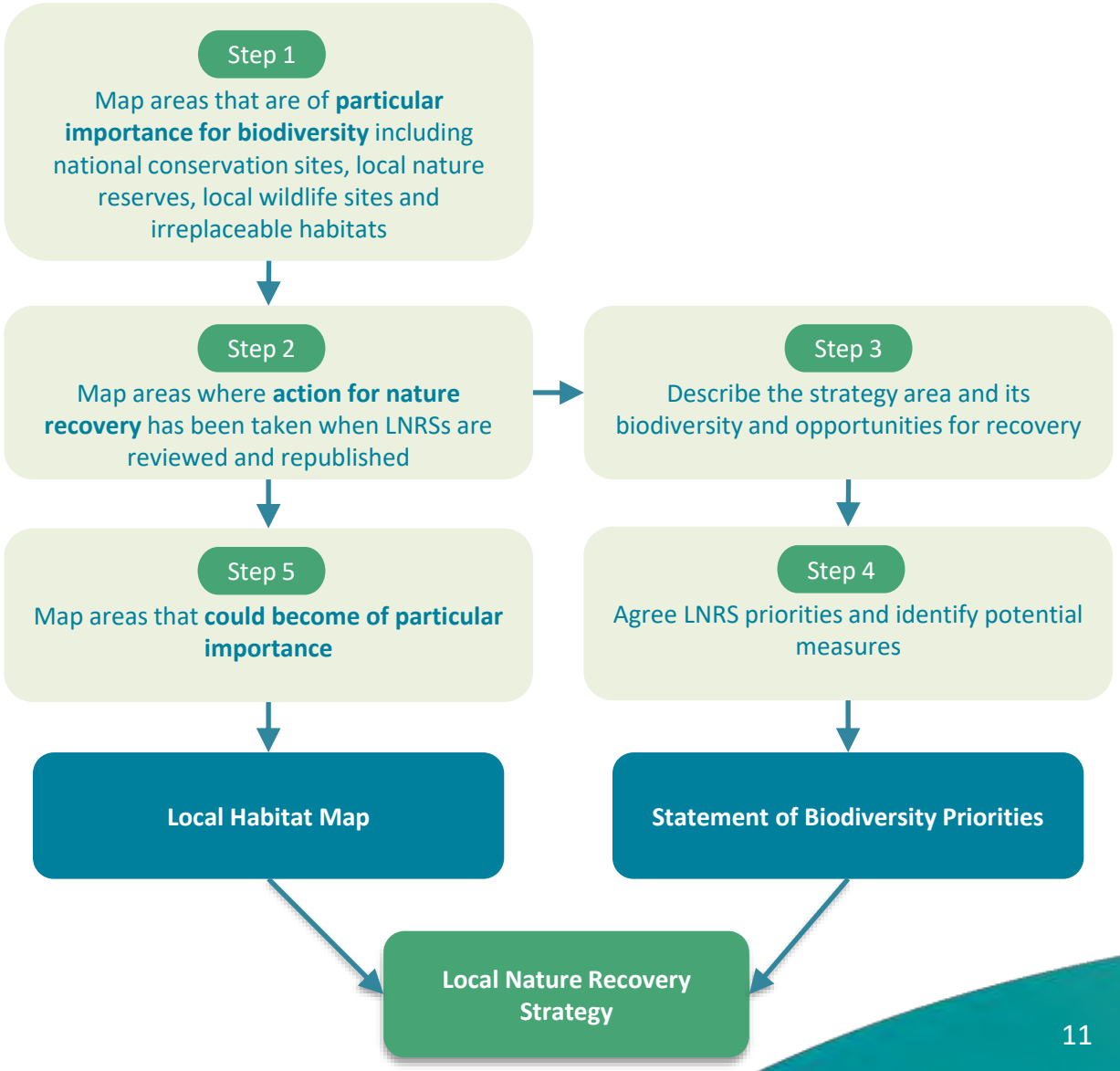
The process for creating the LNRS is set out in statutory guidance and supplemented by a series of non-statutory advice notes produced by DEFRA and Natural England.

The Surrey LNRS is made up of the following elements:

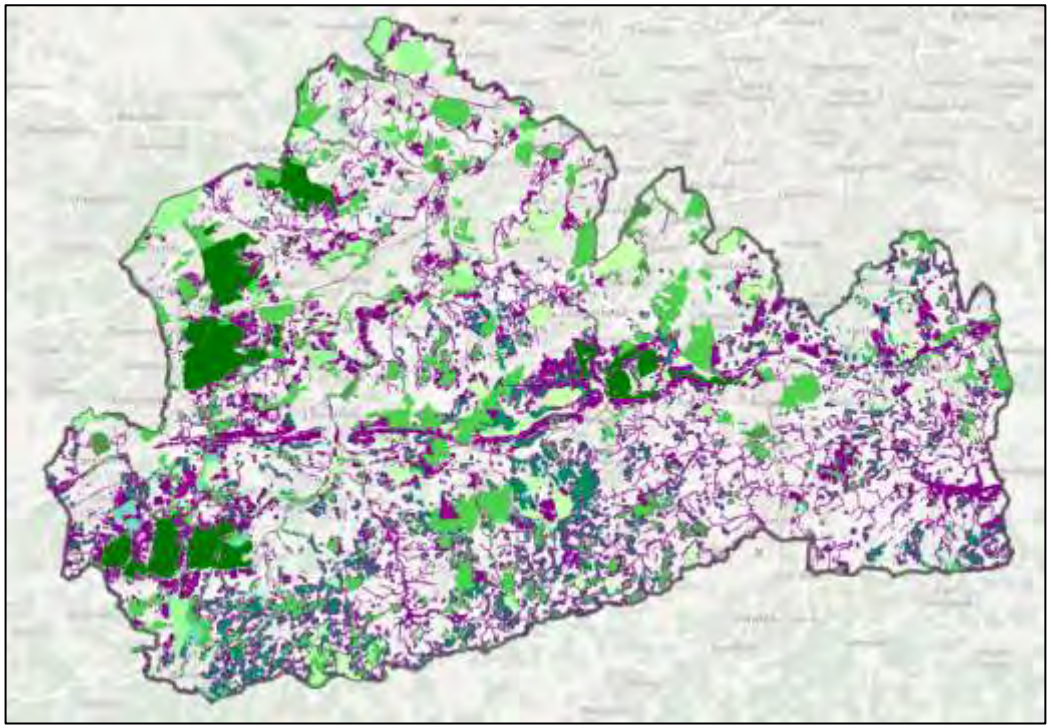
**Part 1: A description of the strategy area and its biodiversity** - A concise overview of the LNRS area, outlining its key landscapes, habitats, ecological features, and current biodiversity condition, providing the baseline context for recovery action.

**Part 2: A statement of biodiversity priorities and species priority list** -

**The Local Habitat Map** featuring areas already important for biodiversity and those areas that could become important



# What is a Local Nature Recovery Strategy?



The Local Habitat Map is made up of three key layers:

### Areas of Particular Importance for Biodiversity (APIB)

Areas already identified as being of particular importance for biodiversity, including nationally and internationally designated sites, local nature reserves, local wildlife sites, and irreplaceable habitats.

### Areas that Could become of Importance for Biodiversity (ACIB)

The area outside of the APIB identified as having the potential to deliver the greatest benefits for nature if targeted potential measures are implemented, helping expand and connect existing high-value habitats

### Potential Measures

Areas where proposed specific nature recovery actions should be delivered to best achieve LNRS priorities, identifying locations where targeted measures can restore or enhance biodiversity.

All of these layers can be viewed on the online interactive map, and a mapping method statement is available in annexe 1

# What is a Local Nature Recovery Strategy?

The LNRS is designed to be an inclusive, collaborative tool to guide and inspire action for nature recovery. It is not just for environmental professionals, it is for **everyone** who interacts with, manages, or benefits from the natural environment. This following sections will set out what and LNRS does and doesn't do, how we will deliver nature recovery action and how different stakeholder groups should use and interact with the strategy.

## What the LNRS will do

- Guide investment into local priorities for nature recovery
- Help shape how future funding for farming and land management such as the Environment Land Management (ELM) schemes will be used
- Highlight areas of opportunity for the use of nature-based solutions to combat issues like flooding, climate change mitigation and adaptation or poor water quality
- Guide the delivery of mandatory biodiversity net gain (BNG) across the strategy area
- Provide a source of evidence for local planning authorities, helping these authorities understand locations important for conserving and restoring biodiversity when delivering strategic plans.

## What the LNRS does not do

- **Force land managers to undertake the actions outlined** – the LNRS suggests potential actions and will make achieving them more feasible with support and directed funding - but ultimately the choice of what to do with land remains with landowner
- **Create new designations or legal protection of sites** – Sites mapped in the LNRS do not receive any additional designation to what already exists and no additional protection is conveyed on land through inclusion in the strategy.
- **Map potential measures in existing statutory designated sites** – The expectation is that existing statutory designated sites, such as Sites of Specific Scientific Interest, already have a duty to be in good condition – as such they form part of the existing Areas of Particular Importance for Biodiversity.
- **Prevent development** – The LNRS will be used by local authorities to inform local plan decisions and to decide what level of safeguarding, if any, is appropriate for sites they deem relevant. Local Plans and allocations of safeguarding will have their own consultation and engagement process.

# How will the LNRS be delivered?

As the Responsible Authority (RA), Surrey County Council is required to produce the LNRS, supported by partners and stakeholders. Turning this strategy into a reality and delivering a thriving and biodiverse Surrey is going to require the work of everyone.

Following publication, the RA will have a role in enabling and encouraging the delivery of the LNRS across the county through four main workstreams:-

### Leading and convening a partnership focussed on delivering the Strategy

Building on the LNRS steering group and working with the Surrey Nature Partnership, the RA will regularly convene a partnership to oversee the ongoing delivery and monitoring of the LNRS, ensuring a diverse blend of expertise and broad representation across sectors.

**Ensuring the LNRS is taken account of in other strategies and policy development** The LNRS is natures voice in local and regional decision making, it provides an evidence base for the development of Local Plans, Minerals and Waste strategies and Spatial Development Strategies. It will be the responsibility of the RA to ensure that these strategies are abiding by their duty to take account of the LNRS and considering locations for nature conservation and habitat enhancement in their development.

### Identifying strategic projects and facilitating project development

The RA will work with the Surrey Nature Partnership and other relevant groups to take a strategic view of nature recovery projects across the county. Where possible aggregating smaller projects and supporting them to become investment-ready and unlocking green finance opportunities.

### Monitoring and reporting on delivery of LNRS priorities

The LNRS will be reviewed and republished every 3–10 years. At each review, RAs will be required to map the nature recovery actions that have been delivered. To support this, the RA will undertake continuous monitoring of nature recovery activity across the area, ensuring progress is accurately recorded and informing future iterations of the strategy.

# How will the LNRS be delivered?

## Coordination

Many individuals, groups, and partnerships in Surrey are already working to protect and enhance nature every day. The LNRS is not about starting from scratch; it is about harnessing these existing efforts, aligning resources, and working together to achieve greater impact in addressing the biodiversity crisis. Below are a few examples of existing groups and partnerships across Surrey that are already delivering for nature:-

## Regional – Big Chalk

Big Chalk is a regional nature recovery partnership focused on restoring and connecting the chalk and limestone landscapes of southern England Spanning around 20% of England's land area, it brings together more than 150 organisations to create a resilient, nature-rich network of habitats across some of the country's most culturally and ecologically significant terrain. Surrey plays a crucial role in this partnership with the chalk ridge providing the connecting link between the Kent and Hampshire Downs.

## Landscape – Eden For Nature

Expanding on the farm cluster model, the Eden for Nature group is creating a collaboration between farmers, communities and conservationists with the aim to restore nature and build more connected, resilient and productive landscapes in East Surrey and West Kent. Adopting regenerative farming where appropriate, and enhancing the management of open spaces within settlements, as well as the hedgerows and verges that link them. Eden for Nature aspires to be a shining example of successful community-led nature restoration throughout Southern England.

## Community – Haslemere Biodiversity

With its origins in the development of the environmental policies of the Haslemere Neighbourhood Plan, Haslemere Biodiversity has emerged as an exemplar for community biodiversity action in Surrey. Providing a platform for sharing ideas, expertise and resources enabling grass roots action to protect and improve the physical and natural environment of Haslemere. Recent projects include the development of a neighbourhood nature recovery strategy, wildlife gardening and swift box installation. Residents and community groups will be vital in delivering the LNRS and integrating nature into our local area.

# How will the LNRS be delivered?

## Funding

A critical barrier to nature recovery delivery is the availability of funds. There are several opportunities to access funding, but these are often very specific or unsuitable for relevant groups. The LNRS delivery partnership will work to collate information on opportunities, connecting them with relevant projects and groups where possible. Below are a few examples of the grants and opportunities available for the delivery of nature recovery action:

Heritage Lottery Fund uses money raised by National Lottery players distributing grants up to £10million to support projects across the UK that connect people and communities to their heritage. Surrey Wildlife Trusts Hedgerow Heritage project received HLF funding aimed to inspire and teach young budding ecologists, practical conservationists and the wider community to restore, renew and create hedgerows in the North Downs and Surrey Hills.

**Farming in Protected Landscapes (FiPL)** is a government grant that helps farmers and land managers in England's National Parks and National Landscapes fund projects that support nature recovery, tackle climate change, improve public access, and protect local heritage. Surrey Hills National Landscape has supported projects delivering chalk grassland and pond restoration, hedgerow planting, regenerative grazing infrastructure, natural flood management and heathland conservation.

Surrey Community Nature Grant was a small grants fund administered by SCC of up to £5000 awarded to community groups and schools across the county delivering nature recovery actions aligned with the LNRS. Successful projects included pond restoration, the purchase of new equipment, swift brick installation and much more. The grant was enormously oversubscribed showing the huge amount of community appetite and capacity for delivering local nature recovery and highlighting a clear opportunity for investment to unlock this potential.

# How can the LNRS be used?

The potential measures set out in the Statement of Biodiversity Priorities will be relevant across the county and focus on the core principle that more, bigger, better and connected habitat can provide a resilient home for our wildlife in Surrey. The local habitat map itself only shows the highest priority areas for the associated measures; it is not a complete map of everywhere that measure could be applied. As such, **it is important to note that just because an area does not feature on the local habitat map, it does not mean that there is no potential for nature recovery.**

## For land managers and farmers, the LNRS:

- Identifies the highest priority opportunity areas for habitat creation and connectivity
- Aids in pinpointing habitat opportunities across farmland, offering initial guidance on the most suitable habitat types for those areas
- Provides guidance on actions to take forward on farmland and woodland to achieve nature recovery and to transition towards more sustainable farming practices
- Provides a landscape level view that can link efforts across multiple land holdings, scaling opportunities for nature recovery and investment

## For community groups and individuals, the LNRS:

- Assists in pinpointing areas within the local community to prioritise for nature recovery efforts
- Provides guidance for focusing on habitat creation and enhancement initiatives
- Aids in the creation and alignment of neighbourhood plans
- Can support funding applications for nature recovery projects
- Aids in the establishment of new local community groups dedicated to nature recovery efforts
- Encourages more people to participate in nature projects

# How can the LNRS be used?

## For local authorities, the LNRS:

- Helps in determining locations of off-site potential for BNG
- Assists in aligning local plan green infrastructure delivery with LNRS goals
- Aids in planning and site allocation decisions through data-driven site identification for nature recovery
- Helps in identifying sites for green and blue space delivery, assisting in meeting local targets

## For environmental non-governmental organisations (NGOs), the LNRS:

- Prioritises areas for nature recovery
- Fosters collaborative efforts across the county, generating greater ambition for nature recovery
- Supports funded schemes such as ELM schemes, enabling large-scale positive changes for nature
- Furthers the promotion of their efforts for nature and wildlife recovery
- Facilitates the connection of long-term goals for nature's recovery.

## For developers, the LNRS:

- Provides guidance on biodiversity priorities and measures to be incorporated into development projects
- Provides support with delivering BNG, by highlighting key land for nature recovery delivery, which could also be suitable sites for off- site BNG
- Provides a series of potential measures for embedding nature into urban infrastructure. These can have multiple benefits for new developments, including stormwater management, climate resilience, urban cooling, and overall enhancing the quality and sustainability of built environments.

# Delivering the National Goal for Nature Recovery

The importance of nature and the wider environmental benefits it provides has been increasingly recognised in government policy, law and international commitments. The LNRS is designed to be one of the tools to deliver against these commitments to achieve thriving habitats and species.

## Environment Act 2021

The *Environment Act 2021* is a major piece of legislation aimed at protecting and improving the natural environment. As well as LNRSs the Act introduced:

**Enhanced Biodiversity Duty** which strengthens the responsibility for public authorities to care for nature. Under this duty, public bodies must not only consider biodiversity when making decisions but also take active steps to enhance it. This means making sure that plans, policies, and land management activities help enhance and restore wildlife and habitats.

**Biodiversity Net Gain (BNG)** requires some new developments in England to increase the amount of biodiversity when compared to their pre-development baseline. A metric is used to calculate how many biodiversity units will be lost and how many are gained through action on site - requiring a final uplift of 10% - any deficit in units can be delivered offsite via an agreement with a registered landowner or project. Habitats delivered via BNG must be looked after (via legal agreement) for at least 30 years.

Delivering BNG actions that align with the mapped potential measures of the LNRS triggers a strategic significance uplift in the metric calculation – increasing the unit quantity delivered for the same action by 15%.

## 25 Year Environment Plan

Published by the UK Government in 2018, the *25 Year Environment Plan* sets out a long-term vision for improving the environment, within a generation, and leaving it in a better state than it was found in. It outlines goals to clean up air and water, create richer habitats for wildlife, reduce waste, and make the countryside more resilient to climate change. The plan also emphasises the importance of connecting people with nature and using natural resources more sustainably. It forms a key foundation for later policies such as the *Environmental Improvement Plan 2023 and the Environment Act 2021*

# Delivering the National Goal for Nature Recovery

## Environmental Improvement Plan 2023

*The Environmental Improvement Plan (EIP) 2023* sets out an ambitious national goal to halt the decline in our biodiversity so we can achieve thriving plants and wildlife. This goal can be achieved by addressing environmental challenges and protecting natural habitats and the species that live there. It includes the following Government objectives and targets relevant to the LNRS:

- Halt the decline in species by 2030 and increase it by 2042;
- Protect 30% of our land and sea for nature by 2030; and
- Restore or create more than 500,000 hectares of wildlife-rich habitats outside protected sites by 2042

## Global Biodiversity Framework

In December 2022 the UK joined 195 countries in signing the Kunming-Montreal Global Biodiversity Framework (GBF). The GBF sets out a pathway to achieving the vision of a world living in harmony with nature by 2050.

The GBF is underpinned by 23 targets, many of which relate closely to our national targets in the EIP – the following are a few of the targets relevant to the LNRS

- Protect 30% of our land and sea for nature by 2030
- Restore 30% of degraded land
- Halt species extinctions
- Reduce the introduction of invasive, non-native species
- Reduce pollution

These targets and policies show a strong commitment to restoring nature and creating a healthier, more resilient environment for future generations. Where applicable, the Surrey LNRS seeks to further the ambition set out in these National Environment Objectives.

# How is nature viewed in Surrey?

To better understand how people feel about the natural environment, we asked Surrey residents to share their views in an online survey in summer 2024, receiving over 900 responses. The responses show that most people care deeply about protecting nature, feel the benefits of being outdoors, and want to see local habitats preserved for the future.

### There is a strong concern for Surrey's nature.

- 75% said they are very concerned about the current or future state of nature in Surrey.
- Only 1% said they were not concerned.

### Nature matters to people in Surrey.

- 89% strongly agreed that protecting nature is important.
- 82% said being in nature makes them very happy.
- 91% said they can easily access green and open spaces.

Many people also feel that their *actions can help nature recover and that they feel part of nature.*

### What habitats need protection the most?

People were asked which habitats they think need the most protection in Surrey:

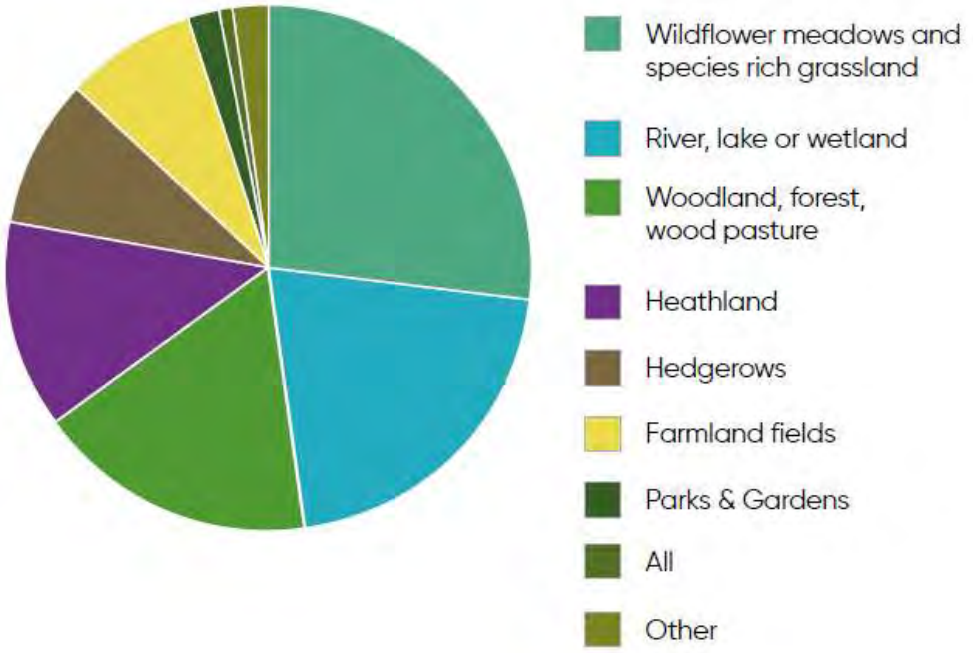



Fig.1 Results of question "What habitats need protection the most?"

# Landscapes and protected sites

Located in the southeast of England, Surrey is a scenic county bordered by Greater London, Berkshire, Kent, Sussex and Hampshire. Two National Landscapes, the Surrey Hills and the High Weald, cover over a quarter of Surrey. It is the most wooded county in England and is also recognised for its heathlands and chalk grassland habitats which support a number of rare and threatened species.

# Geology

The diversity of landscapes and associated habitats and species in Surrey are shaped by the county's incredibly varied rock and soil types, formed over thousands of years by glacial movements and river activity. Three of Surrey's key geological features are outlined:

## The Thames Basin

A section of the River Thames runs through the northern part of Surrey, shaping the softer soils like London Clay and Bagshot Sand. Rainwater, streams and rivers (e.g. the River Mole and the River Wey) flow into the River Thames to form the Thames Basin. The landscape created is mostly flat, with fertile soils that support a mix of farmland, woodland and grassland. Clay soil holds a lot of water, creating ideal conditions for floodplains and wetland habitats. Meanwhile, the sandy and gravelly soils support the largest area of heathland habitat in the county, making it an internationally important area for local wildlife and heathland habitats.

## The North Downs

The North Downs are a range of hills formed of harder chalk rock, running from west to east across Surrey and into Kent in the East. The chalk gives the landscape a unique white appearance which is covered in open farmland, woodlands and rarer chalk grassland. A famous landmark includes Box Hill noted for its nationally important ancient box woodland, rare orchids and butterflies.

## The Wealden Greensand Ridge

The Wealden Greensand Ridge is a range of hills made up of greensand and sandstone, that lies just south of the North Downs, stretching across parts of Surrey, Sussex and Kent. This area is known for its wooded landscape and fertile soils. A main feature on the ridge is Leith Hill, the highest point in Surrey at 294m.

# National Landscapes and the Green Belt

Green belt status has been given to rural land to maintain the countryside and stop unrestricted growth of housing and commercial developments (also known as urban sprawl). The Metropolitan Green Belt is associated with London and comprises parts of Greater London, Surrey, Berkshire, Buckinghamshire, Essex, Hertfordshire, Kent, Bedfordshire and Sussex. Approximately 73% of Surrey is green belt land, totalling 121,810ha.

Surrey is also home to two National Landscapes (formerly known as Areas of Outstanding Natural Beauty (AONB): the Surrey Hills and the High Weald.

- **The Surrey Hills National Landscape** was one of the first areas in the country to be designated as AONB in 1958. Spanning approximately a quarter of the county, it is rich in history, with charming market towns and villages nestled within it. The landscape is also home to diverse wildlife, supporting habitats such as the chalk grasslands of the North Downs and the ancient woodlands of the Greensand Hills. This stunning landscape offers a wide range of outdoor activities, including walking, cycling, and birdwatching. It is a haven for nature lovers and those looking to escape the hustle and bustle of city life.

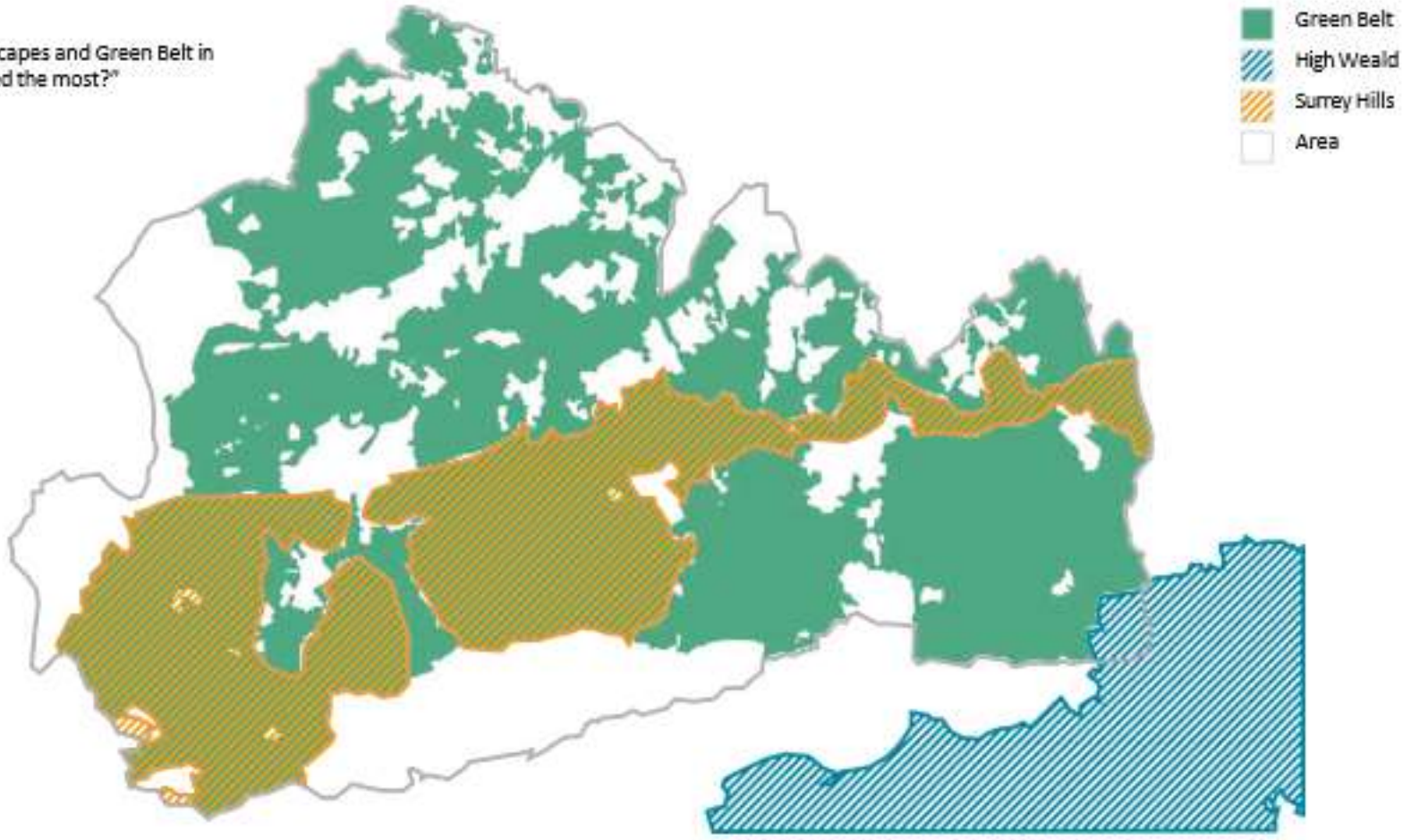
- A small part of the **High Weald National Landscape** lies in the south-eastern corner of Surrey. This remarkable landscape spans across Surrey, Sussex, and Kent, making it the fourth largest National Landscape in England and Wales. The High Weald is known for its diverse mix of farmland, woodlands, historic parks, and winding sunken lanes. What makes it particularly special is its well-preserved medieval character, with rolling hills and distinctive features such as ridge-top settlements. The landscape offers a glimpse into England's past, with a unique blend of natural beauty and historical significance.

Both National Landscapes play an important role in preserving wildlife and natural beauty, while also providing a tranquil environment for people to enjoy nature and outdoor recreation.

The LNRS is designed to work in conjunction with the purpose and duties of these designations.

# National Landscapes and the Green Belt

**Map.1**
National Landscapes and Green Belt in Surrey protected the most?"



# International, National and Locally Designated Sites

Many of Surrey's best natural spaces for wildlife are protected by law and are known collectively as **designated sites**. These sites may be protected by international agreements, national legislation, or local policies. The table below shows the types of designated sites in Surrey and their extent:

| Designation | | Number of Sites | Extent (hectares) | Percentage of Surrey |
|---|---|---|---|---|
| Ramsar Wetlands | International designation | 2 | 949 | 0.57% |
| Special Areas of Conservation (SAC) | International designation | 3 | 6065 | 3.63% |
| Special Protection Areas (SPA) | International designation | 4 | 7271 | 4.35% |
| Sites of Special Scientific Interest (SSSI) | National designation | 66 | 12,312 | 7.37% |
| National Nature Reserve (NNR) | National designation | 4 | 2783 | 1.86% |
| Local Nature Reserves (LNR) | Local designation | 51 | 2512 | 1.50% |
| Sites of Nature Conservation Interest (SNCI) | Local designation | 775 | 15,326 | 9.18% |
| Total extent of national and international designations (N.B. designations overlap, so it is not a direct sum of their percentages) | | | 12,904 | 7.73% |
| Total extent of all designations (N.B. designations overlap, so it is not a direct sum of their percentages) | | | 28300 | 16.94% |



Some sites can have multiple designations due to their high importance for wildlife. For example, Chobham Common is one of the largest National Nature Reserves in the South East of England and is one of the finest examples of lowland heath in the world. It is also designated as a SSSI, forms part of the Thames Basin Heaths SPA and the Thursley, Ash, Pirbright and Chobham SAC.

# International, National and Locally Designated Sites

## SSSIs: A National View

The condition of Sites of Special Scientific Interest (SSSIs) is assessed by Natural England, the UK Government's statutory advisor on the natural environment in England. Each SSSI unit is classified as being in either a "favourable" or "unfavourable" condition as shown in the table below.

| SSSI Unit Condition | England (%) | Surrey (%) |
|---|---|---|
| Favourable | 33.56 | 76.13 |
| Unfavourable - Recovering | 45.15 | 22.06 |
| Unfavourable - No Change | 8.74 | 1.40 |
| Unfavourable - Declining | 12.44 | 0.41 |



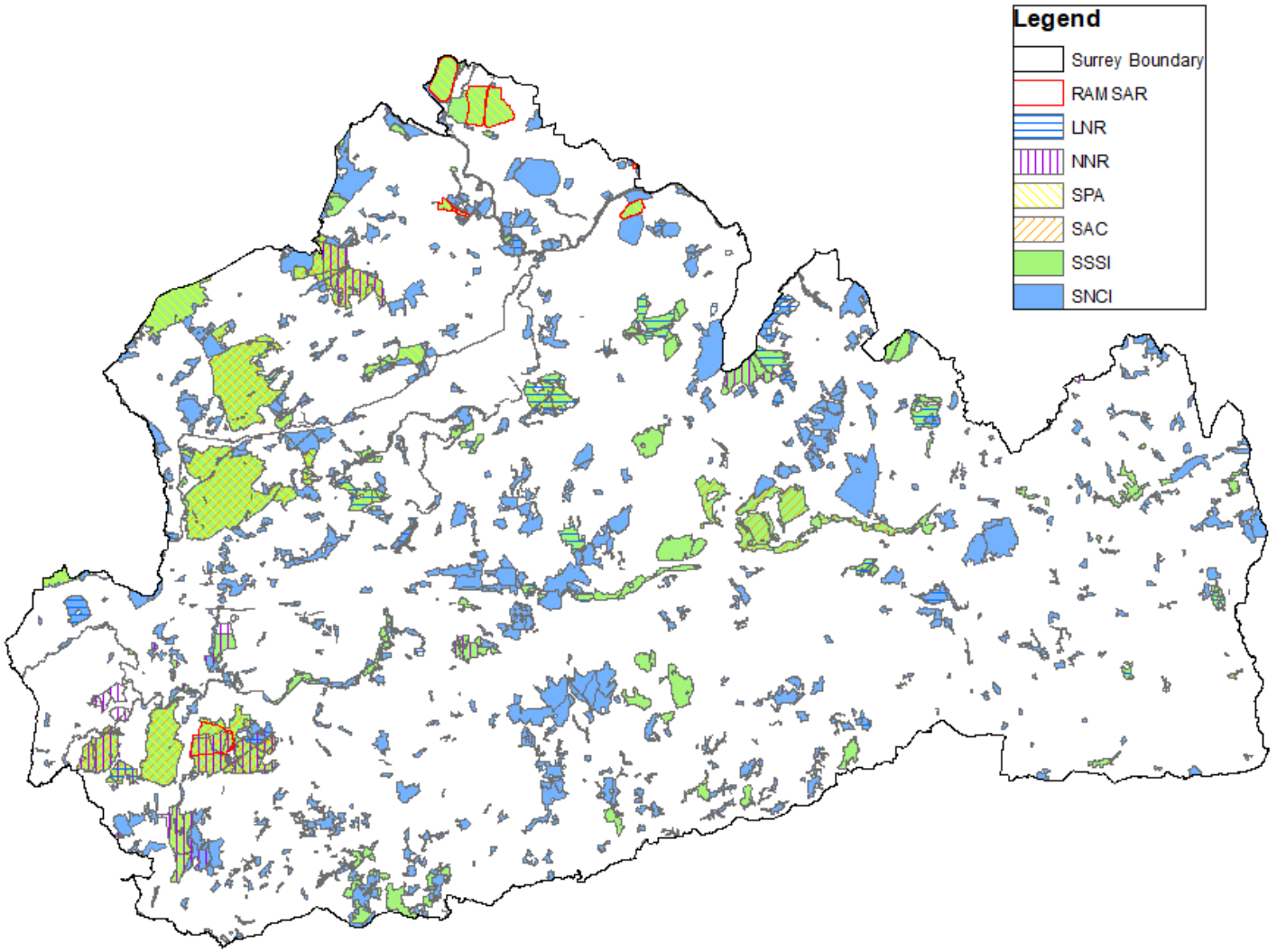
Surrey significantly outperforms the national average when it comes to SSSI condition. The proportion of SSSI units in favourable condition in Surrey is more than twice the national rate, while the percentage of SSSI units experiencing no change or decline is substantially lower. The Environment Improvement Plan (EIP) targets set a national ambition for 75% of SSSI to be in favourable condition by 2042, as it stands Surrey is already meeting this target. However, with continued risks posed by climate change, development pressure and recreation it will require consistent action to maintain Surrey's SSSIs in favourable condition and to improve those not yet achieving it.

## Achieving 30x30

Our commitment to the Global Biodiversity Framework and our own EIP targets has set a target to protect 30% of land and sea for nature by 2030 (often referred to as 30x30). The criteria for what designations count towards this target were set out by DEFRA in October 2024, the criteria include the national and international designations noted above as well as Other Effective area-based Conservation Measures (OECMs). Using this definition **Surrey is currently only at 7.73% of land protected for nature**, some way short of the 30% target, this is slightly below England as a whole, which is approximately 8.5%.

Much more land in Surrey is actively managed for nature but does not carry a sufficient designation to qualify under the 30x30 criteria as "protected". The identification and recognition of OECMs to recognise this land, without requiring a formal designation, will be critical to achieving this target.

# Designated Sites in Surrey



# Landcover Types

Surrey is one of the smallest counties in England but is also one of the most populated (top 15in each case). The total land area of Surrey is 1,663km2 spread across six broad habitat types – farmland, woodland, other (non-woodland) semi-natural habitats, water, buildings / man- made surfaces and gardens and urban green space. These broad habitat types are discussed below in order of the largest to smallest area of land cover type

### 1. Farmland

Farmland land cover accounts for 33% of Surrey and includes arable (8%), improved grassland (25%) and intensive orchards (less than 1%). It is notable that Surrey contains relatively little arable land but a large amount of improved grassland – a quarter of the county!

### 2. Woodland

In second place is woodland, with 25% of Surrey supporting this habitat. Woodland includes broadleaved woodlands, coniferous plantation, mixed woodland (broadleaved and coniferous) and traditional orchards. Surrey is the most wooded county in England and includes a large amount of ancient woodland which is rich in wildlife. Of the 25% woodland cover, 20% is broadleaved woodland, 3% mixed woodland and 2% coniferous plantation.

### 3. Gardens and Urban Green Space

This habitat type includes gardens, golf courses, playing fields, amenity grassland (parkland), allotments and cemeteries / church yards. Together, these areas account for 21% of Surrey's total area. Gardens make up 13% with golf courses, playing fields, amenity grassland (parks) taking up 8%. Areas for allotments and cemeteries / churchyards are so small they do not even make up 1% each.

### 4. Buildings and man-made surfaces

A total of 11%of Surrey is made up of artificial man-made surfaces and structures. These include buildings (4%), roads (3%), other sealed surfaces (4%), manmade unsealed surfaces, such as quarries, landfills (less than 1%) and other man-made habitat types, such as building sites (less than 1%).

# Landcover Types

### 5. Other semi-natural habitats

This broad habitat type accounts for all other natural habitats (excluding water) found across Surrey. The total land cover is 7%, split between wood pasture and parkland / scattered trees (2%), scrub (less than 1%), heathland (2%), semi-natural grassland (2%), fen, marsh and swamp (less than 1%) and open mosaic habitats (less than 1%). Many of these habitats are listed as priority / habitats of principal importance under the NERC Act 2006 and will therefore be a priority within Surrey's Local Nature Recovery Strategy.

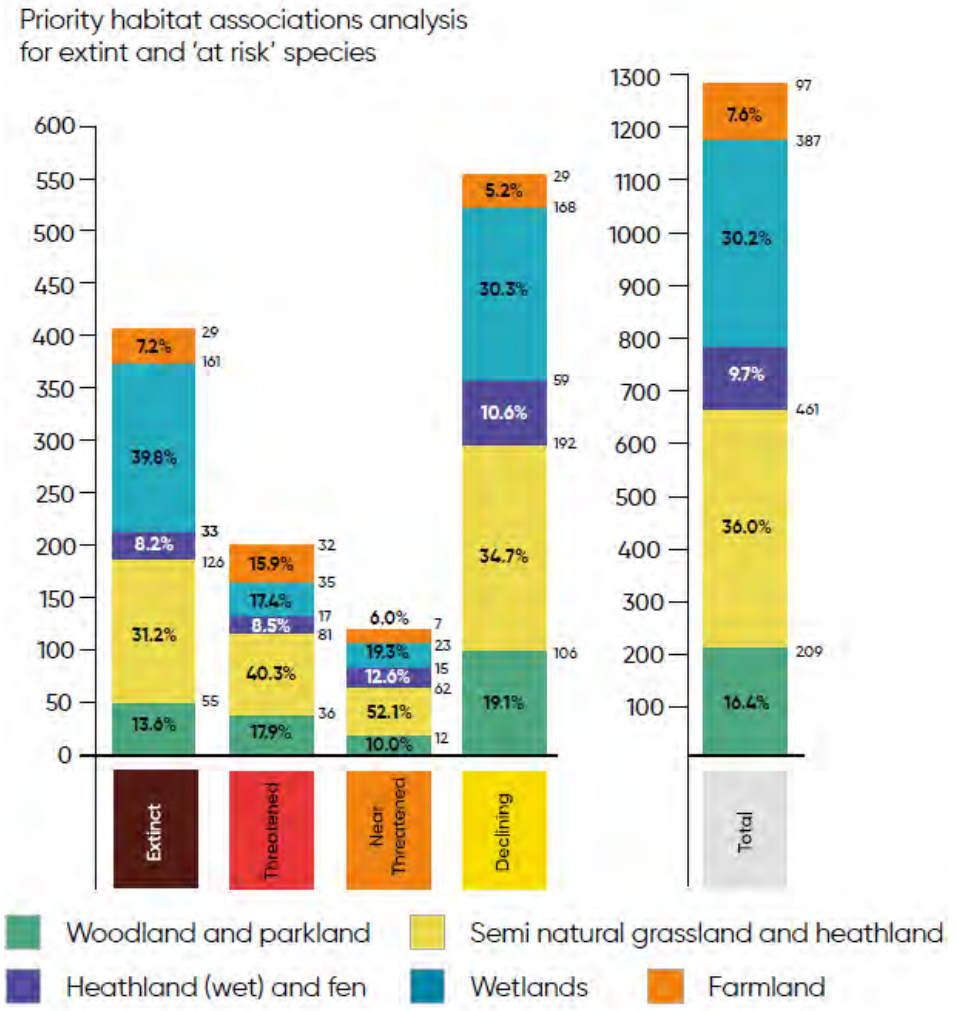
### 6. Water

In last place, but certainly not least important, is Surrey's water habitats, which cover only 2% of Surrey's total land cover. Water habitats include rivers and streams (less than 1%), lakes, reservoirs and ponds (2%). There are two main river catchments in Surrey, the River Wey and the River Mole, both tributaries of the Thames. Note that some other habitats associated with water (such as reed bed and floodplain grazing marsh) are included in the 'other semi-natural habitats' figures above.

# State of Nature in Surrey

*The State of Surrey's Nature 2017*[4], published by the Surrey Nature Partnership, offers a detailed evaluation of the county's biodiversity. Surrey remains a significant stronghold for UK wildlife, supporting a wide range of habitats that collectively host over 4,200 recorded species. Botanically, Surrey is particularly rich, with an estimated 55% of England's vascular plant flora found within its boundaries - an extraordinary level of diversity given the county's size.

Despite this ecological richness, the report highlights growing threats and pressures on Surrey's wildlife. Habitat fragmentation, urban development, agricultural intensification, pollution, and the effects of climate change are all contributing to the degradation of natural ecosystems. The study evaluated 4,242 species across multiple habitat types and found alarming trends: a significant proportion of species in each habitat were classified as extinct, threatened, near-threatened, or in decline. It is estimated that 115% - or just under 1in 9 - of species native to Surrey are now locally extinct. The accompanying figure (right), taken directly from the report, visually represents these concerning patterns across Surrey's habitat types, emphasising the urgent need for conservation action to protect and restore biodiversity in the region.



# Habitats and Species in Surrey

Credit: Mike Waite

# Habitats and Species in Surrey

## Surrey's diverse landscapes

Surrey's diverse landscapes provide a wide range of habitats, each supporting different species – some of which rely exclusively on a single habitat type.

Five main habitat types are found across the county:

**Woodlands and Parklands –** Tree-filled areas that provide shelter and food for a number of bird, mammal, insect, and fungi species

**Grasslands, Scrub and Heathland –** Open spaces filled with wildflowers, grasses, and shrubs, perfect for insects, reptiles, and ground-nesting birds

**Farmland and the Wider Countryside –** Working land and recreational areas like golf courses that still provides homes for many species like owls, foxes and pollinators

**Wetlands and Rivers –** Freshwater environments that support wildlife such as amphibians, fish, dragonflies, and a wide range of birds

**Urban Habitats -** Built-up areas such as towns and villages, where nature can still be found in gardens, green roofs, churchyards, parks, and even roadside verges.

Each of these habitats has its own unique features and species, contributing to Surrey's richness and importance for nature. They also offer valuable opportunities to protect, restore, and enhance conditions for wildlife across the county and to improve biodiversity.

# Woodlands and Parkland

## Historic Land Use

In the past, much of Surrey's land was kept open for livestock grazing and harvesting natural resources by commoners, especially on heathland, commons, and country estates. Woodlands were actively managed, with large trees harvested for timber and practices like coppicing (trees cut back to the stump to encourage new growth) providing a regular supply of wood for fuel, fencing and construction. As the UK shifted towards importing food and materials, the landscape changed. Grazing declined, allowing more land to become scrub and secondary woodland (a woodland that has regrown after the land was changed). Additionally, post-war government incentives encouraged landowners to plant new trees and create new woodlands. This led to the planting of non-native conifers, which altered heathland habitats and impacted existing woodland, including ancient.

## Habitat Summary

Surrey is England's most densely wooded county with around 25% woodland cover (41,717ha), 2% wood-pasture and parkland or scattered trees (3,796ha), and 154ha of traditional orchards. Mixed broadleaved woodland is usually found in acidic soils (e.g. Wealden Greensand Ridge), dominated by English oak with native species such as beech, ash, hazel, holly, birch, field maple, rowan and wild cherry. Certain species of ground flora present in woodlands can be indicators of ancient woodlands, sometimes producing carpets of bluebells, wood anemones and early dog-violets.

As the soil becomes thinner and chalky (e.g. North Downs), beech and yew woodland, and ash woodland often become dominant. Wet woodland, usually dominated by alder and willow species, can also be found in Surrey within permanently wet floodplains and along the banks of rivers and wetlands.

The county also supports wood pasture and parkland habitat. Historic parklands and estates such as Albury Park and Gatton Park, usually support large numbers of ancient and veteran trees within grazed rough grassland. Ancient commons which have mostly become secondary woodland such as Epsom and Bookham Commons, also feature high densities of veteran and ancient trees, often as pollards.

# Woodlands and Parklands

## Threats and Pressures

The expansion of urban development and agriculture can result in a direct loss of Surrey's trees. A lack of active management, pollution, diseases (such as ash dieback), invasive species and a rise in deer populations threaten native biodiversity, while recreational pressure can lead to habitat disturbance and soil erosion in popular estates and woodlands. Climate change is also a concern, as shifting weather patterns affect tree health and increase the likelihood of extreme events, potentially causing further tree loss across the county.

## Surrey Species within Woodlands and Parkland

### Ancient and Veteran Trees

Ancient and veteran trees support important species of moss, lichens and fungi that are epiphytic (grow on trees), as well as many saproxylic invertebrates which depend on decaying wood, such as the UK's largest beetle, the legally protected stag beetle. The larvae of this beetle live and feed on rotting wood for up to six years before they develop into adults. These old trees also provide vital habitats for a variety of native birds, mammals, and other insects. As such, the preservation of ancient and veteran trees is crucial for maintaining species populations.

### Rare Woodland Bats

The woodlands in Surrey provide vital habitat 14 (out of 17) of the UK's bat species which are all protected by law. The rare Bechstein's bat and the Western Barbastelle are associated with mature deciduous woodland that support trees with roosting features such as crevices, woodpecker holes and raised bark. However, these bats face threats from habitat loss, disturbance, and changes in woodland management, making conservation efforts vital.

The Surrey Bat Group play a key role in monitoring bat populations, tracking roosting sites across the county, and ensuring that important roosting sites are protected and managed appropriately.

### The Hazel Dormouse

Surrey's woodlands are home to the hazel dormouse, a small, nocturnal mammal that is arboreal, spending much of its time in trees. It is particularly associated within woodlands that support dense bramble and hazel coppices, as well as hedgerows. This species is protected in the UK, due to population decline from habitat loss, fragmentation and changes in land management. Local conservation groups, such as the Surrey Dormouse Group, are actively monitoring the species, and encouraging hazel coppicing to create ideal habitat conditions for dormice.

# Woodlands and Parklands

## Nature Recovery in Practice – Langley Vale, The Woodland Trust

Langley Vale Wood was purchased by the Woodland Trust in March 2014, as the First World War Centenary project site for England. Previously known as Langley Bottom Farm, Langley Vale Wood was historically managed predominantly as arable farmland. The site covers 259 hectares (640 acres) and is a complex of established woodland, new woodland creation and open habitats. Twenty percent of the farm's area is established woodland, much of which is ancient semi-natural woodland. Between 2016 and 2019, 170,000 new trees have been planted on site, with new established woodland and areas of natural colonisation now comprising 40% of the site. A number of First World War memorials have been created at Langley Vale Wood between 2019 and 2022, including 'Regiment of Trees', 'Witness', and 'Jutland Wood'.

40% of the site is maintained as open land, comprising of species-rich grassland and cultivated fields and margins that support rare arable plant assemblages. Two birds of conservation concern (BOCCs) - Lapwing and Skylarks, are associated with the open habitats and have breeding populations on site. The variety of habitats at Langley Vale Wood support a wide range of wildlife, including badgers, Barn Owls, and five species of bat. 32 species of butterfly have been recorded on site, including the small blue butterfly, a nationally scarce species native to calcareous (chalk) grassland. The arable field margins of Langley Vale Wood contain rare arable plant species included on the Vascular Plant Red Data List for Great Britain, including the critically endangered and nationally scarce Red Remp Nettle and the endangered Ground Pine.

The long-term policy at Langley Vale Wood is to develop and maintain a varied habitat mosaic; 20% of the site will consist of the remaining areas of ancient woodland, whilst 80% of the site will have a dynamic and diverse structure consisting of secondary native woodland, species-rich grasslands and arable cultivation areas. The sites' dynamic habitat structure will be driven by natural processes and support a healthy abundance of species, functioning as a refuge for local flora and fauna, part of Surrey's nature recovery network.

## Opportunities for Woodlands and Parkland

### Changes in Habitat Management

Well-managed woodlands and parkland are essential for nature recovery, as healthy woodlands are more resilient to threats and pressures. A woodland management plan guides woodland landowners with actions such as:

- Felling and coppicing to increase sunlight which can benefit plants, fungi and invertebrates.
- Planting locally sourced native trees to restore woodland and encourage natural regeneration.
- Maintaining rides and glades to improve woodland edge habitats and restore grassland and heathland habitats.
- Managing deer and grazing to protect trees and plants from browsing damage.
- Removing non-native invasive species such as grey squirrels and rhododendron to improve diversity.
- Conserving deadwood and veteran/ancient trees for wildlife and historical value.

These actions can also improve/enhance carbon storage, timber and wood fuel production, cultural landscapes, historical routes/boundaries, recreational opportunities and safety for visitors.

### Tree Planting

Tree planting helps combat biodiversity loss by providing, shelter, nesting sites and food for a wide range of species. It also helps to enhance soil health, carbons storage, offers shade and wind protection, and strengthens landscape resilience against environmental challenges like extreme weather and pests. The planting of new native woodland and the restoration of non-native conifer plantations to more natural mixed broadleaved woodland through native tree planting will have many benefits for Surrey's native wildlife.

# Wetlands and Rivers

## Historic Land Use

Surrey's freshwater habitats, including rivers, streams, lakes, ponds, marshlands and wet meadows, have been significantly altered throughout history, particularly during the medieval and post-medieval periods. Many freshwater habitats were drained for agricultural purposes, converted for growing crops and livestock grazing. The construction of Surreys three canals (Wey Navigation, Basingstoke Canal and the Wey and Arun Canal) for transporting goods, along with the creation of ditches to regulate water levels for farming and flood control, further impacted these ecosystems. In some regions, marshlands and wet meadows were transformed into farmland or developed for settlement, resulting in a substantial decline in natural wetland areas.

## Habitat Summary

Freshwater habitats cover at least 2% of Surrey and include the following habitats[8]:

- Rivers, canals and streams (652ha)
- Ditches
- Fen, marsh and swamp (808ha)
- Lakes, reservoirs and ponds (2,659ha)
- Wet woodlands

These wetland habitats provide essential drinking water for humans and wildlife, and serves as important breeding and feeding grounds for amphibians, fish, birds and a wide range of invertebrates, such as dragonflies, damselflies and water beetles. They also support a diverse variety of aquatic plants, grasses, sedges, rushes and wildflowers.

## Threats and Pressures

Human modification of rivers and streams from urbanisation, along with the infilling and silting of ditches, has degraded and fragmented these wetland habitats. Pollution from agricultural run-off and sewage, further threatens these ecosystems by reducing water quality and harming biodiversity. Surrey's high-water consumption leads to significant abstraction, which, combined with climate change, increases the risk of wetland habitats drying up. Recreational pressures and invasive species such as Himalayan balsam and American signal crayfish, also place additional stress on these ecosystems.

## Surrey Species within Wetland Habitats

### Return of the Otter

Otters are a protected species found in rivers, streams and lakes and are an important indicator species for wetland habitats. They rely on clean water with abundant fish and invertebrate populations. Although otters are still scarce in Surrey, recent sightings in the county are an encouraging sign of recovery for both the species and wetland habitats.

### Critically Endangered Eels

European eels have suffered a 95% decline since the 1980s, due to habitat loss, pollution and barriers to migration (e.g weirs and dams), making them a critically endangered species.[9] Rivers and streams in Surrey support juvenile eels (elvers) during their growth phase before they embark on their long migration to the Sargasso Sea (middle of the Atlantic Ocean) to spawn (reproduce). Eels play a vital role in regulating fish and invertebrate populations through predation, and they also serve as an important food source for wetland species in Surrey, such as kingfisher and brown trout. Recovery efforts for eels can improve water quality and restore habitats, benefitting a wide range of species in Surrey's waterways.

### Thursley Common's Dragonflies and Damselflies

Twenty-six species of dragonflies and damselflies inhabit the ponds, mires, and ditches at Thursley Common including the nationally rare Brilliant Emerald dragonfly[10]. Thursley Common is classified as one of only ten 'Dragonfly Hotspots' in England by the British Dragonfly Society [11]. These insects provide a valuable food resource for birds like the hobby, a falcon that visits in the summer months to breed and raise its chicks before heading back to Africa.

### Surrey's Wetland Birds

Several wetland sites across Surrey support bird species, like snipe and other waders and waterfowl, particularly during migration and breeding seasons. For example, the South West London Waterbodies, a RAMSAR site of international importance in the northwest corner of Surrey, supports significant numbers of Gadwall and Shoveler (duck species).

The preservation of Surrey's wetland habitats is crucial for maintaining healthy populations of threatened wetland birds.

# Wetlands and Rivers

## Opportunities for Rivers, Waterbodies and Wetlands

### Restoration and Creation

Restoring and creating wetland habitats in Surrey will support biodiversity and promote healthy ecosystems, while also benefiting local areas through natural flood mitigation. The following actions outline potential wetland nature recovery opportunities for Surrey:

- Creating and restoring riparian buffer zones provides wildlife corridors for wildlife, act as a natural filter for pollutants and minimises flooding by slowing down the flow of water.
- Reinstating natural hydrology by blocking drainage channels, restoring natural water levels and improving floodplain connectivity.
- Removal of manmade obstacles like weirs to improve connectivity of rivers.
- Returning rivers and streams back to their natural state by bed raising, and reinstating meanders and banks.
- Reducing pollution by managing agricultural run-off, sewage and other sources of excess nutrients that degrade water quality.
- Creating new channels and ponds to enhance water retention and mimic natural wetland dynamics.
- Implementing sustainable management practices such as:
  - Seasonal grazing, hay cutting or flooding to maintain habitat diversity.
  - Control and removal of invasive species to protect native biodiversity.
  - Monitoring of water levels to ensure the specific needs of wetland wildlife are met.

# Grasslands, Scrub and Heathland

## Historic Land Use

Surrey's landscape has changed over time as early humans cleared forests for livestock and crops, creating 'open' habitats like grassland, heathland and scrub, which were maintained by grazing animals. Gradually, these clearings evolved into managed fields with boundaries or larger 'commons,' such as Chobham and Thursley. Commons often supported large areas of heathland, which were historically used by the farming community. In the 19th and 20th centuries, the military used large areas of heathland for training purposes as the habitat was considered wild and a wasteland. Over half of Surrey's remaining heathland is owned by the Ministry of Defence (MOD).

## Habitat Summary

### Grasslands

Grassland habitats in Surrey are diverse, ranging from species-rich meadows to more common neutral grassland pastures. Semi-natural grasslands make up 2% of Surrey (2,956ha) and are found on various soil types, including calcareous, acid, and neutral. A wide variety of wildflowers and grasses thrive in these areas, supporting insect pollinators as well as other species such as birds and small mammals.

# Grasslands, Scrub and Heathland

## Heathland

Only 2% (4,015ha) of Surrey is classified as heathland, with the majority located in the Thames Basin Heaths and Wealden Greensand in the west4. A few small areas, such as Headley Heath, are found in the North Downs. Heathland habitats typically occur on sandy, nutrient- poor, acidic soils and are dominated by plant species like heathers and gorse. Lowland heathland (including dry heath, and wet heath with bogs, pools and mires) is an internationally important habitat that supports many rare species that have adapted to the unique environment.

## Scrub

Scrub consists of dense, woody shrubs like brambles, gorse and hawthorn, and is typically found along the edge of heathland, grassland and woodland areas where land has been abandoned or where grazing is less frequent. There are at least 599ha of scrub habitat in Surrey which supports a wide range of species by providing vital shelter and food for many species.

# Grasslands, Scrub and Heathland

## Threats and Pressures

In Surrey, heathlands were developed with towns and infrastructure in the late 19th and early 20th centuries, isolating and fragmenting the habitat. Advancements in agriculture allowed crops and timber plantations to be established on the heathland's nutrient poor soils. Over-intensive farming practices have also led to the loss of many diverse grasslands, including traditional hay meadows, which have nearly disappeared from Surrey. Other threats include invasive species, recreational pressures, and climate change - which will make our heathlands even more vulnerable as the frequency of drought and wildfires increases.

## Surrey Species within Grassland, Heathland and Scrub

### Butterflies and Moths at Box Hill

Surrey grasslands host a variety of flowering plants that support numerous invertebrate species, including several rare butterflies and moths. The calcareous grasslands at Box Hill in Surrey are home to 38 butterfly species, including the silver-spotted skipper, the Adonis blue (rarest of the blue butterflies) and the dark green fritillary[5]. Box Hill also supports several moth species, such as the scarce chalk carpet. It is believed to be the last remaining site in Surrey for the rare straw belle moth, which is found only in Surrey and neighbouring Kent.

# Grasslands, Scrub and Heathland

## Specialist Heathland Birds

Dartford warbler, nightjar and woodlark are ground nesting bird species that have adapted to mosaics of scrub and open heath habitats. Much of Surrey's heathlands form part of the Thames Basin Heath Special Protection Area which supports internationally important breeding populations of these rare species.

## Reptiles and Amphibians

Surrey is home to all twelve of the UK's native reptile and amphibian species. In heathland and open scrub, the protected sand lizard and smooth snake rely on sunny, sandy areas for basking (to warm up as they are cold blooded). Heathland is also important for adder, a once common snake, however research suggests a 90% decline of adder populations in the UK[6]. The rare natterjack toad is also found in Surrey's heathlands, particularly in wetter areas, where it breeds in shallow pools and burrows into the sand.

# Grasslands, Scrub and Heathland

### Grassland Fungi and Orchids

Ancient pastures and grasslands in Surrey can support important communities of waxcaps, earth tongues and club fungi, some of which are globally vulnerable or rarer. Scarce and rare orchids can also be found on calcareous grassland throughout Surrey such as the man orchid, fly orchid, frog orchid and violet helleborine.

### Rare Heathland Invertebrates and Plants

Surrey heathlands are crucial for many rare and threatened invertebrates. In mainland Britain, the red-barbed ant and the lynx spider *(Oxyopes heterophthalmus)* are currently only found in Surrey heathlands within the Thames Basin. Recently, the great fox-spider, once thought extinct in the UK, was rediscovered in Surrey[7].

Surrey's heathland also supports a rich variety of flora, including fungi, mosses, liverworts, and lichens. Insectivorous plants like sundews and bladderworts have become specialists with the nutrient-poor wet heaths, capturing and feeding on insects.

# Grasslands, Scrub and Heathland

## Nature Recovery in Practice – Lingfield Reserves by John Madden

The Lingfield Reserves is a 26-acre site on the edge of the village of Lingfield and features a mixture of wildflower meadows, hedges, and woodland copses and also boasts a wetland area with a number of ponds and small pools.

Management of the reserve is overseen by a committee of about eight individuals currently from all walks of life and supported by a great group of dedicated volunteers. Work parties are routinely attended by up to 20 individuals with more for special projects such as our recent pond restoration and hedge planting.

The most important management action we have taken is mowing the reserves for hay consistently for nearly 30 years. Consequently, we have reduced the overall fertility of the soil, reducing the growth of dominant grass and created an increasingly species rich meadow.
We have tried to cram as many habitats in as possible across the site and aim for complexity, structure and dynamism.

The reserves' biggest success is being designated High Priority Grassland by Natural England. That's quite a change for what were originally some neglected horse paddocks. Last year Butterfly Conservation declared a butterfly emergency and yet we had our best ever annual count since we started our transect in 2002. In addition, we discovered the presence of the rare long horned bee which can only survive with extensive areas of flower rich forage. In short, we have created a haven for wildlife on the doorstep of our village that is available for all to access and enjoy.

*"My advice to anyone wanting to do the same is go for it. Be very ambitious and keep pushing the boundaries. Don't be daunted and don't be afraid to try things. You can't actually get it wrong. There is always a plus side for nature."*

## Opportunities for Grasslands, Heathland and Scrub

### Restoration and Enhancement

Surrey's grasslands, heathland and scrub provide significant opportunities for nature recovery through targeted restoration efforts. Recommended actions for these 'open' habitats include:

- Using traditional management techniques like grazing by livestock and hay cutting for grasslands and/or controlled burning for heathland habitats.
- Practicing rotational or seasonal grazing to avoid overgrazing and soil damage.
- Cutting or mowing grass at specific times of the year to prevent dominant species from taking over.
- Removing invasive and non-native species that can outcompete native plants.
- Management of recreational pressures such as excessive trampling, dog fouling, and arson fires.
- Creating structural diversity to provide shelter and nesting opportunities for different wildlife.
- Additional planting of locally sourced native plants can help degraded areas to re-establish vegetation and increase biodiversity.
- Connecting isolated patches of rare grassland and heathland through habitat corridors or buffer zones which can help support genetic diversity.
- Implementing rotational management by cutting or coppicing sections of scrub to maintain a mix of young and mature growth.
- Removing the nutrient-rich topsoil by scraping to create bare ground to promote the establishment of heathland vegetation and to support heathland invertebrate populations.

### Creating Habitat Mosaics

It is important to consider combining scrub with other habitats to create a mosaic that benefits a wide range of wildlife. By allowing natural regeneration, native shrub species such as hawthorn, blackthorn
and gorse, can colonise areas along the edges of grassland, heathland and woodland to provide a complex habitat structure which provides food and shelter for a range of species and supports long-term
habitat stability.

# Urban Habitats

## Historic Land Use

In the past, Surrey was primarily made up of farmland, orchards, large estates, woodlands and open heathlands. Over the last century, these rural landscapes changed as the population grew, alongside improvements in transport networks such as railways and roads. This
helped expand the suburbs (residential areas on the edges of towns or cities) from London into Surrey during the 20th Century.

## Habitat Summary

Urban habitats include natural and man-made environments within towns, cities and suburbs that are shaped by human activities. Around 11% (18,848ha) of Surrey is classified as buildings and manmade surfaces, with another 21% (35,238ha) of Surrey made up of green spaces like playing fields, golf courses, allotments, cemeteries, churchyards, and private gardens. These green spaces offer important benefits to the community and support a variety of species, sometimes providing more opportunities for wildlife than in rural areas. Other urban habitats valuable to wildlife include ponds, road verges, street trees, green roofs/walls, brownfield sites (previously developed industrial or commercial land), and even buildings and other structures (for roosting bats, nesting house sparrow and swift).

## Threats and Pressures

Urban habitats in Surrey are among the most threatened by habitat loss and fragmentation due to development pressures, as allotments, playing fields and brownfield sites get built on by new development. Other threats arise from the close proximity of humans to wildlife, leading to higher rates of human disturbance, pollution, pet predation, and an increased likelihood of invasive species introductions which can spread disease.

# Urban Habitats

## Surrey Species within Urban Habitats

### Hedgehog Highways

The hedgehog is classified as vulnerable in Britain, with rural populations declining. However, urban areas are supporting a stable, possibly recovering population[12], with habitats like gardens, allotments, and small urban woodlands offering shelter and foraging opportunities for this species. 'Hedgehog highways' can be created by adding holes in fences which improves connectivity.

### Ponds for Wildlife

Ponds in urban habitats like gardens and parks are essential for the survival of Surrey's native amphibians, including the protected great crested newt, as well as invertebrates like dragonflies. These ponds can provide suitable breeding grounds and safe spaces for larvae to develop, while taller vegetation around the ponds can offers shelter from predators. Nearby log piles and compost heaps also provide hibernation opportunities for amphibians and common reptiles, such as grass snake and slow worm.

### Bats in an Urban Setting

In Surrey, urban development has led to a reduction in tree cover, causing more bat species to roost in buildings, tunnels, disused lime kilns and bridges, which offer shelter and safe spaces for raising young. The installation of bat boxes and the creation of more urban green spaces will be crucial for supporting bat populations in the future.

### Rare Plants in Road Verges and Cemeteries

Road verges in Surrey support rare wildflowers like autumn squill and green-flowered helleborine. Less frequent mowing can enhance biodiversity and create wildlife corridors for pollinators. Cemeteries also host rare flora with Brookwood Cemetery, the largest cemetery in Surrey, being home to its own unique liverwort species *Lophocolea brookwoodiana*[4].

## Threatened Urban Birds

Starlings, swifts, house sparrows and house martins have seen population declines and now appear on the UK Red List. These birds' nest in buildings, but modern building standards often remove features suitable for nesting. Urban planning should include nest boxes and specially designed bricks for these species. The creation of more green spaces will offer essential foraging habitats for birds.

# Urban Habitats

## Nature Recovery in Practice - Swift Protection Association Banstead by Anne-Marie Griffin

Swift Protection Association Banstead was founded in 2018 by local residents Anne-Marie & Barry Griffin, keen birders, with prior experience of working on a specific species project with the RSPB.

The association was founded due to the discovery of swift nest sites in open brickwork on domestic properties in Banstead.

Swifts desperately need our help: According to the British Trust for Ornithology since 1990- 2020 there has been a 60% decline in their numbers. Building methods have changed and few homes now provide crevices or open eaves which swifts naturally nest in.

We knew we had to do something to help this enigmatic species: to protect as many nest sites as we could and encourage swift boxes and bricks to be fitted. We started collecting data on the swifts behaviour and nest locations by regularly surveying the areas each year from May to July. We set up a Facebook page, logged sightings on the RSPB Swift Mapper, leaflet dropped, networked with other swift groups nationally, spent time with a swift rescuer and produce an annual report. We also started working with Raven Housing Trust (RHT) who installed swift nest boxes at our request.

We have worked to increase the number of available nesting sites from 3 known active and available nest sites in 2018 to 19 available nest sites, including 15 new swift nest boxes installed by RHT with 4 active nests in 2024.

A willingness to reach out, be patient and build good working relationships is essential for projects like this. Collecting data is also important to make a good case when asking for support.

In 2026 we will see swift bricks installed in RHT properties. We are now patiently watching and waiting for the next generation of swifts to nest and breed successfully whilst we continue to reach out to the wider area to help raise awareness and advise and encourage the installation of swift boxes or bricks.

# Urban Habitats

## Opportunities for Urban Habitats

There are opportunities for enhancing biodiversity and providing benefits to local communities in Surrey by incorporating sustainable and wildlife-friendly practices into existing and new urban habitats. Potential actions for nature recovery in these areas include:

- Creating or restoring wildlife ponds in urban spaces like gardens and parks to provide vital habitats for amphibians and aquatic invertebrates, as well as provide drinking water for other wildlife.
- Managing invasive species that negatively impact local biodiversity.
- Enhancing and creating green spaces by increasing native plant diversity, establishing wildflower meadows and installing wildlife- friendly bird and bat boxes, and insect hotels.
- Reducing pesticide use, which harms wildlife, and reducing the frequency of mowing on urban grasslands like road verges to support species diversity.
- Installing green roofs and living walls with native plants to provide habitats for birds and insects, helping to integrate nature into urban areas.
- Conserving brownfield sites that offer valuable habitats for rare and specialist species.
- Installing hedgehog highways and creating green corridors, such as hedgerows, tree lined streets or greenways that connect parks.
- Designing and adapting buildings to accommodate species like bats, swifts, starlings, house sparrow and house martins.
- Increasing the number of trees planted to improve air quality, reduce urban heat and provide habitat for wildlife.

## Historic Land Use

Like most counties across England, Surrey's agricultural history dates back to the middle-to-new stone age periods (5,000 to 10,000 BCE). During this period, woodland was cleared to provide land for growing crops and grazing of livestock. By the medieval period, wheat, barley and oats were the main crops grown. The underlying chalk, particularly in the Weald presented multiple challenges for arable farming (and still does today), the soil becoming waterlogged in the winter but too hard to plough throughout the summer.

Over the 18th and 19th century, a growing population coupled with advancements in agricultural technology, led to increased agricultural activity, for example crop rotations were introduced to improve productivity. Agricultural intensification has continued since this date, with increased use of fertilisers / pesticides / herbicides (at the detriment of biodiversity and soil health), irrigation and advancements in agricultural machinery. Field sizes would also have been enlarged, resulting in removal of hedgerows and tree lines.

Land use for recreational purposes was also on the increase throughout the 19th and 20th century. Surrey experienced a 'great golf boom' between 1923 and 1940 and there are now over 100 golf courses across the county. In addition, land for equestrian use (stables, grazing) is a major land use in Surrey. In fact, Surrey is known as one of the UK's counties with the highest density of horses.

Today, the majority of Surrey's arable farming is located in the east of the county, however the arable industry is in slow decline. Pastoral (livestock) farming is present across the county, with higher prevalence in the more rural areas (Surrey Hills National landscape for example). There are very few dairy farms in Surrey but there is beef production, along with occasional more unusual livestock such as deer and Llamas. Recently, there has been an expansion of viniculture within Surrey, most notably within the North Downs, there are now over 10 vineyards within the county.

# Farmland and the Wider Countryside

## Habitat Summary

Farmland (arable and pastoral) cover approximately 33% (55,199ha) of Surrey. The UK as a whole comprises approximately 70% of farmland, a total of 17 million hectares, meaning that Surrey's farmland contributes a tiny percentage to the total UK figure, only 0.3%.

Of the 33% of land in Surrey used for agriculture, 13,288ha is arable (8% of the county) whilst the remaining land is pastoral such as improved grassland for grazing (41,873ha) and 38 ha of intensive orchards.

There are a total of 878 farm holdings in Surrey (data from 2024), Crops grown in Surrey include wheat, winter barley, spring barley, oats, cereals, sugar beet (not for livestock), field beans, oilseed rape, crops for stockfeed and maize). There is only 353ha of horticultural crops (vegetables, fruit, flowers) grown across the county. Livestock wise, there are approximately 24,853 cattle, 1,997 pigs, 49,741 sheep and 211,786 poultry (chickens, ducks, geese etc) within the county. The agricultural workforce across the county is estimated at just under 2,500 people.

West to east, the main centres of arable production are on the clay plain north of the Hog's Back, continuing east of Guildford along the A3 corridor and up onto the dip slope of the North Downs, especially inside the M25. Scattered concentrations are found in the Weald south and west of Dorking, eastwards across the M23 corridor as far as Lingfield and south to Outwood. Elsewhere, the farmed landscape consists of tightly clustered patchworks of mostly small fields grazed by various livestock, but increasingly, horses.

Arable fields and grazing grassland with hedgerow boundaries can provide important habitats and food sources for a variety of species. Most notable, farmland birds (including ground nesting birds), invertebrates and specialist arable plants. The hedgerows and tree lines bordering fields can provide important green / wildlife corridors, connecting woodland parcels and other habitat and allowing animals to be able to disperse into the wider countryside.

## Threats and Pressures

Intensive management, such as overgrazing and intensive hedgerow cutting / flailing are reducing habitat quality and reducing overall biodiversity within farmland habitats. Removal of hedgerows also increases habitat fragmentation. Overuse of fertilisers, pesticides and herbicides can pollute nearby habitats, especially waterways as chemicals are washed into freshwater ecosystems via surface run- off. Furthermore, ground nesting farmland birds such as skylark, are in decline due to lack of habitat and unsuitable management. For example, the shift from spring-sown to autumn-sown cereal crops results in reduced nesting habitat and food availability.

## Surrey species associated with Farmland and the Wider Countryside

### Declining Farmland Birds

Farmland bird assemblages have been severely impacted by agricultural intensification and changes in land use. Sadly, Surrey has already experienced several local extinctions of species. Examples of former farmland breeding bird species include corn bunting, tree sparrow and yellow wagtail. Species with only a few breeding pairs include grey partridge and turtle dove. Of the farmland bird assemblage which do still breed in Surrey in reasonable numbers, all are in severe decline and are UK priority / Red Listed under Birds of Conservation Concern. These include skylark, yellowhammer and lapwing.

### Notable Arable Plants

Akin to birds, all plants associated with arable field margins are in decline due to herbicide use and progressive farming methods. A total of 22% of locally extinct vascular plants belong to this group, alongside a further 20% of Red Listed species. In Surrey, species which are reduced to small native populations in single localities include Corn Buttercup, Red Hemp-nettle, Spreading Hedge-parsley, Cornflower, Prickly Poppy, Narrow-fruited Cornsalad, Mousetail, Cat-mint and Night-flowering Catchfly. Species already extinct to Surrey include Pheasant's-eye, Corncockle and Shepherd's needle.

### Harvest mouse and Brown Hare

Both harvest mouse and brown hare are UK priority species / species of principal importance under the NERC Act, 2006. Brown Hare are associated with farmland, grassland, woodland edge habitat and are very rare in Surrey. Harvest mice live in long tussocky grassland, reedbeds, hedgerows, farmland and woodland edge habitat. They make a distinctive tightly woven nest ball composed of grass, and they are the only mouse species in UK which can grip with their tail!

## Nature Recovery in Practice - Castle Hill Farm, Bletchingley, Surrey – moving towards regenerative farming

Husband and wife Chris and Jo Mighall run a 202 hectare home farm (with more grazing lets around Surrey). The farm supports a 20-strong beef herd of Aberdeen Angus and Hereford as well as a commercial flock of 500 ewes (lamb and wool). Chris joined the Pasture and Profit programme after experiencing challenges around farming infrastructure and related costs (such as electric fencing). Due to concerns over profitability, resilience and the environment, Chris has moved away of traditional breeds of sheep and invested in Romney Sheep, which have less dense wool and will feed happily on grass (avoiding the use of hard feed). Chris says *"We are now using less bagged feed, we are not using soya and we are not using chemical fertilisers."*

The move towards a pasture-based system (where livestock are primarily fed on grass and other forage plants) has many advantages. Chris continues: *"We are definitely improving our grass and our soil organic matter (OM) and therefore our potential to sequester carbon, which helps with water retention and filtration. I am bale grazing now with a Burge Bale Unroller, funded by a Farming in Protected Landscapes (FiPL) grant. This increases our organic matter through trampling. Any hay isn't wasted, it is feeding that soil, and I am sprinkling clover seed on top. It's a free way of getting natural fertility and resilient soils which are less likely to wash down the stream. I am also using the tractor less, reducing compaction, as the bale unroller is towed by the quad bike."*

*"We have barn owl and kestrel back, we have lots of raptors, and countless small birds" says Chris, whose land also supports amphibians and reptiles. He believes farming really matters for the environment and climate change mitigation."*

*This case study has been adapted from a case study written by Isobel Bretherton for Pasture for Life and the Surrey Hills National Landscape. It was funded by the Farming in Protected Landscapes programme.*

## Opportunities for Farmland and Wider Countryside

### Changes in Management

Surrey's farmland habitats provide opportunities for nature recovery through changes in the way habitat is managed and changes to agricultural practices. Farmers can also make use of agri-environmental / countryside stewardship schemes where available. Examples of beneficial changes to management for nature recovery include:

- Return to regenerative / nature friendly farming practices, improving soil health, water retention etc
- Cutting hedgerows on a two or three-year rotation, and outside of the bird nesting season to provide vital breeding habitat for birds and food sources for invertebrates and other wildlife. Cutting should occur in late winter (January or February) to ensure berries remain available as a vital food source for birds and small mammals.
- Reduce use of herbicides and pesticides by adopting integrated pest management (IPM) – a more sustainable method to managing pests / weeds by combining a range of methods (biological pest control for example).
- Adopt rotational grazing and minimum tillage to help improve soil health, carbon capture and soil biodiversity.

### Creation of Habitat

New habitat creation is required within Surrey's farmland to increase diversity of habitats. The actions below would help restore farmland back to what it was historically:

- Provide 'set aside' land, wildflower margins and skylark 'plots' to make space for nature (making use of agri-environmental payments where available).
- Plant new / replace hedgerows along field boundaries to restore connectivity across the landscape and provide more habitat for wildlife.
- Create new run off flood storage features to capture nutrient run off and slow the flow of run off into river catchments. Creation of reedbeds act as a natural filter whilst also providing important habitat for many flora and fauna.

### Enhancing Hedgerows / Tree Lines and Connecting the Landscape

Hedgerows along field boundaries play a vital role in allowing species to move across the landscape and intermix with other populations of their species, which is vital for healthy and thriving populations. Hedgerow creation should target areas which are currently isolated to wildlife, such as woodland parcels with no connectivity. Hedgerows can be enhanced by planting a mix of native species in existing hedgerows and tree lines to enhance biodiversity by creating a denser structure, filling in gaps, and linking habitats to form wildlife corridors.

# A Biodiversity Crisis

Biodiversity is the variety of all living things on Earth. This includes plants, animals, fungi and microorganisms and covers all the different habitats (places they live) such as forests, oceans and deserts. These habitats and wildlife interact with one another and their environments to create healthy, balanced ecosystems essential for the survival of all life, including humans.

The planet is currently experiencing a massive decline in biodiversity, and it is estimated that species are going extinct globally at 100 to 1,000 times faster than the natural rate due to human activites1.

The UK State of Nature 2023 report highlights that the UK is one of the most nature-depleted countries on Earth2. The report reveals a concerning trend in biodiversity loss, with many species either disappearing completely or becoming less common. Over recent decades, habitats such as woodlands, grasslands, heathlands and wetlands are becoming damaged or lost, leaving behind only small, fragmented areas of the natural environment. This has made it increasingly difficult for wildlife to find food, reproduce, and survive, whilst also limiting people's ability to enjoy and benefit from natural green spaces.

However, with stronger legal protections, targeted conservation efforts, and increased funding for habitat restoration and creation, it is possible to reverse this trend and support nature recovery across the UK.

## Terrestrial and freshwater

19%

**The abundance of 753 terrestrial and freshwater species has on average fallen by 19% across the UK since 1970.**

Within this average figure, 290 species have declined in abundance (38%) and 205 species have increased (27%).

19%

**The UK distributions of 4,979 invertebrate species have on average decreased by 13% since 1970.**

Stronger declines were seen in some insect groups which provide key ecosystem functions such as pollination (average 18% decrease in species' distributions) and pest control (34% decrease). By contrast, insect groups providing freshwater nutrient cycling initially declined before recovering to above the 1970 value (average 64% increase in species' distributions).

# A Biodiversity Crisis

19%

**Since 1970, the distributions of 54% of flowering plant species and 59% of bryophytes (mosses and liverworts) have decreased across Great Britain.**

By comparison, only 15% and 26% of flowering plants and bryophytes, respectively, have increased. In Northern Ireland, since 1970, 42% of flowering plant species and 62% of bryophytes have decreased in distribution, compared to 43% and 34% respectively, that have increased.

19%

**10,008 species were assessed using Red List criteria.**

2% (151 species) are extinct in Great Britain and a further 16% (almost 1,500 species) are now threatened with extinction here. In Northern Ireland, 281 (12%) of 2,508 species assessed are threatened with extinction from the island of Ireland.

## Marine

19%

**The abundance of 13 species of seabird has fallen by an average of 24% since 1986.**

The situation is worse in Scotland, where the abundance of 11 seabird species has fallen by an average of 49% since 1986. These results pre-date the potentially major impact of the ongoing outbreak of Highly Pathogenic Avian Influenza.

# Threats and Pressures to Biodiversity in Surrey

# Threats and Pressures to Biodiversity in Surrey

## Threat:

**An instant danger that poses a serious risk to the environment. It usually causes the direct destruction of habitats and species extinctions.**

## Pressure:

**A long-term stress that gradually degrades habitats and species populations over time. If left unchecked, a pressure can become a serious threat.**

**The threats and pressures currently impacting biodiversity in Surrey have been identified below. Addressing these challenges is essential to protect the habitats and species that live here and to support the recovery of nature.**

### Habitat Removal and Fragmentation

Urban development is increasing as Surrey's population continues to grow. To support this expansion, more housing, commercial spaces and transport networks are being built. However, this growth often leads to the destruction and fragmentation of natural habitats. As large, continuous areas of habitat break into smaller, isolated patches, it becomes harder for species to migrate, breed, or find food. This isolation increases the risk of extinction for species, as groups are unable to mix with other populations. As a result, their genetic diversity decreases, making them more vulnerable to diseases and other threats. Fragmentation also raises the risk of road traffic accidents as animals attempt to cross barriers to reach the remaining pockets of habitat.

### Human Disturbance

Surrey has many natural green spaces that are important for biodiversity and popular for activities such as hiking, cycling and dog walking. These spaces are great for people's health and well-being but can be harmed by high visitor numbers. Littering, dog fouling, trampling and illegal fires damage sensitive habitats, while human activities, especially during breeding or nesting seasons, can disturb wildlife.

# Threats and Pressures to Biodiversity in Surrey

## Diseases and Invasive Species

Invasive species are non-native species, introduced to new areas, where they spread rapidly and cause harm to the environment, economy and/or human health. These species can introduce and spread diseases, leading to a reduction in native species populations – even to the point of local extinction. The grey squirrel introduced to the UK from North America, has outcompeted the native red squirrel for resources and has spread the squirrel pox virus, resulting in a local extinction of red squirrel in Surrey and many other counties. Another example is ash dieback, a fungus native to Asia which is heavily affecting ash trees within Surrey's woodlands, changing landscapes and threatening the many species that depend on the ash tree.

## Agricultural intensification

Agricultural intensification refers to increasing food production on an area of land. One way this is done is through monoculture farming, where a single crop is grown over a large area. While this method can make farming more efficient, it reduces biodiversity. By replacing natural habitats with a single crop and growing it repeatedly, the soil loses nutrients, which can degrade its quality and prevent other plant species from growing. Monoculture farming also increases the risks of pests and diseases. To combat this, pesticides and fertilisers are often used to protect crops and improve soil fertility. Pesticides can harm non-target insects such as bees and butterflies, which damage their bodies and change their behaviour, leading to population declines.

The overuse of pesticides / fertilisers can also pollute surrounding land and can enter our waterways via surface run off, which reduces water quality and is harmful to aquatic plants and animals.

## Pollution

Pollution takes many forms, each having harmful effects on both land and water habitats. Air pollution, mostly from vehicles and factories emissions, can limit plant growth and weaken vegetation, which reduces habitat quality. Nitrogen pollution can also change the soil which can harm sensitive plants, such as those in heathland which rely on low nutrient soils. Plastic bags, bottles and other litter often end up in natural areas, where it can injure or kill animals that swallow plastic or get trapped in it. Light and noise pollution can also disrupt the natural behaviours of many species (e.g. bats and birds), making it harder for them to survive in urban environments.

# Threats and Pressures to Biodiversity in Surrey

There are also several sources of water pollution which affect water quality:

- Sewage and wastewater released into the Surrey's rivers add bacteria and chemicals, which can damage aquatic life and cause health risks for humans
- Agricultural run off containing fertilisers and pesticides wash into rivers after rainfall
- Road run off also carries oil, chemicals and litter from roads into waterways.

The increased nutrients from these sources can also lead to algae blooms that use up oxygen (eutrophication), making it harder for fish and other aquatic species to survive.

## Water Extraction

Poor management of water extraction (removing water from a natural source for human use) can result in removing too much water from Surrey's rivers, streams and underground sources (aquifers), leading to pollution and making habitats less stable. Water is often taken to supply homes, agriculture and other industries but excessive removal can harm important wetland habitats such as rare chalk streams. These habitats are home to species like kingfisher and brown trout which rely on stable water levels and good water quality to survive

## Poor Land Management Practices

Long-term pressures from poor land management practices can damage habitats and threaten biodiversity. Overgrazing by livestock results in the loss of vegetation, leading to soil erosion, reduced habitat quality and lower species diversity. Unsustainable forestry practices, such as clear-felling (where most or all trees in an area are removed at once) or planting non-native species, can destroy habitats and endanger native wildlife. Poor management of protected areas may allow invasive species to spread, further degrading habitats, and reducing populations of native plants and animals. Without careful management, these practices weaken Surrey's natural environment, making it more vulnerable to other environmental pressures.

# Threats and Pressures to Biodiversity in Surrey

## A Lack of Funding and Resources for Nature Recovery

Without enough funding and support from the government, it is difficult to enforce laws that protect the environment. There are not enough resources to check for illegal activities like poaching and habitat destruction which can harm wildlife. A lack of investment in nature recovery also means there are less opportunities to support research, monitoring and conservation projects that help protect nature and fight biodiversity loss.

## Climate Change

Climate change is causing a change in seasons which is disrupting species' behaviours in Surrey, with plants flowering or animals breeding at different times, impacting survival rates. Many of our species' time their breeding to match when food is most available. These timing events (such as the bud burst / caterpillar hatch) are disrupted by changing temperatures /seasons. Rising temperatures and more extreme weather events are increasing the frequency of natural disasters like wildfires, storms, floods and droughts which cause damage to habitats and reduce breeding success of species / reduce survival rates. All these changes make it increasingly difficult for ecosystems to remain healthy and support biodiversity.

# References


1. **PwC UK** *It's Now for Nature: Turning nature ambitions into action through the Nature Strategy Handbook* [Online]. Retrieved from www.pwc.co.uk/services/esg/now-for-nature.html
2. **Dasgupta, P. (2021)** The Economics of Biodiversity: The Dasgupta Review.
3. **Office For National Statistics (2024)** *UK Natural Capital Accounts: 2024 - Estimates of the financial and societal value of natural resources to people in the UK* [online]. Retrieved from https://stateofnature.org.uk
4. **Waite M. (2017)** State of Surrey's Nature [online]. Produced by Surrey Wildlife Trust on behalf of the Surrey Nature Partnership. Retrieved from Publications | Surrey Wildlife Trust
5. **Jeffcoate G. (2013)** *News from Box Hill.* Surrey Skipper, Butterfly Conservation, Issue 56, pp 8 [online]. Retrieved from Atlas3
6. **Gardner E., et al. (2019)** Make the Adder Count: population trends from a citizen science survey of UK adders. Herpetological Journal, Volume 29, pp 57-70 *[online].* Retrieved from www.thebhs.org/publications/the-herpetological-journal/volume-29-number-1-january- 2019/1886-06-i-make-the-adder-count-i-population-trends-from-a-citizen-science-survey-of-uk-adders
7. **Surrey Wildlife Trust (2020)** *Surrey Wildlife Trust Rediscovers Great Fox-Spiders [online].* Retrieved from Surrey Wildlife Trust Rediscovers Great Fox-Spiders | Surrey Wildlife Trust
8. **Waite M. (2017)** State of Surrey's Nature [online]. Produced by Surrey Wildlife Trust on behalf of the Surrey Nature Partnership. Retrieved from Publications | Surrey Wildlife Trust
9. **Environment Agency (2022)** *Ancient mystery of European eel migration unravelled to help combat decline of critically endangered species* [online]. Retrieved from Ancient mystery of European eel migration unravelled to help combat decline of critically endangered species - GOV.UK
10. **Natural England (2019)** *National Nature Reserve named 'Dragonfly Hotspot'* [online]. Retrieved from National Nature Reserve named 'Dragonfly Hotspot' - GOV.UK
11. **Natural England (2019)** *National Nature Reserve named 'Dragonfly Hotspot'* [online]. Retrieved from National Nature Reserve named 'Dragonfly Hotspot' - GOV.UK
12. **Wembridge D. et al. (2022)** *The State of Britain's Hedgehogs 2022.* Published by the British Hedgehog Preservation Society (BHPS) and People's Trust for Endangered Species (PTES).

# Glossary

## Biodiversity
The variety of all living things, like plants, animals, and tiny organisms, and the places they live.

## Biodiversity Net Gain
A development approach where biodiversity is left in a better state than before the development occurred.

## Climate Change
Changes in temperature, rainfall, wind, and other aspects of the Earth's weather patterns, largely driven by human activities such as pollution. It affects wildlife and natural places.

## Conservation
The protection. restoration and management of wildlife and natural environments.

## Connectivity
How well habitats are linked across the landscape, allowing wildlife to move between them safely.

## Ecosystem
A community of living things (plants, animals, microbes) interacting with each other and the environment they live in. all working together as a system

## Ecosystem Services
The benefits provided by ecosystems that contribute to making human life both possible and worth living – like providing food and water, regulating the climate through carbon storage, and by supporting our well-being through our day-to-day interaction with green and blue spaces

## Enhancement (Habitat Enhancement)
Improving a natural area so it supports more wildlife or works better as part of nature.

## Fragmentation (Habitat Fragmentation)
When large natural areas get broken into smaller parts, often by roads or buildings, making it harder for wildlife to survive or move around.

# Glossary

## Geology
The study of rocks, soil, and the shape of the land. It helps decide what kind of plants and animals live in an area.

## Habitats
Natural environments in which species live and grow, such as woodlands, wetlands, or grasslands.

## Invasive species
Plants, animals, or insects that can harm the environment or economy by spreading quickly and outcompeting local species.

## Land Managers
People responsible for looking after land, such as farmers, councils, conservation charities, or private landowners.

## Land Use
The management and change of natural environments for human purposes such as farming, housing or parks.

## Local Nature Recovery Strategy (LNRS)
A strategic plan that identifies priorities and proposes actions for nature recovery at the local level, supporting national environmental goals.

## Nature Recovery
Actions that help wildlife and habitats return, thrive, and become more resilient to future change.

## Nature Recovery Network (NRN)
A national network of wildlife-rich places to increase biodiversity, help nature recover, and provide people with more access to nature.

## Non-native species
A species that has been introduced outside its natural geographical range due to human activity, whether deliberately or accidentally. These species were not historically present in the area and have arrived through pathways such as trade, transport, or the movement of people.

## Potential Measures
The practical actions that, if taken, would make positive contributions to delivering the priorities

# Glossary

## Priorities (with regards to the LNRS)

The envisaged end result for recovering or enhancing biodiversity, considering the contribution that recovering or enhancing biodiversity can also make to other environmental benefits such as flooding, access to green space and water quality

## Priority Habitats

Habitats that are considered especially important for wildlife and need protection or restoration. Identified in the UK Biodiversity Action Plan (UK BAP) and listed as being of principal importance for the purpose of conserving or enhancing biodiversity under Section 41 of the Natural Environment and Rural Communities Act 2006.

## Protection (Habitat Protection)

Keeping natural habitats safe from harm or destruction through legal designations, management practices, or planning policies to maintain ecosystems and prevent biodiversity loss.

## Resilience (Ecological Resilience)

How well ecosystems can deal with threats and pressures such as extreme weather, disease, or human impact without being damaged.

## Restoration

Helping damaged natural areas recover and become healthy again.

## Species

A type of plant, animal, or other living thing. For example, oak trees, hedgehogs, and bees are all different species

## Strategy Area

The geographic area covered by the LNRS, usually a whole county or region.

## Wider Environmental Benefits

See Ecosystem Services

## Wildlife Corridors

Strips of natural land—like hedgerows, rivers, or tree lines—that connect larger wildlife areas. They help animals move safely between habitats to find food, mates, or shelter.