

Surrey Nature Recovery

Local Nature Recovery Strategy

A Statement of Biodiversity Priorities

June 2025

SURREY COUNTY COUNCIL

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Introduction

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.

The Surrey LNRS is made up of the following key elements:

1. A description of the strategy area and its biodiversity
2. **A statement of biodiversity priorities and species priority list (this document)**
3. A detailed local habitat map featuring areas already important for biodiversity and those areas that could become important

This document sets out a list of realistic, ambitious, and deliverable priorities to achieve in Surrey and should be considered alongside the local habitat map.

How we developed the Priorities and Potential Measures

Definitions as set out by LNRS statutory guidance

Priorities – the envisaged end result for recovering or enhancing biodiversity (taking into account the contribution that recovering or enhancing biodiversity can also make to other environmental benefits such as flooding, access to green space and water quality)

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

Below is a brief description of the process undertaken to produce the draft priorities and potential measures

Phase 1 – Generating the long list of priorities

- A review of 60 national and local strategies as well as more than 40 local planning authority policy documents yielded over 300 priorities and actions for nature – although not all met the criteria for a priority or measure within the LNRS regulations
- An online survey completed by 905 individuals as well as 351 markers on a map of Surrey
- A series of eight thematic workshops with 140 attendees representing key organisations, businesses and community groups as well as individuals. These workshops explored key strengths, weaknesses, opportunities and threats to nature in Surrey and producing over 1500 recommendations
- Analysis of all outputs against suitability for inclusion in the LNRS using statutory and non-statutory guidance

Phase 1 resulted in a draft shortlist of 32 Priorities across 5 thematic areas

Phase 2 – Testing the Priority shortlist and building the measures longlist

- Priority shortlist initially reviewed and refined by steering group and key partners
- Priority shortlist reviewed during a series of three geographic workshops attended by 80 participants
- Long list of potential measures generated from geographic workshops and relevant information from Phase 1

Phase 3 – Finalising the Potential Measures shortlist

- The second draft priorities list and first draft potential measures were produced in January 2025 using the outputs from phases 1 and 2
- Potential measures were further refined through consultation with the steering group, partners and supporting authorities

Full reports on the workshops and the methods used are available on the Surrey Nature Partnership website here

Priorities and potential measures that haven't been included

During the engagement process there were far reaching discussions on actions that participants felt were needed to support a thriving natural environment in Surrey but that did not fit the criteria for inclusion within the LNRS, these largely centred around:

- Improving the base level of knowledge of nature and biodiversity amongst the general public
- Adjustments to the school curriculum to include nature
- Development and delivery of volunteering opportunities
- Behaviour change for users of green spaces (littering, open fires, dog walking, anti-social behaviour)
- Stronger enforcement of existing regulations to prevent damage to the environment
- Priorities and measures designed solely to limit development

Although not included in the LNRS, these inputs and suggestions have been captured and will be made available to relevant partners, in addition Surrey Nature Partnership is working to create a communications and engagement working group to address some of the concerns and opportunities outlined.

Navigating the Priorities and Potential Measures

The following pages sets out the draft Priorities and Potential Measures. These are split into 5 categories, each priority and potential measure is assigned a unique code (e.g.W1.1), the categories are set out in the table below:

Category	Code
Woodland and Parklands	W
Wetlands and Rivers	WR
Grassland, Scrub and Heathland	GSH
Urban	U
Farmland and the Wider Countryside	FWC

Many of the potential measures 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 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**. The principles, priorities and measures outlined below can be used to guide localised and relevant action plans.

In addition, not all potential measures have been mapped within the Local Habitat Map; mapped measures are noted as (mapped) in the table below. There are several reasons why a measure may not have been suitable to map including insufficient existing data, licensing barriers with available data, broad geographic coverage or county wide relevance.

General Principles for nature recovery in Surrey

The engagement process generated many comments on *how* nature recovery should be undertaken. Much of this centred around effective governance and ensuring buy-in of local people. Where appropriate, this input has been captured under each category as General Principles.

Navigating the Priorities and Potential Measures

Supporting Measures

Where a measure did not directly fit the criteria of actionable nature recovery but was considered fundamental to the successful delivery of other measures - such as making a measure economically viable - these have been included as Supporting Measures within each section.

Repeated Potential Measures

On occasion, a potential measure can contribute to more than one priority. As such, some intentionally feature more than once but retain the same code, these measures will also be colour coded to their main priority and are labelled *(repeat)*

Relevant Wider Environmental Benefits

Each priority features an associated list of wider environmental benefits – these detail the different ways that achieving the priority and related potential measures will benefit broader society and economy in Surrey. Additional information on the delivery of wider environmental benefits is also included within the description of each potential measure where relevant. Further information on wider environmental benefits can be found later in this document as well as in the description of the strategy area.

Relevant Priority Species

The second half of this document sets out the species shortlist for the Surrey LNRS. Each of these species has been selected because they need specific actions above and beyond the creation and expansion of their existing habitat. The priorities below feature an associated list of species relevant to that priority. The specific needs of these species and their associated species measures should be considered when undertaking the habitat creation and improvement outlined in each priority.



Credit: John Hawkins

Priorities and Potential Measures

Woodland and Parklands

General Principles for the creation and restoration of Woodland in Surrey

- Due to the high quantity of woodland within Surrey **safeguarding and restoring our existing woodlands should be viewed as a priority**
- When creating new woodland, the use of **natural regeneration** should be considered where appropriate. This approach can provide improved adaptation to local conditions, reduced biosecurity risk from imported trees and can be a cheaper alternative to tree planting
- When planting trees and establishing woodland, **effective after care must be programmed in, clearly communicated and adequately funded,** to increase survival rates and minimise wasted effort
- When planting trees and establishing woodland, species and cultivars that are more able to adapt to climate change or with disease-resistant attributes should be used - providing there are evidenced benefits to local wildlife
- **Woodland should not be created to the detriment of other priority habitats,** such as species-rich grassland, unless doing so to create a diversified habitat mosaic
- Areas of new woodland should avoid the best and most versatile agricultural land.

Priority	Code	Measure
W1 - Existing woodlands are in good condition, providing a diverse home to wildlife and are better able to adapt to the impacts of climate change and pests and diseases	**W1.1**	**Improve the management of existing semi-natural woodland to support biodiversity.** Effective management of semi-natural woodland is essential for maintaining and enhancing its ecological value. Promoting structural and species diversity through practices such as selective thinning, coppicing, and natural regeneration helps create a dynamic woodland environment that supports a wider range of wildlife. Maintaining features such as open glades, rides, and transitional edge habitats increases light levels and encourages the development of ground flora and associated species. For best practice guidance, refer to: The UK Forestry Standard - GOV.UK or Managing ancient and native woodland in England Practice Guide| Forestry Commission England

Relevant wider environmental benefits: Timber, Wood fuel, Clean air, Carbon storage, Flood management, Erosion control, Clean water, Physical health and mental wellbeing, Recreation, Sense of place and Space for wildlife. Relevant priority species: Barn owl, Goshawk, Nightingale, Turtle dove, Alcathöe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, Hazel dormouse, Pine marten, Adder, Blue pepper-pot beetle, Kugelann's green clock beetle, Heath tiger beetle, cont.	**W1.2 (mapped)**	**Restore Plantations on Ancient Woodland Sites (PAWS).** Restore PAWS to a more natural, native woodland state by progressively reducing non-native species cover to around 20%. Use phased thinning of conifers to increase light levels, avoiding clear-felling. Where feasible, use low- impact machinery to minimise soil disturbance. Monitor natural regeneration to prevent dominance by non-native species. Where natural regeneration is insufficient, supplement with locally appropriate native species suited to the site's soil and ecological conditions. Restoration should follow best practice guidance from the Forestry Commission and Woodland Trust to safeguard ancient woodland features and long-term biodiversity.
	W1.3	**Replace trees lost or removed due to disease.** The widespread impact of ash dieback has led to the loss of many trees, particularly in high-risk areas such as near public rights of way. As more trees succumb, it is essential to manage affected areas to support long-term woodland resilience and biodiversity. Where conditions allow, promote natural regeneration. If regeneration is insufficient, supplement with native or site- appropriate species that reflect the woodland's character and ecological context. High deer browsing pressure must be addressed through appropriate protection measures to ensure successful regrowth and woodland recovery.

Poplar leaf-rolling weevil, Stag beetle, Betony case-bearer moth, Duke of Burgundy butterfly, Heart moth, Wood white butterfly, *Otidea platyspora*, *Calonarius (=Cortinarius) elegantissimus*, Oak polypore, Lesser butterfly orchid, Narrow-leaved helleborine and Starved wood-sedge.	**W1.4**	**Improve areas of active coppice and bring historic coppice back into active management.** Restoring and enhancing coppiced woodland supports structural diversity, benefits a wide range of wildlife, and revives traditional land management practices. Coppicing involves the periodic cutting of trees to stimulate vigorous regrowth, producing sustainable wood products that can also support other habitat management activities such as hedgerow and river restoration. Management should follow a rotational cycle that maintains a mosaic of different growth stages, promoting biodiversity and long-term resilience. Protecting regenerating stools from grazing is essential to ensure successful establishment. Follow guidance from the National Coppice Federation for best practice.
	W1.5 (mapped)	**Improve the management of existing conifer plantations to benefit biodiversity.** Enhancing the management of conifer plantations can significantly improve their ecological value. Where appropriate, adopt a Continuous Cover Forestry (CCF) system to create a more diverse woodland structure. This involves phased thinning and selective felling to promote a range of tree ages and canopy layers, supporting a wider variety of wildlife. Avoiding clear felling helps protect soil integrity, reduces erosion and nutrient loss, and slows surface water runoff, which in turn limits sedimentation in nearby rivers. In locations where plantations fragment valuable semi-natural habitats such as heathland, consider widening rides and creating glades to improve habitat connectivity through stepping stones and wildlife corridors. For best practice guidance, refer to: The benefits of continuous cover forestry - GOV.UK

	Supporting Measures	
	W1S1	**Complete and implement woodland management plans.** Comprehensive woodland management plans provide a structured approach to sustainable forest stewardship, supporting compliance with the UK Forestry Standard and facilitating access to grants and felling licences. These plans should clearly outline management objectives and demonstrate how a balanced approach to environmental, economic, and social outcomes will be achieved. Effective plans include provisions for the protection of mature trees, promote species and age diversity through natural regeneration or planting, and support long-term woodland resilience. Templates and further guidance are available from Create a woodland management plan - GOV.UK
	W1S2	**Create and support existing local markets for sustainable woodland products and services.** Sustainable woodland management depends on long-term economic viability. Beyond timber, woodlands can provide a wide range of valuable products and services, including materials for traditional crafts, renewable energy, and nature restoration activities such as hedge laying. Supporting and growing local markets for these products helps ensure that woodlands are actively and responsibly managed. Initiatives like Surrey Hills Enterprises and the Surrey Hills Wood Fair promote local businesses and raise awareness of the value, and potential, of sustainably sourced woodland goods. Further resources and support can be found through organisations such as Small Woods.

Woodland and Parklands

W2 - New areas of woodland are established to enhance biodiversity, buffer and connect existing sites, and deliver wider environmental benefits <u>Relevant wider environmental benefits:</u> Timber, Wood fuel, Clean air, Carbon storage, Flood management, Erosion control, Clean water, Urban cooling, Physical health and mental wellbeing, Recreation, Sense of place and Space for wildlife. <u>Relevant priority species:</u> Barn owl, Goshawk, Nightingale, Turtle dove, Alcathöe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, Eurasian beaver, Hazel dormouse, Otter, Pine Marten	**W2.1 (mapped)**	**Establish new woodland to buffer and suitable edge habitats to better connect Ancient Semi-Natural Woodland** Creating new woodland adjacent to Ancient Semi-Natural Woodland helps to protect these ecologically valuable habitats from external pressures and enhances landscape-scale connectivity. Establishing buffer zones reduces edge effects, such as pollution and invasive species encroachment, while providing important corridors for wildlife movement and genetic exchange. Careful species selection and design should reflect the character and soil conditions of the existing woodland to promote long-term ecological resilience.
	W2.2 (mapped)	**Establish new urban and peri-urban woodland.** Creating new woodlands in urban and peri-urban locations with limited tree cover delivers multiple environmental and social benefits. These woodlands offer vital habitat for urban wildlife, enhance biodiversity, and contribute to healthier ecosystems. They also provide accessible green spaces that support community wellbeing by offering opportunities for recreation and connection with nature. Additionally, urban woodlands play an important role in improving air quality by filtering pollutants; contribute to climate change adaptation by helping to moderate local temperatures and enhance overall urban resilience.
	W2.3	**Establish new woodland habitats.** The creation of new woodlands plays a vital role in strengthening ecological networks by providing buffers around existing woodlands and improving habitat connectivity. Enhancing connectivity helps support wildlife movement, genetic diversity, and ecosystem resilience. Additionally, strategically locating new woodlands promotes a more balanced and equitable distribution of tree cover across Surrey, ensuring wider access to the benefits of woodland environments for both nature and communities.

Woodland and Parklands

Adder, Blue pepper-pot beetle, Kugelann's green clock beetle, Heath tiger beetle, Poplar leaf-rolling weevil, Stag beetle, Duke of Burgundy butterfly, Heart moth, Wood white butterfly, *Otidea platyspora*, *Calonarius (=Cortinarius) elegantissimus*, Oak polypore, Downy-fruited sedge, Lesser butterfly orchid, Narrow-leaved helleborine and Starved wood-sedge.	**W2.4**	**Establish new woodland where it will actively reduce flood risk.** Planting new woodlands in strategically selected areas can play a key role in managing and reducing flood risk. Trees help slow surface water runoff, increase infiltration and stabilise soils, thereby reducing the likelihood and severity of flooding downstream. By establishing woodlands in flood-prone zones or along river corridors, natural flood management is enhanced, protecting communities and ecosystems while delivering additional benefits such as improved biodiversity and carbon sequestration.
	W2.4 **(mapped under WR2.5)**	**Establish new areas of wet woodland.** Establishing wet woodland in suitable riparian and floodplain areas can significantly enhance biodiversity and support natural flood management. Priority should be given to locations that connect, buffer or expand existing woodland or wetland habitats. Where possible, native tree species such as alder (*Alnus glutinosa*), willow (*Salix* spp.) and birch (*Betula* spp.) should be allowed to regenerate naturally. Willow carr may be encouraged as part of a varied habitat mosaic, as it can stabilise soils and help regulate water flow. However, careful planning and management are essential to avoid overshading and to protect other valuable wetland habitats. Maintaining a diverse structure with open areas and a range of age classes will support the greatest biodiversity.
W3 - Invasive and damaging animal and plant species are effectively managed or eradicated to allow the natural regeneration and functioning of our woodlands	**W3.1**	**Control and remove invasive non-native plant species.** Invasive non-native plant species can outcompete native flora, degrade woodland habitats and limit biodiversity. Effective control and removal of species such as rhododendron (*Rhododendron ponticum*), cherry laurel (*Prunus laurocerasus*) and variegated yellow archangel (*Lamiastrum galeobdolon*) is essential to restore ecological balance and support native woodland communities. Management should be site-sensitive, using appropriate methods such as mechanical removal, targeted herbicide application or long-term suppression, followed by monitoring and, where necessary, replanting with native species. A strategic, coordinated approach will maximise the long-term resilience and ecological value of woodland ecosystems.

Relevant wider environmental benefits: Space for wildlife, Healthy soils, Food and Disease and pest control Relevant priority species: Barn owl, Goshawk, Nightingale, Turtle dove, Alcathoe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, Hazel dormouse, Pine marten, Adder, Blue pepper-pot beetle, Kugelann's green clock beetle, Heath tiger beetle, Poplar leaf-rolling weevil, Stag beetle, Duke of Burgundy butterfly, Heart moth, Wood white butterfly, Otidea platyspora, Calonarius (=Cortinarius) elegantissimus, Oak polypore, Lesser butterfly orchid, Narrow- leaved helleborine and Starved wood-sedge.	**W3.2**	**Manage populations of invasive non-native animals,** including grey squirrel, using culling and reintroduction of native predators. Invasive non-native animal species, particularly grey squirrels (*Sciurus carolinensis*), pose a serious threat to native wildlife and woodland ecosystems. Their bark-stripping behaviour damage young trees, undermines woodland regeneration, and has contributed to the local extinction of native red squirrels in Surrey. Population control through targeted culling may be necessary to mitigate these impacts. Complementing this with the reintroduction of native predators offers a more sustainable, ecologically balanced solution. Combined, these approaches can strengthen woodland resilience, protect native species, and help restore natural ecological processes.
	W3.3	**Undertake landscape scale deer management.** The UK's deer population is believed to be at its highest level for 1,000 years, with Surrey seeing a rise in fallow, roe and muntjac. Excessive browsing by deer prevents the regeneration of trees and ground flora, undermining woodland restoration and reducing biodiversity. Overpopulation also affects the agricultural sector and leads to road traffic collisions. Sustainable deer management is essential to restore balance and support healthy woodland ecosystems. This should involve coordinated culling at a landscape scale, undertaken by trained and licensed professionals with landowner consent. Effective population control enables woodland creation and nature recovery to succeed, while protecting agricultural interests and broader environmental objectives.

	Supporting Measures	
	W3S1	**Create landscape scale deer management plans.** Developing coordinated, landscape-scale deer management plans is essential to address the growing ecological and economic impacts of deer populations. Plans should be informed by robust population and species distribution data, enabling effective monitoring and impact assessment across habitats. A strategic approach helps guide sustainable culling levels, encourages the recruitment and training of new licensed stalkers, and facilitates collaboration between landowners and existing deer managers. Such coordination enhances the effectiveness of woodland restoration, promotes biodiversity, and ensures deer management aligns with broader conservation and land-use objectives.
	W3S2	**Build a local supply chain for the ethical and sustainable consumption of wild venison.** Developing a local supply chain for ethically sourced wild venison supports sustainable deer management by creating economic incentives for population control. Promoting education around the environmental and health benefits of wild venison can increase consumer demand and awareness, helping to make deer management a viable and responsible practice. Strengthening this market encourages collaboration between hunters, processors, retailers, and consumers, fostering a circular economy that benefits wildlife conservation, rural livelihoods, and local communities.
	WR3S3 (repeated)	**Raise awareness of the impact of key invasive species** regularly found in gardens and on sale in garden centres, to reduce potential future spread. Increasing public awareness about invasive species commonly found in gardens and available for purchase in garden centres is essential to preventing their further spread. Educating gardeners, retailers, and the wider community on the ecological risks posed by these species encourages responsible planting choices and early intervention. This proactive approach helps protect native biodiversity, supports healthier ecosystems, and reduces the need for costly control measures in the future.

Woodland and Parklands

W4 - Trees outside of woodlands are conserved and individual trees are actively established across the county to pre-emptively create the next generation of ancient and veteran trees Relevant wider environmental benefits: Space for wildlife, Urban cooling, Sense of place and Clean air. Relevant priority species: Common toad, Great crested newt, Barn owl, Corn bunting, Grey partridge, Turtle dove, Alcathöe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, Hazel dormouse, Hedgehog, Noble chafer beetle, Stag beetle, Heart moth, *Otidea platyspora*, *Calonarius (=Cortinarius) elegantissimus*, Eagle's claw, Oak polypore and Orchard tooth.	**W4.1**	**Safeguard ancient and veteran trees from harm and undertake positive management.** Protecting ancient and veteran trees is vital to preserving biodiversity and cultural heritage. Establish buffer zones around these trees to prevent root damage and minimise soil compaction. Retain standing and fallen deadwood to support associated wildlife and manage pests carefully when necessary. Regular health monitoring is essential to identify emerging threats early. Engaging local communities in conservation and stewardship efforts fosters a collective commitment to safeguarding these irreplaceable natural assets for future generations.
	W4.2	**Establish future veteran and ancient trees.** Ensure young trees have adequate space to grow and develop their full canopy potential. Use veteranisation techniques to accelerate the formation of valuable microhabitats by deliberately creating features such as holes, hollows, and cavities. These structures provide essential shelter and breeding sites for a wide range of wildlife, including birds, bats, and bees. Promoting the development of future veteran and ancient trees helps secure the long-term ecological and cultural value of woodland landscapes.
	W4.3	**Plant (or allow to establish) urban trees.** Focus planting efforts on areas with the lowest existing canopy cover and poorer air quality, using tools such as the Tree Equity Index to identify priority locations. Follow best practice guidance from organisations like Trees for Cities to ensure optimal placement. Trees should be strategically sited to provide shade; helping to mitigate the urban heat island effect, enhance water infiltration and improve air quality. Engage local residents and communities throughout the process to foster support and ensure long-term care, including providing assistance with watering and maintenance after planting.

	W4.4	**Plant (or allow to establish) individual trees in the wider countryside including hedgerow trees.** Encouraging the planting and natural regeneration of individual trees across the wider countryside, particularly within hedgerows, enhances landscape connectivity and supports biodiversity. Hedgerows provide vital habitats for a range of wildlife, improve soil stability and contribute to carbon sequestration. This approach also helps maintain traditional rural character and strengthens ecosystem resilience. Careful species selection and siting, aligned with local conditions and farming practices, will maximise ecological and cultural benefits.
	Supporting Measures	
	W4S1	**Improve data on where our ancient, veteran and notable trees are located.** Enhancing the accuracy and completeness of data on ancient, veteran, and notable trees is essential for their effective protection and management. Comprehensive mapping and recording supports informed decision-making, helps prioritise conservation efforts and enables better monitoring of tree health and threats. Collaboration with landowners, local communities and specialist organisations will ensure that valuable trees are identified and safeguarded for future generations.

W5 - Hedgerows are planted, restored and managed effectively to provide connecting corridors across the landscape and habitat for key farmland species	**W5.1**	**Actively manage and enhance existing hedgerows.** Improving the structural condition, width, and continuity of hedgerows supports a rich diversity of wildlife by providing vital habitats and corridors. Management techniques, such as traditional coppicing and hedge laying, encourage varied growth forms and age structures, promoting a mosaic of habitats that benefit birds, insects, and small mammals. Regular maintenance and gap filling strengthens hedgerows' ecological function, landscape character, and resilience. For best practice guidance, refer to: Hedgerow Management Advice | Hedgelink

Woodland and Parklands

Relevant wider environmental benefits: Flood management, Erosion Control, Clean water, Carbon sequestration, Healthy Soils, Space for wildlife, Sense of place and Clean air. Relevant priority species: Common toad, Great crested newt, Corn bunting, Grey partridge, Turtle dove, Hazel dormouse, Hedgehog, and Sandy stiltball.	**W5.2**	**Establish new hedgerows and woodland shaws to enhance connectivity and manage water flow.** Planting new hedgerows in strategic locations can improve ecological connectivity by linking fragmented habitats, allowing wildlife to move more freely across the landscape. Additionally, hedgerows help slow and filter surface water runoff, reducing sedimentation and pollution in rivers and streams. Careful placement and selection of native species will maximise their benefits for biodiversity, soil health, and water quality. A long-term management plan should be in place to maintain new hedgerows, ensuring proper establishment and good condition into the future. Where practicable consider the use of shaw woodland, establishing wider corridors of 5-15m of native woodland. Shaw woodland has the potential to provide additional connectivity benefits for wildlife as well as increased carbon sequestration and increased shelter for cattle and crops.
	FWC2.5 (repeat)	**Create and manage graded margins up to hedgerow and woodland edges.** Establishing and maintaining graded margins adjacent to hedgerows and woodland edges enhances habitat diversity by providing a variety of vegetation structures. These margins offer essential shelter, foraging opportunities, and nesting sites for birds and other farmland wildlife. Management of these transitional zones supports biodiversity, contributing to healthier and more resilient farmland ecosystems.
	W4.4	**Plant (or allow to establish) individual trees in the wider countryside, including hedgerow trees.** Encouraging the planting and natural regeneration of individual trees across the wider countryside, particularly within hedgerows, enhances landscape connectivity and supports biodiversity. Hedgerows provide vital habitats for a range of wildlife, improve soil stability and contribute to carbon sequestration. This approach also helps maintain traditional rural character and strengthens ecosystem resilience. Careful species selection and siting, aligned with local conditions and farming practices, will maximise ecological and cultural benefits.

	Supporting Measures	
	W5S1	**Increase the number of people with the skills and ability to lay and sustainably manage hedgerows.** Building capacity in traditional hedgerow management is vital for maintaining healthy and diverse hedgerow habitats. Expanding this skilled workforce supports long-term ecological benefits, improves landscape connectivity, and fosters community engagement in countryside stewardship.
	W5S2	**Identify, survey and map hedges of historic importance within the landscape as well as lost hedgerows.** Understanding the location and condition of historic hedgerows is essential for their protection and restoration. By surveying and mapping these valuable features, as well as identifying lost hedgerows, we can better prioritise conservation efforts and restore ecological connectivity across the landscape. This work helps preserve cultural heritage, supports biodiversity, and informs future land management decisions.

Wetlands and Rivers

General Principles for the creation and restoration of Wetlands and Rivers

- Watercourses should be as natural as possible, with space to allow for flooding without damaging property
- Avoid, if possible, development in flood plains, or ensure adequate compensatory land is part of the development
- Ensure access routes are not impeded by the creation of new wetland. If not feasible, provide alternative routes or board walks where possible
- Local groups and communities should be fully engaged with changes to their local waterways and wetlands
- Any work undertaken must gain proper approvals and follow the advice of regulators where appropriate

Priority	Code	Measure
WR1- Rivers, canals and headwaters are restored to a more natural state and where possible allowed to follow their natural course, with obsolete obstructions removed Relevant wider environmental benefits: Water supply, Flood management, Clean water, Erosion control, Physical health and Mental wellbeing and Space for wildlife.	**WR1.1 (mapped)**	**Undertake targeted river restoration** to enhance natural processes and habitat diversity. This may involve restoring meanders to increase flow variation, elevating riverbeds to reconnect channels with their floodplains, and gently re-profiling banks to support a wider range of wildlife. Such actions help revitalise river systems, benefiting both biodiversity and water management.
	WR1.2 (mapped)	**Remove redundant artificial barriers** such as weirs to improve river connectivity enabling the natural movement of fish, sediments, and nutrients. Where full removal isn't possible, alternatives such as fish passes or bypass channels should be introduced to improve fish migration and overall ecosystem function. Restoring free-flowing sections of river enhances biodiversity, water quality, and natural river processes. All interventions should be informed by ecological priorities to maximise benefits for wildlife and strengthen the resilience of the river system.

Wetlands and Rivers

Relevant priority species: Common toad, Great crested newt, Natterjack toad, Kingfisher, Turtle Dove, Atlantic salmon, Brown trout, European eel, Alcathöe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, Eurasian beaver, Otter, Water vole, Depressed river mussel, Desmoulin's whorl snail, Medicinal leech, Pondweed leafhopper, White-clawed crayfish, Brown galingale, Cut- grass, Greater water-parsnip, Pillwort, Small fleabane, Starfruit and Three-lobed crowfoot.	**WR1.3 (mapped)**	**Improve habitats along canals, navigations and heavily modified rivers** to enhance their ecological value and strengthen their role as wildlife corridors. This may include restoring and managing marginal vegetation, creating quiet refuges for wildlife, and supporting species that depend on these habitats for feeding, breeding, and migration. Where appropriate, replacing hard engineering with softer, more naturalised banks can boost habitat diversity, improve channel connectivity, and enhance the link between aquatic and riparian zones. All improvements should be tailored to site conditions, carefully balancing ecological gains with the operational needs of navigation.
	WR1.4	**Take online ponds offline where they negatively impact river function,** reducing river impoundment and restoring natural flow conditions. This can involve removing or modifying weirs and other flow-retaining structures to reconnect the river to its natural channel while maintaining the pond's hydrological separation from the main watercourse. Such actions help reinstate natural sediment movement, enhance water quality, and increase habitat diversity for aquatic species. Offline ponds continue to offer valuable wetland habitats, supporting biodiversity without disrupting river processes.
	WR1.5 (mapped)	**Maintain, create and widen areas of semi-natural habitats next to watercourses.** Buffer zones should be at least 10 metres wide to help reduce bank erosion and slow surface water runoff. Well-vegetated buffers effectively trap sediment and pollutants, while also providing a balanced mix of light and shade to support healthy aquatic habitats. Careful management of these zones promotes water quality, stabilises banks, and creates vital refuge and foraging areas for wildlife.
	WR1.6 (mapped)	**Enhance, restore and maintain chalk streams and their headwaters** to improve physical habitat, water quality and ecological function. Restoration will be tailored to each site and may include re-establishing natural flow regimes, reconnecting streams to their floodplains, increasing in-stream habitat complexity, and reducing sediment and pollutant inputs.

		Riparian habitats should be strengthened by establishing buffer zones of native vegetation along chalk streams, improving water quality, supporting biodiversity, and boosting resilience to climate change. Promoting sustainable land management practices that minimise runoff and disturbance further aids in safeguarding these globally rare and ecologically important habitats for future generations.
	Supporting Measures	
	WR1S1	**Establish and support Local Action Groups for Water Quality Monitoring** such as the River Mole River Watch. Community-led monitoring offers vital data that complements official efforts, enhancing understanding of pressures affecting the catchment. Providing these groups with training, equipment, and ongoing coordination empowers citizen scientists to play an active role in protecting and improving river health, fostering greater community engagement and stewardship of local waterways.
	WR1S2	**Improve understanding of the location of our chalk springs and headwaters** and ensure information is effectively represented on national and local maps and policies. Many of these ecologically important habitats remain under-recorded or overlooked. Improving our understanding and visibility of their locations is essential to safeguard their unique biodiversity, guide informed decision-making, and support effective conservation and management efforts.
	WR1S3	**Seek to connect landowners to catchment sensitive farming / catchment schemes.** By connecting landowners with these programmes, they can adopt best practices that reduce pollution, improve water quality, and enhance the health of local waterways. Facilitating access to advice, funding, and resources helps promote sustainable land management that benefits both agriculture and the wider catchment environment.

WR2 – Wetlands are enhanced and restored to create diverse, thriving habitats for wildlife, improve water quality and mitigate flood risk <u>Relevant wider environmental benefits:</u> Water supply, Carbon storage, Flood management, Clean water, Erosion control, and Space for wildlife <u>Relevant priority species:</u> Common toad, Great crested newt, Natterjack toad, Curlew, Kingfisher, Lapwing, Redshank, Turtle Dove, European eel, Alcathöe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, cont.	**WR2.1 (mapped)**	**Safeguard and enhance areas of lowland fen.** Protect existing fens and create new ones to restore their extent, connectivity, and ecological function. These rare wetlands depend on a consistent supply of clean water and specific nutrient and pH conditions, varying from base-rich alkaline to more acidic types. Enhancement should focus on maintaining natural hydrology, controlling scrub and tree growth, and using cutting or light grazing to support diverse, species-rich habitats. Avoid overgrazing, drainage, and nutrient enrichment. New fens should be established where conditions allow, and buffered from intensive land use, with effective management ensuring long-term biodiversity, climate resilience, and landscape connectivity.
	WR2.2 (mapped)	**Safeguard and enhance areas of floodplain grazing marsh.** Maintain and enhance existing sites while creating new areas where floodplain reconnection or land-use change permits. These seasonally wet grasslands support diverse plant communities and breeding waders, contributing to natural flood management and improved water quality. Enhancement involves sensitive ditch and grassland management, avoiding intensive drainage, and promoting varied sward structures through cattle grazing and rotational cutting. Creation efforts should restore natural hydrology, seasonal flooding, and develop complex wetland mosaics with scrapes and ditch networks. Such habitats increase biodiversity, structural diversity, and connectivity, playing a vital role in wetland networks, especially in intensively farmed landscapes.

Eurasian beaver, Harvest mouse, Otter, Water vole, Depressed river mussel, Desmoulin's whorl snail, Little whirlpool ram's-horn snail, Medicinal leech, Pondweed leafhopper, Brown galingale, Cut-grass, Downy-fruited sedge, Greater water-parsnip, Pillwort, Small fleabane, Starfruit and Three-lobed crowfoot.	**WR2.3 (mapped)**	**Safeguard and enhance reedbed habitat.** Protect and enhance reedbeds by safeguarding existing sites, restoring degraded areas, and creating new reedbeds where they can improve water quality and support key wetland species like bittern (*Botaurus stellaris*), reed warbler (*Acrocephalus scirpaceus*), and water vole (*Arvicola amphibius*). Management should promote varied structure and age through rotational cutting, light grazing, and maintaining open water channels. Typically, a management cycle might range from 4 to 7 years, and no more than 5% of the reedbed should become scrub or woodland to preserve habitat quality. New reedbeds should be established in locations that buffer agricultural or urban runoff, contribute to wetland mosaics, and improve habitat connectivity; considering local hydrology and water levels for long-term success.
	W2.5 (repeat)	**Establish new areas of wet woodland,** where possible connecting and expanding existing areas. Create wet woodlands in suitable riparian and floodplain locations, prioritising opportunities to link, buffer, or enlarge current wetland and woodland sites. Encourage natural regeneration of native tree species typical of wet woodlands, such as alder (*Alnus glutinosa*), willow (*Salix spp.*), and birch (*Betula spp.*). Willow carr can be promoted as part of a diverse habitat mosaic, as dense willow stands help attenuate water flow and stabilise soils. However, careful siting and management are essential to prevent overshading or loss of other valuable wetland habitats. Maintaining a varied structure with open spaces and a mix of age classes will maximise biodiversity.
	WR2.5 (mapped)	**Create new wetland habitats which contain a matrix of various wetland habitat types which are suitable for the site.** Designing wetlands with multiple habitat types helps improve water quality, flood management, and carbon storage, while offering valuable spaces for breeding, feeding, and sheltering species.

		Due to the detailed requirements of wetland creation this potential measure applies to the creation of wet woodland, reedbed, flood plain grazing marsh and lowland fen. Site-specific planning ensures habitats are tailored to local conditions, maximising their long-term biodiversity and environmental benefits as well as accounting for the specific management actions that are feasible for the location.
	WR2.6	**Install constructed wetlands, Sustainable Drainage Systems or other nature- based solutions at suitable sites to reduce point source pollution** from roads, land drains and storm overflows. These features intercept and treat polluted runoff, removing sediment, nutrients, hydrocarbons, and other contaminants before they reach waterbodies. SuDS elements such as swales, detention basins, infiltration zones, and vegetated filter strips also provide valuable biodiversity and amenity benefits. Priority sites include sewage treatment works and road drainage. Design should mimic natural processes, improve habitat connectivity, and manage water flow. Long-term maintenance is essential to sustain effectiveness and ecological value.
	WR2.7	**Reintroduce beavers to suitable sites.** Beavers act as natural ecosystem engineers, and their reintroduction offers a valuable nature-based solution for restoring wetland environments. By building dams and creating wetlands, beavers help raise local water tables, slow water flow, trap sediment, and enhance water quality. This supports the development of habitats such as wet woodland, fen, and wet grassland. Their activity promotes biodiversity through the formation of diverse, dynamic aquatic and terrestrial habitats, while also providing ecosystem benefits like natural flood management, drought resilience, and carbon storage. Successful reintroductions require local support, careful impact assessment, and ongoing monitoring and management.

	Supporting Measure	
	WR2S1	**Create, support and maintain beaver management groups** ensuring a long- term beaver management strategy These groups will play a crucial role in coordinating activities, addressing conflicts, and promoting coexistence between beavers, landowners, and local communities. By fostering collaboration and sharing best practices, management groups help maximise the ecological benefits of beaver reintroduction while minimising potential impacts on agriculture and infrastructure. A well-organised management strategy supports sustainable populations and contributes to healthy, resilient wetland ecosystems.

WR3 - Populations of key invasive species causing damage to wetlands and rivers are reduced or eradicated and managed into the future <u>Relevant wider environmental benefits:</u> Space for wildlife, Erosion control, Disease and Pest Control <u>Relevant priority species:</u> Common toad, Great crested newt, Natterjack toad, Curlew, Kingfisher, Lapwing, Redshank, Turtle Dove, Atlantic salmon, Brown trout, European eel, Alcathöe bat, Barbastelle,	**WR3.1**	**Undertake catchment-wide eradication of North American mink (*Neovison vison*).** Catchment-wide eradication of North American mink is essential to enable the successful recovery of water vole populations and to the ecological integrity of riparian habitats. While intensive control efforts are underway in parts of the Wey and Hogsmill catchments, these initiatives must be expanded and sustained across Surrey to prevent re-invasion and secure lasting success. A coordinated, landscape-scale approach involving local stakeholders, landowners, and conservation partners, alongside rigorous monitoring, is essential to achieving meaningful biodiversity gains and safeguarding vulnerable native species for the future.
	WR3.2	**Control and remove invasive non-native plant species** such as Himalayan balsam (*Impatiens glandulifera*) and floating pennywort (*Hydrocotyle ranunculoides*). The control and removal of invasive non-native plant species such as Himalayan balsam and floating pennywort is critical to restoring the health and function of aquatic and riparian ecosystems. These aggressive plants spread rapidly, outcompeting native flora, disrupting habitat structure, and obstructing water flow, which can increase flood risk and escalate management costs.

Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, Eurasian beaver, Harvest mouse, Otter, Water vole, Depressed river mussel, Desmoulin's whorl snail, Little whirlpool ram's-horn snail, Medicinal leech, Pondweed leafhopper, White-clawed crayfish, Brown galingale, Cut-grass, Downy-fruited sedge, Greater water- parsnip, Pillwort, Small fleabane, Starfruit and Three-lobed crowfoot.		Priority should be given to early detection and rapid response for Alert species identified by the Non-Native Species Secretariat (NNSS) to prevent their establishment and spread. Long-term success depends on a coordinated, catchment-wide effort involving landowners, local communities, and volunteers, alongside initiatives to restore native vegetation and enhance waterbody resilience.
	Supporting Measures	
	WR3S1	**Improve monitoring and reporting of the location of invasive non-native species.** Accurate, up-to-date data on the presence and spread of invasive species is essential for effective control. Enhancing local monitoring and encouraging public reporting will support early detection and rapid response.
	WR3S2	**Support and establish Local Action Groups** for the removal of Invasive Non- Native Species. Local Action Groups are vital for coordinating on-the-ground efforts to manage invasive species. Providing support and resources to these groups will increase capacity for effective and sustained control.
	WR3S3	**Raise awareness of the impact of key invasive species** regularly found in gardens, and on sale in garden centres, to reduce potential future spread Public education on the risks posed by invasive plants in gardens and the horticultural trade can help prevent new introductions. Promoting responsible planting choices is key to reducing long-term ecological harm.

WR4 – Freshwater habitats in the wider landscape (ponds and lakes) are enhanced, increased and safeguarded for use by key species Relevant wider environmental benefits: Flood management, Clean water, Water Supply, Carbon Storage, Recreation, Physical health and mental wellbeing and Space for wildlife. Relevant priority species: Common toad, Great crested newt, Natterjack toad, Kingfisher, Turtle Dove, Alcathöe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, Otter, Medicinal leech, Pondweed leafhopper, Brown galingale, Greater water-parsnip, Pillwort, Small fleabane, Starfruit and Three-lobed crowfoot.	**WR4.1**	**Enhance, safeguard and maintain existing ponds and pond clusters** to improve biodiversity and water quality. Ponds are vital freshwater habitats that support a high diversity of species, including many that are rare or declining. Protecting and managing existing ponds, especially clusters of ponds in proximity, can significantly enhance ecological connectivity and water quality.
	WR4.2	**Create and restore offline ponds** (ponds not attached to a river) with a focus on increasing connectivity (pond clusters) and ponds that used to exist in the landscape (ghost ponds). Restoring pond clusters helps to strengthen broader habitat networks, facilitating species movement and genetic exchange, which enhances overall biodiversity and ecosystem resilience. Additionally, offline ponds contribute to improved water storage capacity within the landscape, helping to regulate local hydrology and reduce flood risk. They also act as natural filters, capturing sediments and pollutants before they reach larger water bodies, thereby supporting improved water quality throughout the wider catchment area. For best practice guidance, refer to: Pond design principles for biodiversity
	WR4.3	**Enhance lake habitats by promoting best practice in their management and protection.** Promote best practice by improving marginal vegetation, buffering lakes from intensive land management and pollution, and managing water levels and inputs to support biodiversity and water quality.
	Supporting Measures	
	WRS4.1	**Identify the location of existing priority ponds and better understand their condition.** Improved mapping and condition assessments of existing priority ponds will support targeted conservation efforts and ensure these habitats continue to deliver biodiversity and ecosystem service benefits.

Grassland, Scrub and Heathland

General Principles for the creation and restoration of Grassland, Scrub and Heathland.

- When establishing or restoring new grassland, **ensure seed mixes are native and sourced locally**, ideally using green hay or seed mixes from local donor sites
- Management must be relevant to the site and its current condition – **areas of grassland with high fertility or vigorous growing grasses may not benefit from reduced mowing** if it results in a thick, rank sward
- When mowing or cutting to establish wildflower areas, **arisings should be removed from site to reduce nutrient levels**, and disposed of according to relevant regulations
- Open habitats are by nature successional; where suitable, integrate scrub and manage varied age structure to create a dynamic mosaic that provides habitat for a wider range of species
- Areas of new grassland, scrub and heathland should avoid the best and most versatile agricultural land

Priority	Code	Measure
GSH1 - An expanded network of restored heathlands, underpinned by a diverse structure of bare earth and heather that supports a variety of heathland species and is resilient to wildfire and the impacts of climate change	**GSH1.1 (mapped)**	**Create and restore areas of heathland and acid grassland** prioritising the expansion and connectivity of existing sites. Restoration efforts will focus on expanding existing heathland and connecting fragmented patches to create larger, more resilient ecosystems that support rare heathland species in Surrey. Habitat creation techniques may include soil preparation, seeding or planting native heath species, and establishing new bare- ground areas to support wildlife. Management such as conservation grazing and rotational cutting should be applied to maintain open heath conditions and support ecosystem development. For best practice guidance, refer to: Symes, N. & Day, J. (2003). *A practical guide to the restoration and management of lowland heathland,* The RSPB, Sandy.

Grassland, Scrub and Heathland

Relevant wider environmental benefits: Clean Water, Carbon storage, Recreation, Physical health and mental wellbeing, Sense of Place, Healthy Soils, Flood management and Space for wildlife. Relevant priority species: Common toad, Natterjack toad, Curlew, Goshawk, Adder, Sand lizard, Smooth snake, Blue pepper-pot beetle, Kugelann's green clock, Heath tiger beetle, Hazel pot beetle, Shining pot beetle, Grayling, Shoulder-striped clover, Silver- studded blue, Great fox- spider, Large marsh grasshopper, Window-winged caddisfly, Rusty fork-moss, Veilwort/ribbonwort, Cut- grass, Marsh clubmoss, Marsh gentian, Pillwort and Starfruit.	**GSH1.2 (mapped)**	**Enhance, safeguard and maintain existing heathland** and acid grassland by varying age structure, managing dominant plant species such as gorse. Management of existing heathland should include rotational cutting, conservation grazing, and controlling the expansion of bracken (*Pteridium* sp.), gorse (*Ulex* sp.) and encroaching pioneer trees like pine (*Pinus* spp.) and birch (*Betula* spp.). These actions will help maintain structural diversity and ecological integrity. Measures should also be taken to minimise wildfire risk and reduce public disturbance through appropriate access management and community engagement. For best practice guidance, refer to: Symes, N. & Day, J. (2003). *A practical guide to the restoration and management of lowland heathland,* The RSPB, Sandy.
	GSH1.3	**Create and restore wet heathland** - where possible to improve resilience to wildfire. Restoration of wet heathland will focus on re-establishing natural hydrology and water quality by minimising pollutant inputs and raising water levels through blocking drainage ditches, building bunds, creating shallow ponds and scrapes, and managing vegetation to slow water flow. These actions will reduce wildfire risk, enhance water retention, and improve habitat quality for specialist wet heath species in Surrey. For best practice guidance, refer to: Symes, N. & Day, J. (2003). *A practical guide to the restoration and management of lowland heathland,* The RSPB, Sandy.
	W1.5 (repeat)	**Improve the management of existing conifer plantations to benefit biodiversity.** Enhancing the management of conifer plantations can significantly improve their ecological value. Where appropriate, adopt a Continuous Cover Forestry (CCF) system to create a more diverse woodland structure. This involves phased thinning and selective felling to promote a range of tree ages and canopy layers, supporting a wider variety of wildlife.

		Avoiding clear felling helps protect soil integrity, reduces erosion and nutrient loss, and slows surface water runoff, which in turn limits sedimentation in nearby rivers. In locations where plantations fragment valuable semi-natural habitats such as heathland, consider widening rides and creating glades to improve habitat connectivity through stepping stones and wildlife corridors. For best practice guidance, refer to: The benefits of continuous cover forestry - GOV.UK
	Supporting Measures	
	GSH1S1	**Create and support existing heathland land managers group** to share best practice. A dedicated land manager network for heathland sites across Surrey will facilitate knowledge exchange, training, and coordinated action. This group will champion effective restoration and management techniques, enabling consistency and adaptive approaches across sites. It will also strengthen collaboration between stakeholders, supporting long-term stewardship and enhancing the resilience of Surrey's heathland landscapes.

GSH2 - An expanded network of restored species-rich grasslands provides nectar rich habitats for key species as well as increased soil quality and permeability, helping to mitigate and adapt to the impacts of climate change	**GSH2.1** (mapped)	**Enhance, safeguard and maintain existing calcareous grassland** through improved grazing and management. Ongoing management of existing calcareous grassland will focus on sustaining species-rich swards and preventing scrub or coarse grass encroachment. Conservation grazing using appropriate livestock types/breeds and timing will help maintain structural diversity and suppress dominant species. Supplementary techniques such as targeted mowing, scrub clearance, and soil nutrient management may also be used to support biodiversity. For best practice guidance, refer to: Pasture for Life - Management and Restoration of Calcareous Grasslands

Grassland, Scrub and Heathland

Relevant wider environmental benefits: Water Supply, Food, Carbon storage, Clean Water, Erosion Control, Flood Management, Disease and Pest Control, Recreation, Healthy Soils, Physical health and mental wellbeing, Pollination and Space for wildlife. Relevant priority species: Common toad, Great crested newt, Barn owl, Curlew, House martin, Starling, Swift, Skylark, Turtle Dove, Harvest mouse, Adder, Mellet's downy-back, Adonis blue, Duke of Burgandy, Forester, Straw belle, Wood white, Large scabious mining-bee, Sandy stiltball, Broad- leaved cudweed, Deptford pink, Green-winged orchid, Ground-pine, Musk orchid, Red-tipped cudweed, Small fleabane, Small- flowered catchfly, Spreading bellflower and Tower mustard.	**GSH2.2** (mapped)	**Create and restore new areas of calcareous grassland** prioritising the expansion and connectivity of existing sites. Restoration efforts will aim to increase the extent and connectivity of calcareous grassland in Surrey, particularly where existing habitats are fragmented or vulnerable. Techniques may include green hay spreading to transfer local seed banks, turf translocation from donor sites and soil inversion or nutrient stripping to reduce fertility and suppress competitive species. Introducing suitable grazing regimes will support long-term management. These interventions help establish the low-nutrient conditions needed for specialist plant communities and invertebrates, including key pollinators. For best practice guidance, refer to: Forest Research. BPG Note 18. Lowland Calcareous Grassland: Creation and management in land regeneration.
	GSH2.3 (mapped)	**Enhance, safeguard and maintain existing lowland meadows and priority neutral grassland sites** through improved grazing and management. Effective management of neutral grasslands is vital to preserve their diverse plant communities and associated wildlife. Optimising grazing practices by adjusting grazing intensity, timing, and livestock types/breeds, can prevent dominance by vigorous grasses and the encroachment of scrub. This helps encourage a rich mosaic of vegetation. Complementary practices such as selective mowing and invasive species control further sustain ecological balance and improve habitat quality. For best practice guidance, refer to: Forest Research. BPG Note 17. Lowland Neutral Grassland: Creation and management in land regeneration.
	GSH2.4 (mapped)	**Create and restore areas of lowland meadow and priority neutral grassland** prioritising the expansion and connectivity of existing sites.

		The creation and restoration of neutral grassland in Surrey should focus on extending existing sites and linking fragmented habitats to support greater landscape connectivity and ecological resilience. Restoration techniques may include green hay spreading, plug planting of native species, soil nutrient reduction (e.g., through topsoil stripping), and introducing appropriate grazing or cutting regimes to sustain biodiversity. Establishing a structurally diverse sward benefits a wide range of flora and fauna, including pollinators and ground-nesting birds, while also contributing to ecosystem services such as soil health and carbon storage. For best practice guidance, refer to: Forest Research. BPG Note 17. Lowland Neutral Grassland: Creation and management in land regeneration.
	GSH2.5	**Create and manage diverse scrub within grasslands** to provide structural diversity and habitat for species. Integrating well-managed scrub into Surrey's grassland habitats enhances structural diversity, supporting a range of wildlife through the creation of edge habitats and transitional zones. Management should promote a dynamic mosaic of open grassland, scattered shrubs, and dense scrub patches, while preventing dominance by any single species. Techniques may include selective planting or natural regeneration of native shrubs, combined with rotational cutting, light conservation grazing, and targeted removal of invasive species to maintain ecological balance. For best practice guidance, refer to The Scrub Management Handbook: Guidance on the management of scrub on nature conservation sites - IN124
	UR2.3	**Create and restore species-rich grassland on targeted road verges** to create wildlife friendly habitat corridors. Targeted restoration of species-rich grassland on road verges is vital for enhancing habitat connectivity across urban and rural landscapes. Establishing diverse wildflower and grass species helps these verges function as important wildlife corridors. Effective management includes timing cuts to avoid peak flowering /

		seeding and breeding seasons, controlling invasive scrub, and supplementing seed banks with locally sourced native species. For best practice guidance, refer to: Plantlife (2020) Managing grassland road verges, a best practice guide.
	FWC2.4	**Create and manage graded margins up to hedgerow and woodland edges** to create a diversity of habitat structure that supports birds and other farmland species. Establishing graded margins with varied vegetation heights and densities enhances habitat complexity, providing vital nesting sites, foraging resources, and shelter for farmland birds, pollinators, and other wildlife. Effective management involves phased mowing or cutting to maintain structural diversity, retention of tussocky grasses, and targeted control of invasive species. These practices foster a dynamic, species-rich environment that strengthens farmland biodiversity.
	Supporting Measures	
	GSH2S1	**Improve identification of existing species-rich grasslands and establish their condition** - assess for inclusion in the Old Grasslands Inventory. Accurate identification and assessment of species-rich grasslands are essential for safeguarding their ecological value. Sites that meet key indicators such as high plant diversity and evidence of minimal historical disturbance should be located, evaluated, and considered for inclusion in the Old Grasslands Inventory. Enhanced data will enable more targeted conservation efforts, inform land management priorities, and help protect species-rich grasslands from future loss or degradation. For more information, refer to: Surrey Old Grassland Inventory | Surrey Wildlife Trust

Urban

General Principles for the creation and restoration of Urban habitats

- All spaces big and small, from parks to balconies, can contribute to a more connected and vibrant urban environment, home to diverse wildlife
- Residents must be aware of and, where possible, involved in the decision to create new areas for wildlife managed habitat in their neighbourhood
- The creation a maintenance of new habitats or green spaces should not impede or degrade footpaths, access routes, or visibility for road safety

Priority	Code	Measures
UR1 - Green spaces for wildlife and people within urban areas are increased and managed effectively, improving the health and wellbeing of Surrey residents. Making our urban spaces vibrant and enjoyable places to live and work and more resilient to the impacts of climate change	**UR1.1**	**Safeguard and maintain existing urban green spaces.** Protecting and managing existing urban green spaces is vital to preserving their ecological, social, and recreational benefits. Regular maintenance, habitat enhancement, and active community engagement help sustain biodiversity, improve air quality, and ensure accessible natural areas that promote wellbeing. Thoughtful stewardship guarantees these spaces remain important refuges for wildlife whilst fostering meaningful connections to nature for urban communities. For more information visit: Natural England Green Infrastructure Planning and Design Guide 2023
	UR1.2	**Create areas of semi-natural habitat within amenity greenspaces** such as parks and school grounds to include spaces for wildflowers, hedgerows and trees, whilst respecting their primary use as accessible green space. Introducing semi-natural habitats into amenity greenspaces enhances urban biodiversity whilst keeping these areas welcoming and multi-functional for

Relevant wider environmental benefits: Recreation, Physical health and mental wellbeing, Sense of place, Clean air, Space for wildlife, Clean water, Flood reduction and Urban Cooling Relevant priority species: Common toad, Great crested newt, Barn owl, House martin, Starling, Swift, Barbastelle, Brandt's bat, Serotine, Whiskered bat, hedgehog and stag beetle.		communities. Thoughtful design and management balance ecological benefits with recreational use, fostering vibrant habitats that support wildlife, improve air quality, and provide valuable connections to nature for people of all ages.
	UR1.3	**Enhance habitat in churchyards and cemeteries** by working with local churches and associated community groups to establish and maintain management plans. Churchyards and cemeteries serve as important urban wildlife refuges and cultural heritage sites. By adopting sensitive, biodiversity-focused management such as reduced mowing regimes, planting native wildflowers, and safeguarding mature trees and boundary features (e.g. historic hedges and drystone or lime mortar walls), habitats can be significantly improved without compromising their social and historical value. This partnership-driven approach fosters stronger community stewardship, supports diverse species, and helps maintain the unique character of these important green spaces. For best practice guidance, refer to: EcoChurch
	UR1.4	**Create high quality Sustainable Drainage Systems** (SuDS) to reduce storm overflows, support ground water quality and encourage groundwater recharge/infiltration where required. High quality urban SuDS play a vital role in managing urban surface water sustainably by minimising flood risk and controlling runoff. Effective SuDS techniques including swales, retention ponds, permeable surfaces and infiltration trenches improve water quality by naturally filtering pollutants. They also support groundwater recharge and enhance resilience to extreme weather events. Integrating SuDS into both new developments and existing urban landscapes not only safeguards aquatic ecosystems but also contributes valuable green infrastructure, providing additional benefits such as biodiversity enhancement and improved amenity spaces for communities. For more information visit: Constructed Wetland Association, National standards for sustainable drainage systems (SuDS) - GOV.UK or Susdrain

	W4.4 (repeat)	**Plant new individual trees** in urban areas, focusing on locations with the lowest existing canopy cover. Strategic placement of trees can provide much-needed shade to reduce urban heat, enhance rainwater infiltration to help manage surface water, and improve air quality by capturing airborne pollutants. This targeted tree planting supports healthier, more sustainable urban environments, benefiting both residents and urban wildlife. For more information visit: Urban Tree Manual - The right tree in the right place for a resilient future
	Supporting Measure	
	URS1	**Encourage the adoption of wildlife friendly gardening.** Encouraging wildlife-friendly gardening helps transform urban and suburban spaces into valuable habitats that support a wide range of species. Planting native plants with year-round nectar sources provides essential food for pollinators such as bees and butterflies. Creating hedgehog holes in fences improves connectivity, allowing these mammals to move safely between gardens. Leaving sections of grass and scrub to grow naturally offers shelter and nesting sites. Small ponds and water features supply vital drinking and breeding resources for amphibians and insects. Together, these simple steps contribute to healthier, more resilient urban ecosystems and foster stronger connections between people and nature. For more information visit: How to start a wildlife garden from scratch | The Wildlife Trusts

UR2 - Green spaces within urban areas are better connected providing access corridors for people and nature across our towns and villages and into the wider countryside Relevant wider environmental benefits: Recreation, Physical health and mental wellbeing, Sense of place, Clean air, Space for wildlife and Urban Cooling Relevant priority species:Common toad, Great crested newt, Barn owl, House martin, Starling, Swift, Kingfisher, Atlantic salmon, Brown trout, European eel, Alcathöe bat, Barbastelle, Bechstein's bat, Brandt's bat, Serotine, Whiskered bat, European beaver, Harvest mouse, Hazel dormouse, Hedgehog, Otter, Water vole, Adder, Stag beetle, Depressed river mussel, Desmoulin's whorl snail, Medicinal leech, White- clawed crayfish and Cut- grass.	**UR2.1 (mapped)**	**Create and enhance habitats within priority corridors identified in the Urban Biodiversity Opportunity Areas** utilising 'active travel' corridors e.g. footpaths, cycle paths, bridleways and national trail networks. These linear spaces can be transformed into valuable green corridors by introducing species-rich grassland, native trees and hedgerows, or features like ponds and pollinator planting. Such enhancements support wildlife movement through urban areas, helping to connect fragmented habitats whilst also offering shaded, attractive environments for people. Careful planning and community engagement ensure improvements are compatible with the recreational and practical use of these routes, delivering lasting environmental and social benefits.
	UR2.2	**Create and enhance species-rich grasslands on suitable road verges** by reducing the frequency of grass cuts, collecting arisings and sewing additional seeds if required. Enhancing road verges as species-rich grasslands supports pollinators, birds and other wildlife while improving ecological connectivity across urban and rural areas. Reducing mowing frequency allows native wildflowers to complete their life cycles, and collecting grass cuttings helps lower soil fertility to encourage a greater diversity of plant species. Where existing diversity is limited, locally appropriate seed mixes can be sown to enrich the sward. These nature-friendly verges increase biodiversity, contribute to climate resilience and provide attractive, low-maintenance green space for the benefit of both people and wildlife. For best practice guidance, refer to: Plantlife (2020) Managing grassland road verges, a best practice guide.
	UR2.3	**Plant individual trees and shrubs on road verges** where suitable. Targeted restoration of species-rich grassland on road verges is vital for enhancing habitat connectivity across urban and rural landscapes. Establishing

		diverse wildflower and grass species helps these verges function as important wildlife corridors. Effective management includes timing cuts to avoid peak flowering / seeding and breeding seasons, controlling invasive scrub, and supplementing seed banks with locally sourced native species. For best practice guidance, refer to: Trees and Design Action Group
	WR1.3 (repeat)	**Improve habitats along canals, navigations and heavily modified rivers** to enhance their ecological value and strengthen their role as wildlife corridors. This may include restoring and managing marginal vegetation, creating quiet refuges for wildlife, and supporting species that depend on these habitats for feeding, breeding, and migration. Where appropriate, replacing hard engineering with softer, more naturalised banks can boost habitat diversity, improve channel connectivity, and enhance the link between aquatic and riparian zones. All improvements should be tailored to site conditions, carefully balancing ecological gains with the operational needs of navigation. For more information visit: Britain's inland waterways: Balancing the needs of navigation and aquatic wildlife
	Supporting Measures	
	URS2.1	**Encourage the use of railway sidings to provide connecting corridors.** Railway sidings provide many opportunities for enhancing ecological connectivity across urban and rural areas. By managing these areas to support native plants and wildlife, sidings can function as crucial green corridors that link fragmented habitats and facilitate the movement of species. Successful implementation requires close collaboration with railway operators to ensure that conservation objectives align with operational requirements, creating win-win solutions for both nature and infrastructure.

		Identify key barriers to connectivity caused by railways, roads and motorways that would be suitable for the installation of strategic crossings such as green bridges. Transport infrastructure often creates significant barriers to wildlife movement, fragmenting habitats and limiting access to essential resources. Identifying locations where these barriers most severely impact ecological connectivity is crucial for prioritising the installation of strategic wildlife crossings like green bridges or wildlife culverts / tunnels. These structures restore habitat links by allowing safe passage over/under busy routes, supporting biodiversity and reducing wildlife collisions. Careful site selection and design, informed by ecological data and landscape context, will maximise the benefits of such interventions for both wildlife and local communities.

UR3 - Buildings are built, renovated and/or retrofitted with wildlife and the environment in mind mitigating the impact of development and creating win-wins for nature and growth Relevant wider environmental benefits: Space for wildlife, Clean water, Urban Cooling and Flood reduction	**UR3.1**	**Safeguard existing swift nests and nest access holes** and re-establish following construction / maintenance works where possible. Swifts rely on long-standing nesting sites in buildings, often returning to the same location year after year. These nests are increasingly threatened by building renovations and repairs that inadvertently block access or destroy cavities. Protecting existing nest sites during development or maintenance works, and reinstating access points where feasible, is essential for supporting local swift populations. Early planning, use of swift-friendly materials and consultation with ecologists will help preserve this iconic migratory bird in urban environments. For best practice guidance, refer to: Swift Best Practice Report Swift Conservation
	UR3.2	**Create new nesting sites for swifts, bats and owls** by including relevant infrastructure, such as swift bricks, in new builds and/or retrofitting external nest boxes on established housing.

Relevant priority species: Barn owl, Swift, Barbastelle, Brandt's bat, Serotine and Whiskered bat.		Providing artificial nesting and roosting sites for swifts, bats and owls helps to reverse population declines caused by the loss of natural habitat in the built environment. Installing swift bricks, bat boxes, and owl boxes in new developments, or retrofitting appropriate features on existing buildings offers low- cost, high-impact opportunities to support urban biodiversity. Correct placement, species-appropriate design, and long-term maintenance are essential to ensure these features are well used and contribute to biodiversity. For further guidance, refer to: • Ideal Sites for Swifts - Swift Conservation • Bat Boxes - Bat Conservation Trust • Barn Owl Nestbox - The Barn Owl Trust
	UR3.4	**Retain or re-establish surface permeability of driveways and gardens** by avoiding paving or choosing surfaces that allow the infiltration of water. Preserving or restoring the permeability of driveways and gardens is essential for managing surface water sustainably. Permeable materials such as porous paving, gravel, or reinforced grass systems enable rainwater to infiltrate the ground, reducing flood risk, replenishing groundwater, and supporting healthy soils. Avoiding impermeable surfaces also creates opportunities for additional planting, enhancing both biodiversity and garden aesthetics.
	UR3.5	**Install green roofs and walls on appropriate buildings and structures** to integrate nature into areas where open space is limited. Green roofs and living walls provide valuable opportunities to enhance urban biodiversity where traditional green spaces are scarce. They provide vital habitats for wildlife, enhance air quality, and help regulate urban temperatures through natural shading and insulation. These features contribute to effective stormwater management, reduce energy demand, and elevate the aesthetic appeal of urban environments. When thoughtfully designed and properly maintained, green roofs

		and walls play a crucial role in fostering healthier, more sustainable, and climate-resilient cities. For more information visit: Natural England Green Infrastructure Planning and Design Guide 2023

UR4 - Residents and communities are aware of and able to take action to improve their local environment	**Supporting Measures**	
	URS4.1	**Encourage and support the creation and adoption of neighbourhood, parish and town biodiversity plans.** Empowering local communities to develop and implement biodiversity plans fosters a proactive approach to conserving and enhancing natural habitats. These plans establish clear priorities and practical actions to protect key species and ecosystems whilst guiding sustainable development. By promoting inclusive community engagement, these strategies build environmental stewardship, increase awareness, and integrate biodiversity considerations into local planning processes.
	URS4.2	**Support the creation, adoption and maintenance of Blue Heart Verges**, ensuring buy in from local residents and following best practice design to maintain road safety. Blue Heart Verges serve as important havens for native wildflowers and pollinators within urban landscapes, enhancing biodiversity and ecological connectivity. Facilitating community involvement fosters a strong sense of ownership and responsibility, ensuring the long-term success of these habitats. Careful design and management in line with safety guidelines ensures that visibility is maintained and road users are protected, whilst still maximising the ecological benefits of Blue Heart Verges. This collaborative effort helps create

		vibrant, sustainable green corridors that enrich local environments and improve quality of life. For more information visit: The Blue Campaign - increasing biodiversity in grass verges - Surrey County Council
	URS4.3	**Promote citizen science opportunities for monitoring the local environment.** Encouraging public involvement in citizen science initiatives enables communities to contribute meaningful data on local biodiversity, air and water quality, and other environmental factors. This collective effort enhances scientific knowledge, informs evidence-based conservation strategies, and fosters a deeper connection between people and their natural surroundings. Supporting accessible and inclusive citizen science projects cultivates an engaged and informed community committed to safeguarding and improving the local environment for current and future generations.
	URS4.4	**Deliver nature projects with schools and promote the adoption of Eco- Schools accreditation** to embed an understanding and appreciation of nature in the next generation Partnering with schools to deliver engaging nature-based projects helps nurture a lasting connection between young people and the natural world. Encouraging the adoption of the Eco-Schools accreditation supports schools in embedding sustainability and environmental stewardship into everyday learning and school life, allowing students to develop a deep appreciation for biodiversity and conservation. This early engagement empowers future generations to become proactive custodians of the environment, fostering healthier, greener communities for the future.

Farmland and the Wider Countryside

General Principles for the creation and restoration of nature in farmland and the wider countryside

- Nature recovery actions must provide a viable economic alternative to farmers and rural businesses – either through the provision of consistent government subsidy, public payments for public goods, or through green finance opportunities such as Biodiversity Net Gain
- The creation of habitats on farmland needs to be balanced against the need to produce food and broader food security.

Priority	Code	Measure
FWC1 – Nature friendly farming practices are widely adopted reducing the impact of food production on nature and building healthy and resilient soils that will remain productive for future generations Relevant wider environmental benefits: Food, Carbon sequestration and storage, Healthy soils, Erosion control, Clean water, Flood reduction, Pollination, Space for wildlife and Disease and Pest Control	**FWC1.1**	**Undertake cultivation and management practices that actively build soil organic matter such as minimum tillage or rotational grazing,** improving carbon capture, water retention and soil biodiversity. Soil health is fundamental to productive and resilient agricultural systems. Enhancing soil quality strengthens the land's capacity to withstand environmental changes and supports a thriving farmland ecosystem. Minimum tillage involves reducing soil disturbance during cultivation, which helps preserve soil nutrients, moisture and structure, compared to intensive ploughing. Rotational grazing allows pasture to recover between grazing periods, promoting sustainable vegetation growth and soil vitality.
	FWC1.2	**Introduce agroforestry both in pastoral and arable systems** to increase canopy cover, provide shelter from wind and sun and improve climate resilience. Agroforestry combines the cultivation of trees with crop production and livestock grazing, creating a more sustainable and diversified agricultural landscape. This approach delivers multiple benefits, including improved soil health, increased biodiversity, greater carbon sequestration, and enhanced economic opportunities for farmers. Trees integrated in agriculture also provide shelter from the elements providing shade for livestock in extreme heat and reducing wind damage to crops. For more information on agroforestry visit: A guide to agroforestry - GOV.UK

Relevant priority species: Barn owl, Corn bunting, Grey partridge, Lapwing, Skylark, Turtle Dove, Eagle's claws, Micheli's balloonwort, Corn buttercup, Cornflower and Re-tipped cudweed.	**FWC1.3**	**Adoption of low input grazing systems.** Low-input grazing plays a key role in nature-friendly farming by minimising reliance on artificial inputs such as synthetic fertilisers. While fertilisers can boost productivity, their overuse depletes soil nutrients and organic matter, leading to long-term soil degradation and increased dependency on external inputs. Low-input grazing systems focus on utilising on-farm resources to sustain pastures, promoting a more self-sufficient and resilient agricultural ecosystem.
	FWC1.4	**Adopt integrated pest management (IPM)** - combining biological, physical and chemical tools to manage pests and reduce the use of Plant Protection Products (PPPs). IPM emphasises the use of natural predators, crop rotation, habitat management and targeted interventions to reduce pest damage sustainably. By prioritising non- chemical techniques and applying chemical controls only when necessary, IPM helps protect beneficial insects and soil health, reduces environmental contamination, and lowers the risk of pest resistance.
	FWC1.5	**Reduce the time land is left bare by utilising cover and catch crops** to reduce potential for erosion and improve soil quality. These crops protect the soil surface from erosion caused by wind and rain, enhance soil structure, and increase organic matter content. Using cover and catch crops helps retain nutrients, improve water infiltration, and support beneficial soil organisms, leading to healthier, more resilient soils. This practice contributes to sustainable land management, safeguarding long-term agricultural productivity and environmental quality.

Farmland and the Wider Countryside

FWC2 – Key habitats are integrated into farmland and the wider countryside to provide stepping stones and connecting corridors creating a landscape that works for people and nature Relevant wider environmental benefits: Carbon sequestration and storage, Healthy soils, Erosion control, Flood reduction, Clean water, Pollination, Space for wildlife and Disease and Pest Control Relevant priority species: Common toad, Great crested newt, Barn owl, Corn bunting, Grey partridge, House martin, Starling, Swift, Lapwing, Redshank, Skylark, Turtle dove, Harvest mouse, Hazel dormouse, Hedgehog, Adder, Eagle's claws,	**FWC2.1**	**Create and manage wide arable field margins to improve and increase biodiversity.** Establishing broad field margins around arable fields provides essential habitats for a variety of wildlife, including pollinators, birds, and small mammals. These margins support floral diversity, improve ecological connectivity between habitats, and contribute to healthier, more resilient farmland ecosystems by offering shelter, food, and breeding sites. For best practice guidance, refer to: Managing Arable Farmland for Biodiversity
	FWC2.2	**Create and improve areas that support rare arable plants on farmland.** Protecting and enhancing habitats for scarce arable plant species in Surrey is essential to conserve agricultural biodiversity. Targeted measures, such as reducing herbicide use and managing soil conditions, help sustain these rare plants and maintain the unique character of the farmland flora.
	FWC2.3	**Safeguard and maintain existing mosaic of semi-natural habitats within farmland.** Maintaining a diverse network of semi natural features such as hedgerows, wildflower margins, ponds and grasslands within farmland is crucial for supporting a wide range of species. Protecting and enhancing these habitats promotes ecological resilience, facilitates species movement, and contributes significantly to the overall biodiversity and environmental health of agricultural landscapes.
	FWC2.4	**Create, restore and maintain natural habitats within suitable areas on golf courses.** Golf courses are encouraged to remove non-native species, such as rhododendron, from rough areas and replace them with native plants and habitats that reflect the local environment. This approach supports wildlife, improves habitat connectivity,

Sandy stiltball, Micheli's balloonwort, Broad-leaved cudweed, Corn buttercup, Cornflower, Red-tipped cudweed and Spreading hedge-parsley.		and contributes to the overall health of the surrounding landscape, while maintaining the recreational value of the course. For best practice guidance, refer to: Sustainable.Golf and BIGGA
	WR4.1 (repeat)	**Enhance, safeguard and maintain existing ponds and pond clusters** to improve biodiversity and water quality. Well-managed ponds provide vital habitats for a wide range of species including amphibians, invertebrates and aquatic plants. Protecting these water bodies from pollution and disturbance helps sustain their ecological function, while active maintenance such as vegetation management and sediment control supports water quality and encourages species diversity.
	WR4.2 (repeat)	**Create and restore offline ponds** (ponds not attached to a river) with a focus on increasing connectivity (pond clusters) and ponds that used to exist in the landscape (ghost ponds). These isolated ponds serve as crucial refuges for a wide variety of aquatic and semi- aquatic wildlife, providing safe breeding and foraging habitats away from the pressures of flowing watercourses. Restoring pond clusters helps to strengthen broader habitat networks, facilitating species movement and genetic exchange, which enhances overall biodiversity and ecosystem resilience. Additionally, offline ponds contribute to improved water storage capacity within the landscape, helping to regulate local hydrology and reduce flood risk. They also act as natural filters, capturing sediments and pollutants before they reach larger water bodies, thereby supporting improved water quality throughout the wider catchment area. For best practice guidance, refer to: Pond design principles for biodiversity

	W5.1 (repeat)	**Actively manage and enhance existing hedgerows.** Actively managing and enhancing existing hedgerows helps restore their value as vital ecological corridors in the landscape. Improving their structural condition, increasing width, and filling in gaps can support a rich diversity of wildlife by offering food, shelter, and nesting sites for birds, insects, and small mammals. Traditional techniques such as coppicing and hedge laying should be encouraged as they promote thick, dense growth that enhances habitat quality and longevity. Well- managed hedgerows also deliver wider environmental benefits by improving connectivity between habitats, capturing carbon, filtering pollutants, and helping to slow water flow across the land. For best practice guidance, refer to: Hedgerow Management Advice | Hedgelink
	W5.2 (repeat)	**Establish new hedgerows and woodland shaws to enhance connectivity and manage water flow.** Planting new hedgerows in strategic locations can improve ecological connectivity by linking fragmented habitats, allowing wildlife to move more freely across the landscape. Additionally, hedgerows help slow and filter surface water runoff, reducing sedimentation and pollution in rivers and streams. Careful placement and selection of native species will maximise their benefits for biodiversity, soil health, and water quality. A long-term management plan should be in place to maintain new hedgerows, ensuring proper establishment and good condition into the future. Where practicable consider the use of shaw woodland, establishing wider corridors of 5-15m of native woodland. Shaw woodland has the potential to provide additional connectivity benefits for wildlife as well as increased carbon sequestration and increased shelter for cattle and crops.

	FWC2.5	**Create and manage graded margins up to hedgerow and woodland edges.** Creating and managing graded margins up to hedgerow and woodland edges adds structural variety to the landscape and provides essential habitat for a wide range of farmland species. These gradual transitions from grass to scrub to tree cover offer shelter, foraging grounds and nesting sites for birds, insects and small mammals. They also support pollinators and natural pest predators, contributing to more resilient farming systems. Incorporating these features into farmland promotes biodiversity while delivering practical environmental benefits.

FWC3 - Land within river catchments is managed to reduce pollution entering rivers, hold back water to reduce flood peaks and recharge aquifers to improve water supply Relevant wider environmental benefits: Clean water, Erosion control, Flood reduction, Water supply, Carbon sequestration and storage, Healthy soils and Space for wildlife. Relevant priority species: Kingfisher, Atlantic salmon, Brown trout, European eel, Eurasian beaver, Otter, Water vole, Depressed river mussel, Desmoulin's whorl snail, Medicinal leech and White-clawed crayfish.	**FWC3.1**	**Slow the flow of water across long and steep slopes.** Implementing measures such as strategically placed hedgerows along the contour lines of slopes helps to intercept surface water, reducing its speed and erosive potential. Enhancing soil permeability through organic matter improvements and adding features that increase surface roughness, further diminishes runoff and sediment movement. These actions protect soil health, improve water quality, and reduce flood risks downstream.
	FWC1.5	**Reduce the time land is left bare by utilising cover and catch crops.** Leaving soil exposed for extended periods increases the risk of erosion and nutrient loss. By planting cover and catch crops during fallow periods, the soil surface is protected from rain impact and wind. These crops also help maintain soil structure, increase organic matter, and enhance nutrient cycling, contributing to long-term soil fertility and resilience.
	WR1.5 (repeat)	**Maintain, create and widen areas of semi-natural habitats next to watercourses** Buffer zones should be at least 10 metres wide to help reduce bank erosion and slow surface water runoff. Well-vegetated buffers effectively trap sediment and pollutants, while also providing a balanced mix of light and shade to support healthy aquatic habitats. Careful management of these zones promotes water quality, stabilises banks, and creates vital refuge and foraging areas for wildlife.

Supporting Measures (relevant to all FWC priorities)	
FWCS1	**Support the creation and maintenance of farmer and land manager groups to foster collaboration and delivery of nature recovery at a landscape scale.** Encouraging the formation and ongoing support of farmer and land manager groups fosters collaboration, knowledge sharing, and coordinated action across Surrey. These groups play a crucial role in implementing nature recovery initiatives, enhancing biodiversity, and strengthening environmental resilience throughout the landscape.
FWCS2	**Support the sharing of best practice between farms by facilitating farm visits and making information readily available** Facilitating farm visits and sharing practical knowledge encourages the exchange of successful strategies and innovations. This peer-to-peer learning approach helps improve sustainable land management, boosts productivity, and promotes widespread adoption of nature-friendly farming practices.
FWCS3	**Coordinate farm advice and support to avoid conflicting information and provide a simple access point for key information.** Providing a coordinated advisory service ensures farmers receive clear, consistent guidance tailored to their needs. Centralising information simplifies access to resources, reduces confusion, and supports informed decision-making for sustainable and effective land management.
FWCS4	**Support collaboration between farmers and water companies to access funding for nature-based solutions** By fostering partnerships, farmers can access valuable resources to implement environmentally sustainable practices that improve water quality, mitigate flood risks, and support biodiversity. Such collaborations generate positive outcomes for agricultural productivity whilst contributing to broader environmental health and resilience.

Wider Environmental Benefits

Within the draft priorities and measures there are ‘relevant wider benefits’ associated with each priority. These are examples of the main benefits that each group of actions could provide alongside achieving the biodiversity priorities. This shows how nature recovery can play a key role in other priorities for the county, including climate resilience, health and well-being, air and water quality, and wider socio-economic benefits.

The extent to which a priority will deliver these wider environmental benefits will vary based on several factors including the location, extent and condition of the asset or habitat created. For example, a tree planted within a town or city with poor air quality will provide more pollution reduction than the same species of tree planted in the middle of the countryside. Similarly, a new or restored reedbed in the headwaters of a pristine chalk stream will not benefit water quality to the same extent as a shallow reedbed located downstream from a sewage treatment works. The same action in two different geographies will not always deliver the same quantity of wider environmental benefits. Working out where the demand for wider environmental benefits is across the county will allows us to target the win-wins for nature and people and can better inform investment decisions in environmental action. Where possible we have applied this approach in the mapping of measures. We will continue to improve our evidence base to create a more accurate focus on delivery of wider environmental benefits in future iterations of the LNRS.

It is important to note that there aren’t always win-wins and there will occasionally be trade-offs when applying a wider environmental benefit approach to nature recovery. For example, if your primary aim is carbon sequestration the most effective way to do this may be with fast growing sitka spruce, but this would not achieve the full biodiversity benefits associated with a native broadleaf woodland. In addition, restoring a modified grassland to a species rich calcareous grassland will likely increase biodiversity but it will also reduce the number of livestock that land can produce.

Wider Environmental Benefits

The table below provides a different lens, showing which priorities deliver against specific wider environmental benefits. For example, if you are seeking to deliver a more resilient water supply you should focus on priorities WR1, WR2, WR4, GSH1, GSH2 and FWC3. Other priorities may also delivery benefits to water supply but to a lesser extent.

Wider Environmental Benefit	W1	W2	W3	W4	W5	WR1	WR2	WR3	WR4	GSH1	GSH2	UR1	UR2	UR3	FWC1	FWC2	FWC3
Timber production	■	■															
Wood Fuel	■	■															
Water Supply						■	■		■	■	■						■
Food production			■								■				■	■	
Clean Air	■	■		■	■							■	■				
Clean Water	■	■			■	■	■		■	■	■	■			■	■	■
Carbon Storage	■	■			■		■		■	■	■				■	■	■
Erosion control	■	■			■		■	■		■	■				■	■	■
Flood Management	■	■			■	■	■		■	■	■	■		■	■	■	■
Disease and Pest Control			■					■			■				■	■	
Pollination											■		■		■	■	
Urban cooling		■		■								■	■	■			
Healthy Soils	■	■	■		■					■	■				■	■	■
Space for wildlife	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Physical health and mental wellbeing	■	■				■			■	■	■	■	■				
Recreation	■	■				■			■	■	■	■	■				
Sense of place	■	■		■	■					■	■	■	■	■			



Credit: Mike Waite

Species Priorities List and Associated Measures

What is the draft Species Priorities List?

The Species Priorities List identifies species in Surrey that require targeted actions from individuals and organisations to help their populations survive, recover, or expand, halting biodiversity loss. The government has tasked Local Nature Recovery Strategies (LNRSs) with creating these lists, focusing on a manageable number of species to effectively direct local efforts and resources.

The list prioritises species of conservation concern nationally and locally which are found in Surrey and require specific action, above and beyond general habitat management and creation.

How we developed the species shortlist

The process of shortlisting was undertaken by Mike Waite, Director of Research and Monitoring, Surrey Wildlife Trust, author of The State of Surrey's Nature. Mike was supported by a Species Technical Group including experts and recorders from across Surrey.

Stage 1 – Create a LNRS Species Longlist

- Used local data to identify species which are geographically and ecologically relevant to the strategy area and;
    - Are assessed as Red List *Threatened* or *Near threatened* against IUCN (The International Union for Conservation of Nature) criteria, or;
    - Are considered to be nationally extinct, that re-establish themselves or are rediscovered, or; Have been identified as suitable candidates for conservation translocation within the strategy area
- This list was then supplemented with 'Other species of local significance' following the criteria;
    - Species which local people suggest as candidates for conservation translocation (subject to compliance with IUCN guidelines);
    - Species which are included in pre-existing plans or projects within, or relevant to, the strategy area (for example, those cited within the Surrey Hills Protected Landscape Management Plan);
    - Species may include local 'champion' (= 'flagship') species or species which are iconic for/emblematic of the local area.
    - Finally, the draft list went to consultation with species experts within the county.

What is the draft Species Priorities List?

Following review and additions from the Species Technical Group, the draft species long list totalled 1,972 species, demonstrating the diverse nature of Surrey's habitats and the immense wealth of data held by our species recorders.

Stage 2 – Create a LNRS species priorities list

- The long list was then reviewed to determine their suitability for inclusion as an LNRS priority species using the criteria below

Needs more/bigger/better-connected habitat	Do not short-list
Needs targeted habitat management	Yes, consider
Needs improvements in environmental quality	Yes, consider
Needs bespoke conservation action/s	Yes, consider
Needs better evidence base	Probably not, if only criterion
Needs action outside England	Do not short-list

- Species that met the criteria were then categorised into habitat assemblages or species with similar needs
- All remaining species were prioritised against local threat status, including urgency of action to prevent local extinction
- The draft short-list was then again circulated to the Species Technical Group for review.

The final shortlist contains 100 species. Associated potential measures and locations for action are listed below. A further 17 species believed to be of conservation concern in Surrey but that require additional survey, are noted in Appendix 1.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Vertebrates		
Amphibians		
Common toad *Bufo bufo*	• Restore, enhance or create fish-free ponds near known migration routes. • Create more Sustainable Urban Drainage Systems (SUDS) which offer opportunities for amphibians. • Maintain and restore hedgerows and field margins to improve habitat connectivity. • Install amphibian ladders in drains and culverts. • Promote volunteer 'toad patrols' during migration season. • Review road 'toad crossings' programme countywide to identify new opportunities for signage and improvements like retrofitted underpasses. • Incorporate underpasses into new developments/transport infrastructure.	Countywide.
Great Crested Newt *Triturus cristatus*	• Create new 'safe' ponds as offered by the Great Crested Newt (GCN) District Licensing programme/ providers across Surrey. • Enhance and create riparian habitats around ponds to reduce pollution and disturbance. • Restore terrestrial habitat within 250m of known breeding ponds (e.g. rough grassland, scrub and hedgerows). • Monitor species for stability of the population.	Countywide.
Natterjack toad *Epidalea calamita*	• Restoration and creation of wet heathland habitats at sites which have potential, to increase the terrestrial habitat for natterjack toads. • Increase the number of natterjack toad ponds (scrapes) created at existing natterjack toad population strongholds in Surrey.	Thursley, Chobham, Frensham, and Crooksbury Commons.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Investigate feasibility for reintroduction of natterjack toads to at least two National Nature Reserve sites (Thursley and Chobham Commons). • Review state of existing populations using standard survey methodology at Frensham and Crooksbury Commons to decide a forward strategy. • Assess the potential for public engagement initiatives to promote the success of reintroduction projects.	
Birds		
Barn owl *Tyto alba*	• Create and manage rough grassland in the form of blocks or 6m wide strips along field margins, woodland edges and watercourses. • Promote local breeding success by installing and monitoring barn owl nest boxes in suitable areas such as farm buildings, barn conversions and mature trees near rough grassland and away from major roads (at least 1km). • Maintain existing nest sites by allowing access to old barns and tree cavities.	Countywide.
Corn bunting *Emberiza calandra* **Grey partridge** *Perdix perdix*	• Maintain and restore hedgerows and establish tall grassland buffer strips along field margins which provide cover, foraging and nesting sites for both bird species. • Manage hedgerows on a rotational basis to maintain structure, species diversity, and connectivity, avoiding major annual cutting. • Create overwintering habitats such as stubble fields, cereal crops (e.g., game cover), and field margins that provide seeds, insects, and shelter for both species.	Countywide.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Curlew *Numenius arquatus*	• Create and restore traditionally managed species rich hay meadows and rough grassland to provide essential nesting habitats. • Maintain and restore lowland floodplain meadows by avoiding or minimising drainage and maintaining existing wet features (e.g., scrapes, flushes, boggy ground), to provide potential new nesting sites. • Enhance and create wet heathland habitats, particularly in areas with current and historical curlew presence, to diversify breeding and foraging options. • Do not plant trees in habitats known to be used by curlew. • Investigate feasibility for reintroduction to Pirbright Ranges using site-imprinted/captive-bred birds. • Continue to monitor the critically threatened (sole-remaining) population at Thursley National Nature Reserve	Pirbright Ranges and Thursley NNR.
Goshawk *Accipiter gentilis*	• Manage conifer/mixed woodland for structural diversity including understory and shrub cover and the creation of open glades and rides. • Restore and maintain lowland heathland where adjacent to mixed woodland. • Maintain monitoring of breeding success countywide, with a focus on high-priority recovery areas of the North Downs and Low Weald. • Continue bespoke advisory service to landowners and forestry operators.	Countywide.
House martin *Delichon urbica*	• Support local breeding success of all three species in built environments through building modifications, the integration of nest features (e.g., swift bricks), and retrofit existing buildings with nest boxes (e.g. house martin nest bowl and starling nest box) and	Countywide.
Starling		

Species Name	Species Specific Measures	Suggested Locations in Surrey
Sturnus vulgaris **Swift** *Apus apus*	structures that replicate natural cavities, in line with local planning policy achieving sustainable building design. • Encourage the management of rural buildings to retain spaces where these species traditionally nest. • Create and enhance insect-rich environments such as species-rich grasslands, wetlands and traditional orchards. • Maintain active monitoring of population stability for all three species. • Develop starlings as a public engagement Flagship species, using opportunities offered by seasonal murmurations at sites like Surrey Wildlife Trust Hedgecourt Lake Nature Reserve.	
Kingfisher *Alcedo atthis*	• Maintain vertical natural riverbanks suitable for burrowing nest tunnels by avoiding bank reinforcement or development in known or potential nesting areas. • Enhance and create riparian habitats around ponds, streams and rivers to improve aquatic health and provide overhanging vegetation which can be used as hunting perches. • Promote local breeding success by installing artificial nest bank-tubes in suitable riparian habitats where natural nesting sites are limited or degraded. • Maintain long-term monitoring of population trends and site use.	Countywide.
Lapwing *Vanellus vanellus*	• Enhance and manage open, wet grasslands and arable land with short, patchy vegetation and bare ground for nesting and chick-rearing. • Restore and maintain floodplain grazing marsh and wetlands to ensure seasonal wet features such as scrapes, wet depressions, and shallow pools are present.	Countywide.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Promote breeding success through the use of chick protection measures at wetlands (e.g. islands/rafts) and by establishing lapwing sanctuary plots on farmland sites. • Maintain long-term monitoring of population trends and recovery.	
Nightingale *Luscinia luscinia*	• Restore overgrown or neglected coppice and scrub (e.g. bramble) habitats, particularly within woodlands that historically supported Nightingales, to reinstate suitable breeding conditions. • Control browsing pressures to promote the natural regeneration of woodland edges, rides, and glades. • Prioritise site management to benefit nightingales in all current and recently-lost (>2015) former breeding sites. • Continue to monitor for population stability. • Develop nightingales as a public engagement Flagship species.	Countywide.
Redshank *Tringa tetanus*	• Create shallow wet features (e.g. scrapes, wet depressions, or flooded grassland) in floodplain grazing marsh and wet grasslands. • Incorporate cattle grazing on known or potential sites to maintain a mix of short grassland for feeding and taller grass areas for nesting. • Initiate breeding recovery in northwest Surrey, through targeted chick protection measures such as islands/rafts, particularly at key sites such as Molesey Wetlands. • Maintain long-term monitoring for population recovery.	SW London SPA waterbodies
Skylark *Alauda arvensis*	• Restore and enhance species-rich grasslands to provide foraging and nesting habitats. • Encourage farmers to include spring cereals or a spring break crop in rotation where possible to provide nesting habitats.	Countywide.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Create winter feeding habitats such as stubble fields, cereal crops, and field margins that provide seeds, insects, and shelter for both species. • Address the threat to the regionally significant population at the Former Wisley Airfield development site. • Increase breeding success on farmland through the establishment of Skylark sanctuary plots, and in public open spaces by implementing dog-walking control measures using effective signage. • Promote skylark as a public engagement Flagship species. • Maintain long-term breeding population monitoring.	
Turtle dove *Streptopelia turtur*	• Create tall, thick, species-rich hedgerows, dense scrub and allow shrub layers to develop along woodland edges for nesting. • Manage hedgerows on a rotational basis to maintain structure, species diversity, and connectivity, avoiding major annual cutting. • Create, restore or maintain ponds with shallow edges in farms and parklands to allow birds to access water. • Establish seed-rich crops and low-intensity farming options such as rotational cereal crops that provide a continuous supply of food. • Establish field-abandonment projects at recent former breeding hot- spots, including central North Downs & Tillingbourne valley; Ewhurst- Forest Green; Wallis Wood-Capel areas. • Maintain long-term monitoring for population recovery.	North Downs & Tillingbourne valley, Ewhurst-Forest Green, Wallis Wood-Capel areas.
Fish		
Atlantic salmon *Salmo salar*	• Remove barriers to fish migration and install fish ladders where appropriate.	Immediate River Thames reaches

Species Name	Species Specific Measures	Suggested Locations in Surrey
Brown trout *Salmo trutta*	• Increase the cover of native aquatic plants in rivers and streams to provide protection from predators. • Create and enhance riparian zones of rivers, streams and ditches to boost water quality, shade, shelter and food sources. • Maintain and enhance habitat features like gravel beds for spawning. • Retain woody debris in rivers and streams to provide shelter and feeding opportunities. • Restore natural stream dynamics through techniques like river re-meandering to create varied flow conditions (pools, riffles, runs).	River Wey and River Mole catchment areas.
European eel *Anguilla anguilla*		Countywide
Other Mammals		
Alcathöe (whiskered) bat *Myotis alcathoe*	• Retain and manage mature trees, especially those with woodpecker holes, cavities, loose bark, or cracks that serve as natural roost sites. • Enhance woodland edge structure and bankside trees to support rich invertebrate foraging. • Maintain tree lines and hedgerows to link woodland blocks. Enhance links between woodland and any known hibernation sites. • Enhance woodlands by creating and maintaining ponds and other damp areas. • Promote traditional woodland management (e.g. coppicing, glades and ride-widening) to support diverse foraging habitats. • Produce long-term woodland management plans that incorporate bat monitoring and increase biodiversity. • Install and monitor bat boxes to provide roosting opportunities in woodlands and parklands. • Discover countywide distribution and commuting flyways, combined with location of maternity roosts for bat species.	Countywide.
Barbastelle *Barbastella barbastellus*		
Bechstein's bat *Myotis bechsteinii*		
Brandt's bat *Myotis brandtii*		
Serotine *Eptesicus serotinus*		

Species Name	Species Specific Measures	Suggested Locations in Surrey
Whiskered bat *Myotis mystacinus*	• Prioritise roost retention/provision in proven occupation sites, via landowner liaison and bespoke advice for relevant bat species. • Find out the key Surrey landscapes for serotine, where maintenance of connectivity between roosts and foraging sites may be prioritised, including through control of light pollution. • Increase National Bat Monitoring Programme (NBMP) 'Roost Count' scheme representation for serotine.	
Eurasian beaver *Castor fiber*	• Maintain and expand feasibility studies and public engagement to support potential beaver reintroduction at a minimum of two sites, including Pirbright Ranges. • Identify and prioritise catchment areas with potential for natural flood management, wetland restoration, and biodiversity enhancement through beaver activity.	Pirbright Ranges.
Harvest mouse *Micromys minutus*	• Create and enhance arable field margins, rough grassland, and reedbeds along ditches using long-stemmed grasses such as reed sweet-grass and reed canary-grass, linking suitable habitats wherever possible to support population expansion. • Find out the countywide distribution to guide the maintenance and restoration of floodplain connectivity as a conservation priority. • Promote the species as a public engagement Flagship, including the establishment of a watch-point facility at one or more key sites.	Countywide.
Hazel dormouse *Muscardinus avellanarius*	• Restore woodland and hedgerow networks by enhancing connectivity, facilitating dormouse movement across the landscape. • Enhance woodland edge structures along margins of woodland and beside woodland rides and glades.	Countywide.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Enhance existing woodlands through traditional management practices, such as rotational coppicing, and plant native shrubs that provide food for dormice (e.g. hazel, honeysuckle). • Manage hedgerows on a rotational basis to maintain structure, species diversity, and connectivity, avoiding major annual cutting. • Maintain a countywide nest-box monitoring programme, with expansion where appropriate.	
Hedgehog *Erinaceus europaeus*	• Restore and manage species-rich hedgerows to serve as natural corridors and nesting areas for hedgehogs. • Promote hedgehog-friendly practices in urban planning and development, including the incorporation of garden connectivity in all new developments and the mitigation of hazards on construction sites. • Implement emerging research recommendations to promote safe urban connectivity for hedgehogs in new transport infrastructure projects. • Maintain and expand 'Hedgehog Street'-style advocacy and community engagement initiatives across Surrey, encouraging residents to install 'Hedgehog Highways' and hedgehog nest boxes where appropriate.	Countywide.
Otter *Lutra lutra*	• Maintain surveillance for signs of otter breeding across all river catchments in Surrey. • Create and enhance riparian zones of rivers, streams and ditches to boost water quality and food sources. • Restore natural stream dynamics through techniques like river re-meandering. • Remove barriers to fish migration and install fish ladders where appropriate as fish are a primary food source for otter.	All river catchment areas in Surrey.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Install artificial holts where appropriate, particularly in conjunction with catchment restoration initiatives. • Retrofit otter runways in culverts beneath motorways and dual carriageways to improve habitat connectivity and reduce road mortality. • Protect identified otter breeding sites by designating them as Local Wildlife Sites (Sites of Nature Conservation Importance (SNCI)).	
Pine marten *Martes martes*	• Enhance and restore woodland habitats to include complex understories, deadwood, and mature tree cavities that are suitable for resting and denning. • Improve and restore woodland connectivity to support pine marten movement across the landscape, linking fragmented habitats for greater landscape-scale continuity.	Greensand and Low Weald areas.
Water vole *Arvicola amphibius*	• Restore and enhance riparian habitats by improving bank-side vegetation, controlling grazing pressure, and creating suitable shelter and feeding areas. • Participate in American mink eradication programmes across the River Wey, River Mole, and Eden Brook catchments and sub-catchments. • Support water vole reintroduction at five identified sites, including Redhill Brook, Pipp Brook, Tillingbourne, and the Upper Wey. • Monitor for population establishment and stabilisation over time to assess reintroduction success.	River Wey, River Mole and Eden Brook catchments and sub-catchments, as well as Redhill Brook, Pipp Brook, Tillingbourne and Upper Wey.
Reptiles		
Adder *Vipera berus*	• Restore heathland and grassland habitats ensuring a mix of dense vegetation for shelter and open sunny areas for basking.	Countywide.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Enhance habitat edges (e.g. between scrub, woodland, heathland, and grassland) and create habitat mosaics, creating sunny areas for basking on tree stumps and exposed banks, as well as providing both natural and artificial hibernation sites. • Initiate a new 'Be Kind to Snakes'-style campaign, with Adder as a Flagship species. • Conduct a review of the county's population status, focusing particularly on sites beyond heathland areas. • Monitor populations across all known and potential habitats to track distribution and trends.	
Sand lizard *Lacerta agilis*	• Accelerate bare ground creation project to create a mosaic of bare sand and vegetation cover in lowland heathland. • Maintain open, sunny patches in lowland heathland with regular removal of encroaching trees, scrub and bracken. • Connect fragmented heathland sites to allow sand lizards to disperse. • Monitor populations via the Rare Reptile Monitoring Programme at all occupied and potential sites, with enhanced focus following wildfires. • Repeat reintroduction of sand lizards at Ash Ranges.	Ash Ranges.
Smooth snake *Coronella austriaca*	• Manage existing lowland heath to maintain a patchwork of successional stages, including mature heather, young regrowth, open rides, and glades. • Connect fragmented heathland sites to allow smooth snakes to disperse. • Monitor populations via the Rare Reptile Monitoring Programme at all occupied and potential sites, with enhanced focus following wildfires.	Chobham Common (South), Ockham Common, and Whitmoor Common.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Proceed with reintroduction at Chobham Common (South) and assess the feasibility of reintroductions at Ockham and Whitmoor Commons.	
Invertebrates		
Coleoptera (beetles and weevils)		
Blue pepper-pot beetle *Cryptocephalus punctiger*	• Create new areas that include a mosaic of heathland, scrub, woodland habitat, bare ground and south facing banks and/ or manage and improve existing mosaic heathland habitats. • Connect fragmented heathland sites. • Monitor species for population establishment and stabilisation over time. • Reintroduce heath tiger beetle to Ockham Common SSSI and reintroduce Kugelann's green clock to at least three appropriate sites. • Review current Surrey status of blue pepper-pot beetle and Kugelann's green clock across Heathland Connections zone. • Review necessary management at sites where blue pepper-pot beetles exist (including Wisley Common, Horsell Common, Barossa).	Wisley Common, Horsell Common, and Barossa.
Kugelann's green clock beetle *Poecilus (=Pterostichus) Kugelanni*		Ockham Common.
Heath tiger-beetle *Cicindela sylvatica*		Heathland – Countywide.
Mellet's downy-back beetle *Ophonus melletii*	• Restore and recreate acid and calcareous grassland in locations where these priority habitats previously occurred using historical records and soil data to guide site selection. • Review current Surrey status, especially within Ewell and its surrounding areas and within the Heathland Connections zone. • Introduce species to establish secure sub-population at Surrey Wildlife Trust Priest Hill.	Ewell and surrounding areas, and Priest Hill.
Hazel pot beetle *Cryptocephalus coryli*	• Heathland and grassland management should recognise early successional scrub as a valuable habitat component, allowing for	North Downs, Box Hill, and Headley Warren.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	controlled natural regeneration of trees and shrubs as part of a balanced, mosaic landscape. • Maintain silver birch in areas of known populations and if possible, encourage young birch growth to provide a network of scattered trees and shrubs. • Maintain open, but sheltered, sunny glades for hazel pot beetle. • Review and monitor current Surrey status within North Downs. • Review necessary management at extant sites (inc. Box Hill, Headley Warren). • Monitor for population establishment and stabilisation over time.	
Shining pot beetle *Cryptocephalus nitidulus*	• Birch and hazel scrub growth should be encouraged in heathland-grassland transitional habitats • Trees with a range of maturities should be encouraged to ensure that a succession of immature scrub is maintained. • Allow natural succession to connect fragmented scrub to ensure gaps of less than 10m. • Monitor for population establishment and stabilisation over time.	North Downs, Hackhurst Downs, and SWT Dawcombe.
Noble chafer beetle *Gnorimus nobilis*	• Restore and create traditional orchards with mature fruit trees such as cherry, plum and apple. • Introduce or maintain dead wood piles in traditional orchards, for larval development. • Promote the creation of wood pastures and parkland by encouraging landowners to maintain areas with veteran and ancient oaks and beech trees. • Reintroduce species to Lamberts Orchard at Horton Country Park and West Horsley Place.	Horton Country Park and West Horsley Place.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Poplar leaf-rolling weevil *Bycticus populi*	• Promote the natural succession of scrub into woodland using managed ride and coppice management. • Planting of young aspen ensures there is always young aspen available for the weevil. • Review current Surrey status through a citizen science project. • Reintroduce poplar leaf-rolling weevil to at least three appropriate sites including Bookham Common and Thursley Common. • Monitor species for population establishment and stabilisation over time.	Bookham Common and Thursley Common.
Stag beetle *Lucanus cervus*	• Where possible, retain and protect standing and fallen deadwood, tree stumps and decaying logs both in urban greenspaces and woodlands as they are essential for larval development. • Create beetle loggeries by partially burying upright deadwood in sunny, undisturbed locations within gardens, parks, cemeteries and woodlands. • Review and monitor the status of the species in Surrey through a targeted citizen science project, using it as a platform for invertebrate conservation awareness, community engagement, and best-practice demonstration.	Countywide.
Lepidoptera (butterflies and moths)		
Adonis blue butterfly *Polyommatus bellargus*	• Prioritise the retention and appropriate management of south-facing slopes with thin, calcareous soils, especially in areas with historic adonis blue presence or strong potential for breeding colony establishment.	Hackhurst and White Downs SSSI (Westcott-Shere) and Mole Gap-Reigate

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Implement targeted scrub control on calcareous grasslands, retaining small, scattered patches of scrub to provide shelter and microclimate benefits. • Apply moderate to heavy grazing during favourable growing seasons (avoiding drought years) to maintain a short, open sward with areas of bare ground, promoting the abundance of horseshoe vetch (*Hippocrepis comosa*), the larval foodplant. • Re-establish habitat connectivity corridors across Hackhurst and White Downs SSSI (Westcott-Shere) and Mole Gap-Reigate Escarpment SSSI (Box Hill-Brockham). • Monitor for stabilisation of population.	Escarpment SSSI (Box Hill-Brockham).
Betony case-bearer moth *Coleophora wockeella*	• Encourage betony *Betonica officinalis* planting or seeding to expand larval habitat. • Monitor species for stability of population at Chiddingfold Forest SSSI. • Consider establishing at least two new sub-populations, in collaboration with Sussex LNRS to enhance population resilience and connectivity.	Chiddingfold Forest SSSI.
Duke of Burgundy butterfly *Hamearis lucina*	• Investigate the feasibility for reintroduction to the North Downs, as part of a collaborative LNRS project with Hampshire and Kent. • Protect and enhance calcareous grasslands and woodland glades and rides, encouraging the presence of primrose and/or cowslips as the larval food plant. • Maintain low-intensity grazing and control invasive scrub, allowing for a varied sward with both short grassland and taller vegetation, to support the butterfly's lifecycle and ensure habitat diversity.	North Downs.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Enhance existing woodlands through traditional management practices, such as rotational coppicing.	
Forester moth *Adscita statices*	• Buffering of existing sites through the restoration or creation of species-rich grassland and other semi natural habitats help build the resilience of existing populations. • Site management to ensure the maintenance of a medium-tall sward with abundant sorrel and nectar plants. Scrub encroachment can be prevented through light grazing or clearance. Over-grazing should be avoided. • Increasing the area of suitable habitat around existing sites by restoring or creating species-rich grassland, and managing scrub on existing grassland sites. • Review current status countywide. • Manage for recovery at Surrey Wildlife Trust (SWT) Newdigate Brickworks nature reserve.	SWT Newdigate.
Grayling butterfly *Hipparchia semele*	• Maintain areas of open, sparse, vegetation with abundant fine-leaved grasses and plenty of bare ground. • Apply moderate-to-heavy grazing during favourable growing seasons (avoiding drought years) to maintain localised areas of bare ground. • Monitor the existing populations of Grayling in the county.	Heathland - Countywide
Heart moth *Dicycla oo*	• Encourage young trees to grow to maturity by leaving uncut or planting on woodland edges. • Review status at former key site(s), inc. Epsom & Ashtead Commons National Nature Reserve (NNR). • Maintain continuity of likely host trees at National Trust Harewoods Estate and Hatchlands Park.	Epsom and Ashstead Commons NNR, Harewoods Estate and Hatchlands Park.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Monitor for stabilisation of population.	
Shoulder-striped clover moth *Heliothis maritima*	• Planting of cross-leaved heather for caterpillar food plants. • Creation of small areas of bog within heathland habitat. • Burns and mowing/bare ground creation within heathland to promote young vegetation succession. • Review current status on historic sites (including Chobham NNR, Pirbright/Ash Ranges and Thursley NNR). • Reintroduce species within Heathland Connections zone.	Chobham NNR, Pirbright / Ash Ranges and Thursley NNR.
Silver-studded blue butterfly *Plebejus argus*	• Encourage ant species (*Lasius niger* and *Lasius platythorax*) into heathland habitats to benefit mutualistic relationship. • Manage sites to produce a succession of pioneer heather and plentiful bell heather (*Erica cinerea*). • Reintroduce species to at least three appropriate sites including Ockham and Wisley SSSI; Blackheath SSSI. • Monitor for stabilisation of population.	Ockham and Wisley SSSI and Blackheath SSSI.
Straw belle moth *Aspitates gilvaria*	• Maintain the extent of mosaic grassland and small patches of bare ground. • Targeted grazing by cattle so that the sward height is between 20- 30cm with frequent areas of shorter vegetation. • Re-establish habitat connectivity corridors across Hackhurst & White Downs SSSI (Westcott-Shere) and Mole Gap-Reigate Escarpment SSSI (Box Hill-Brockham). • Monitor for stabilisation of population.	Hackhust & White Downs SSSI (Westcott-Shere) and Mole Gap-Reigate Escarpment SSSI (Box Hill-Brockham).

Species Name	Species Specific Measures	Suggested Locations in Surrey
Wood white butterfly *Leptidea sinapis*	• Retain scrub and open grassland mosaic, and enlarge rides and glades as necessary. • Re-establish stabilisation project in Chiddingfold Forest SSSI complex, as part of inter-LNRS project with Sussex. • Monitor for stability/increase of population.	Chiddingfold Forest SSSI.
Other Invertebrate Classes		
Depressed river mussel *Pseudanodonta complanata*	• Restore and enhance river, ditch, and canal banks through dechannelisation and re-naturalisation, incorporating planting of emergent and marginal vegetation such as *Glyceria*, *Typha*, *Sparganium*, *Phragmites*, and *Phalaris* to improve habitat structure and water quality. • Assess the current status on the River Thames and River Mole/Ember confluence. • Explore the potential for species introduction at Molesey Wetlands Nature Reserve.	River Thames and River Mole/Ember and Molesey Wetlands Nature Reserve.
Desmoulin's whorl snail *Vertigo moulinsiana*	• Create and maintain swampy, unshaded ground with tall marginal vegetation in areas currently supporting the species or identified as suitable for potential introduction. • Review current status at Charterhouse-Eashing SSSI. • Consider introduction elsewhere on the River Wey at e.g. Charleshill SSSI and/or Moor Park SSSI. • Monitor for stabilisation of population.	Charterhouse-Eashing SSSI, and the River Wey (e.g. Charleshill SSSI, and Moor Park SSSI).
Great fox-spider *Alopecosa fabrilis*	• Enhance and restore dry, sandy lowland heathland, incorporating open gravel areas and create bare ground scrapes.	Churt Flashes and Frensham Common

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Establish two new sub-populations within the Heathland Connections core zone (including Churt Flashes and Frensham Common). • Monitor for stabilisation of population.	
Large marsh grasshopper *Stethophyma grossum*	• Create and restore wet heath and mire habitats by providing wet, ungrazed *sphagnum*-dominated areas. • Reintroduction in wet heath/mire at least at three sites within Colony Bog and Bagshot Heath SSSI (including Folly Bog).	Colony Bog and Bagshot Heath SSSI (including Folly Bog).
Large scabious mining- bee *Andrena hattorfiana*	• At key sites, plant field scabious, and manage vegetation to avoid over-dominance of other plants. • Create bee banks (mounds of loose soil in sunny, south facing locations in suitable calcareous grasslands and meadows). • Review the current status of the species in the North Downs, through a citizen science approach. • Manage all sites with known populations as target priority species. • Monitor for population stability at key sites.	North Downs
Little whirlpool ram's-horn snail *Anisus vorticulus*	• Investigate feasibility for reintroduction at Shortwood Pond, Staines. • Depending on the result of the feasibility study, reintroduce species at least at two sites. • Create unpolluted ditches with little emergent vegetation that are managed appropriately. • Maintain high water levels across floodplain grazing marsh.	Shortwood Pond, Staines.
Medicinal leech *Hirudo medicinalis*	• Investigate feasibility for reintroduction at National Trust Bookham Common.	National Trust Bookham Common.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Depending on the result of the feasibility study, reintroduce species at least at two sites. • Create shallow ponds and ditches with fluctuating water levels and low intensity grazing of marginal vegetation.	
Pondweed leafhopper *Macrosteles cyane*	• Establish new ponds for the existing population at SWT Newdigate Brickworks. The ponds should be in sheltered locations with a sunny aspect. Broad-leaved pondweed may need transplanting from the existing pond. • Reintroduce species to at least one historic site, including. National Trust Holmwood Common.	SWT Newdigate and National Trust Holmwood Common.
White-clawed crayfish *Austropotamobius pallipes*	• Enhance rivers, chalk streams and canals by improving water quality and adding refugia such as large cobbles or boulders. • Consider gravel pits and other former mineral working sites as potential sites for introductions/rescues from populations that are threatened by the invasive crayfish species or displaced by habitat loss. • Review current status of species by surveying on the upper/headwater reaches of Tillingbourne, Pipp Brook and Whitmoor Vale. • Inform landowners, developers and other stakeholders of all extant populations, to advise on biosecurity. • Investigate and correct sources of poor water quality or water resource issues and enhancement of habitat. • Promoting bio-security including raising public awareness as disease can be spread via fishing gear.	Upper/headwater reaches of Tillingbourne, Pipp Brook and Whitmoor Vale.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Window-winged caddisfly *Hagenella clathrata*	• Manage bogs and wet heaths consisting of glades of purple moor- grass by clearing dense scrub/secondary woodland and monitoring grazing regimes. • Estimate intra-site distribution of populations at Whitmoor Common, Chobham Common and Churt Flashes (all SSSI). • Survey for species elsewhere in the Heathland Connections zone. • Manage all populations as target priority species, referring to existing guidance.	Whitmoor Common SSSI, Chobham Common SSSI, and Churt Flashes SSSI.
Plants and Fungi		
Fungi (lichenised and non-lichenised)		
An ear fungus species *Otidea platyspora*	• Protect and retain veteran and ancient oak *Quercus* in parkland and deciduous woodland. • Review current Surrey status.	Countywide.
A webcap species *Calonarius (=Cortinarius) elegantissimus*	• Protect and retain ancient beech *Fagus* and yew *Taxus* woodland. • Review current Surrey status. • Prioritise site security at key Sheepleas SSSI site.	Sheepleas SSSI.
Eagle's claws (a lichen) *Anaptychia ciliaris ssp. Ciliaris*	• Where possible, enhance arable field margins adjacent to suitable veteran trees by removing the use of fertilisers and pesticides etc. • Maintain well-lit conditions on veteran trees by controlling ivy and invasive species like *rhododendron.* • Ensure continuity of host ash *Fraxinus* and maple *Acer* veteran trees at all sites with existing populations (including Jayes Park in Ockley). • Review the current Surrey status.	Jayes Park.
Oak polypore	• Divert paths away from potentially dangerous oak trees rather than fell them.	Ashtead Common and Windsor Great Park.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Fomitopsis pulvina (=Piptoporus quercinus)	• Retain deadwood (e.g. trunks, stumps and thick branches) if mature oak trees need to be reduced or felled. • Encourage woodland regeneration in deciduous woodlands to ensure there are enough mature oak trees for future populations. • Monitor/ensure continuity of veteran oak *Quercus* host trees in sites with existing populations (including Ashtead Common and Windsor Great Park).	
Orchard tooth *Neblesia (=Sarcodontia) crocea*	• Create and restore traditionally managed orchard habitats in Surrey. • Monitor/ensure continuity of veteran apple *Malus* and pear *Pyrus* host trees in sites with existing populations.	Countywide.
Sandy stiltball *Battarrea phalloides*	• Restore and enhance acid grasslands. • Manage hedgerow banks (especially those on sandy soils) appropriately if species is present/likely to be present. • Review current Surrey status of species. • Prioritise security of the recently discovered population at Woodland Trust Langley Vale.	Woodland Trust Langley Vale.
Liverworts, Hornworts and Mosses		
Micheli's balloonwort *Sphaerocarpos michelii*	• Secure threatened population at Westcott (Sondes Farm) through continued liaison with landowners to ensure habitat protection and appropriate management. • Collect material for ex-situ propagation at RHS Wisley to support conservation efforts and future reintroductions.	Westcott (Sondes Farm).

Species Name	Species Specific Measures	Suggested Locations in Surrey
Rusty fork-moss *Dicranum spurium*	• Reintroduction of species following site preparation at three historic sites, including Ockham and Wisley Local Nature Reserve (LNR) and Thursley NNR. • Ensure potential lowland heathland reintroduction sites have dry slopes, mature heath and leggy heather *Calluna vulgaris* to shade species. • Monitor for stabilisation of population.	Ockham and Wisley LNR and Thursley NNR.
Veilwort/ribbonwort *Pallavicinia lyellii*	• Create and restore bogs in wet heathland by extending the length of lagg zones (outer transition area between a bog and surrounding habitat) which could be beneficial to increase the area of habitat for the species. • Reintroduction at a historic site (Ash Ranges). • Monitor for stabilisation of population.	Ash Ranges.
Wildflowers, Grasses, Sedges, Ferns and Horsetails		
Broad-leaved cudweed *Filago pyramidata*	▪ Encourage plants to re-emerge in areas with historic populations (usually in arable fields and disturbed chalk sites) through shallow cultivation or scarification on south facing areas with minimal shade. ▪ Ensure scrub clearance and intensive vegetation control occurs on sites with populations to retain disturbed ground and sunny conditions. ▪ Reinitiate targeted management at Clandon ChalkpitSNCI. ▪ Find out current status at Banstead Downs SSSI. ▪ Consider introduction at three appropriate sites, including Woodland Trust Langley Vale, using source material from SWT Priest Hill. ▪ Monitor for stabilisation of population.	Clandon Chalkpit SNCI, Banstead Downs SSSI and Woodland Trust Langley Vale.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Brown galingale *Cyperus fuscus*	• Habitat restoration to prepare for reintroduction at least at two sites, including Shortwood Pond in Staines and Shalford Common. • Create muddy margins of ponds and ditches with open vegetation. • Pending success of reintroductions, monitor for stabilisation of population(s).	Shortwood Pond and Shalford Common.
Corn buttercup *Ranunculus arvensis*	• Encourage the reduction of fertilisers and the lowering of cereal crop density on known sites where the species grows within crop fields. • Review current Surrey status at National Trust Harewoods. • Consider the collection of seeds or plants to grow in a controlled environment, with plans to reintroduce them to agreed locations later. • Monitor for stabilisation of population.	National Trust Harewoods.
Cornflower *Centaurea cyanus*	• Protect the only known native population at Wisley Airfield SNCI by carefully moving it to a specially prepared area within the on-site SANG (Suitable Alternative Natural Greenspace).	Wisley Airfield SNCI.
Cut-grass *Leersia oryzoides*	• Create and restore wetland habitats around the Basingstoke Canal. • Review current status at both (re)introduction sites on Basingstoke Canal. • Establish at least three new populations on the Basingstoke canal.	Basingstoke Canal.
Deptford Pink *Dianthus armeria*	• Create bare ground and disturbed areas within calcareous and acid grasslands where historic populations existed. • (Re)introduction to Chobham Common, at least at three separate locations, and introduction to Hackhurst and White Downs SSSI at least at one location.	Chobham Common, and Hackhurst and White Downs SSSI.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Monitor for stabilisation of population.	
Downy-fruited sedge *Carex filiformis*	• Create and restore wetland habitats near known populations. • Reintroduction to at least three historic sites, including Chertsey Meads SNCI, Dumsey Meadow SSSI and Desborough Island. • Monitor for stabilisation of population.	Chertsey Meads SNCI, Dumsey Meadow SSSI, and Desborough Island.
Greater water-parsnip *Sium latifolium*	• Create and restore ponds and wetland habitats near known populations. Management best undertaken on a long rotation, as the species is susceptible to intense management and overgrazing but cannot tolerate overshading by scrub species. • Establish in-situ propagation area at National Trust Runnymede. • (Re)introduction to at least at three secure sites (including Desborough Island). • Monitor for recovery of population.	National Trust Runnymede and Desborough Island.
Green-winged orchid *Anacamptis (=Orchis) morio*	• Create short, open calcareous grassland habitats near known populations. • Review current status at Longcross, Wyke and Ewhurst. • Reintroduction via seed at least at one of the above sites. • Monitor for success/stability of population.	Longcross, Wyke and Ewhurst.
Ground-pine *Ajuga chamaepitys*	• Where known populations exist, manage sites with soil disturbance and scrub clearance to allow seeds to germinate. • Reintroduction (sourced from SWT Priest Hill) to at least five historic sites on the North Downs (including. Woodland Trust Langley Vale, and Hackhurst and White Downs SSSI), following adequate site	SWT Priest Hill, Woodland Trust Langley Vale,Hackhurst and White Downs SSSI, and North Downs.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	preparation. Where possible, align this with habitat scrapes created under Butterfly Conservation's 'Small Blue Stepping Stones' project. • Monitor for stabilisation of population.	
Lesser butterfly orchid *Platanthera bifolia*	• Introduce rotational management regimes like coppicing in woodlands and create open glades. • Review and enhance security measures at the only known native Surrey population (undisclosed site). • Consider reintroduction to at least two historic sites.	Undisclosed sites.
Marsh clubmoss *Lycopodiella inundata*	• Create and restore wet heathland habitats. • (Re)introduction using material from existing population on Pirbright Range, at Chobham, Pirbright, Wisley and Thursley. • Monitor all reintroduction sites.	Pirbright Range, Chobham, Pirbright, Wisley and Thursley.
Marsh gentian *Gentiana pneumonanthe*	• Create and restore wet heathland habitats. • Investigate translocation/propagation methods for this species. • Establish one new population on Chobham Common. • Pending success of species establishment, aim to establish a further three new populations in suitable sites (including Whitmoor Common; only known historic site). • Monitor for stabilisation of population.	Chobham Common and Whitmoor Common.
Musk orchid *Herminium monorchis*	• Create and enhance calcareous grassland habitats. • Review localised management of two remaining Surrey populations (undisclosed sites). • Initiate targeted preservation strategy. • Monitor for stabilisation of population.	Undisclosed sites.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Narrow-leaved helleborine *Cephalanthera longifolia*	• Implement traditional woodland management techniques such as coppicing and creating/maintaining ridges and glades to create open conditions that this species requires. • Secure the remaining populaton through private enterprise and voluntarily offered management advice. • Monitor for stabilisation of population.	Undisclosed sites.
Pillwort *Pilularia globulifera*	• Create new ponds to support existing populations and restore habitats where historical records for this species exist. • Review current Surrey status (at Boldermere SSSI, SWT Newdigate and Walton Heath). • Reintroduction to at least five sites.	Boldermere SSSI, SWT Newdigate and Walton Heath.
Red hemp-nettle *Galeopsis angustifolia*	• Protect the only known native population at Woodland Trust Langley Vale through annual soil scarification. • Establish an ex-situ population at SWT Priest Hill. • Monitor for recovery of population.	Woodland Trust Langley Vale and SWT Priest Hill.
Red-tipped cudweed *Filago lutescens*	• Review management at all existing sites and adjust for direct targeting at conservation of *Filago.* This should include maintaining open conditions, ground scarification, and scrub management within acid grassland and arable sites. • Review current status countywide (now ≤5 sites). • Consider reintroduction at two recently extinct sites. • Monitor for stabilisation of population.	South-west Surrey.

Species Name	Species Specific Measures	Suggested Locations in Surrey
Shepherd's needle *Scandix pecten-veneris*	• (Re)introduction at five sites, including historic sites (e.g. NT Langley Vale, Canons Farm Banstead, Ockley Court Farm and Capel Farm) using source material from SWT Priest Hill. • Monitor for stabilisation of population.	NT Langley Vale, Canons Farm Banstead, Ockley Court Farm, Capel Farm, and SWT Priest Hill.
Small fleabane *Pilicaria vulgaris*	• Create or reinstate ponds at historic sites in acid grassland with high intensity grazing pressure/disturbance. • Reintroduction at two historic sites, including Backside Common and Stringers Common. • Re-establish grazing regime at Backside Common. • Monitor for stabilisation of population.	Backside Common and Stringers Common.
Small-flowered catchfly *Silene gallica*	• Determine the local status at Hampton Estate. • Adjust management to benefit species e.g. appropriate scrub clearance and small-scale manual disturbance to create bare ground for seed germination. • Consider collection for reintroduction to two historic sites, including Thursley NNR (Parish Field).	Hampton Estate, and Thursley NNR (Parish Field).
Spreading bellflower *Campanula patula*	• Review current status at Wrecclesham and Hindhead. • Collect seeds from Wreclesham population for ex-situ propagation in a secure area. • Monitor for stabilisation of population.	Wrecclesham and Hindhead.
Spreading hedge-parsley *Torilis arvensis*	• Secure sole threatened population at East Clandon through landowner liaison.	East Clandon, and NT New Barn Farm.

Species Name	Species Specific Measures	Suggested Locations in Surrey
	• Reintroduce to three historic sites including NT New Barn Farm, using ex-situ bulked material. • Monitor for stabilisation of population.	
Starfruit *Damasonium alisma*	• Introduction -sourced from Inholms Pit Local Nature Reserve[?] (LNR- to two new, appropriately fenced sites, including on Headley Heath. • Pond management targeted directly for this species at recovered sites on Headley Heath. • Monitor all sites for stability of population.	Inholms Pit Local Nature Reserve and Headley Heath.
Starved wood-sedge *Carex depauperate*	• Increase scrub control and traditional woodland management work such as coppicing, and glade and ride management in woodlands. • Reintroduction to three additional sites in the vicinity of Westbrook, Godalming. • Monitor for stabilisation of population.	Westbrook.
Three-lobed crowfoot *Ranunculus tripartitus*	• Create and maintain shallow, disturbed ponds, ideally with moderate- to-heavy grazing to benefit this species. • Review current Surrey status at Horsell Common SSSI (Unit 2). • Adjust site management as necessary (to involve seasonal grazing), to promote species recovery.	Horsell Common SSSI.

Appendix

Appendix 1 - Further Reading and references for species

Vertebrates:

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Appendix 2 – Shortlisted species that require additional survey

Tower Mustard	***Turritis glabra***	1. Review current Surrey status at x2 sub-populations at NT Milford Common. 2. Monitor for stabilisation of population.
a lichen	***Placidium (=Catapyrenium) michelii***	1. Ascertain current Surrey status at Box Hill (The Whites).
Gilded Domecap (fungus)	***Lyophyllum (=Calocybe) favrei***	1. Ascertain current Surrey status (last recorded Norbury Park).
Baltic Candy-striped Spider	***Enoplognatha oelandica***	1. Maintain effort to ascertain current status, esp. within Heathland Connections zone, & at SWT Brentmoor Common.
Barred Tooth-striped (moth)	***Trichopteryx polycommata***	1. Ascertain current status countywide, via citizen science project.
Pale Shining Brown (moth)	***Polia bombycina***	1. Investigate feasibility for (re)introduction at >2 Downland sites (source tbc).
Fuscous Flat-body (micro-moth)	***Agonopterix capreolella***	1. Ascertain current status in North Downs (present at Merrow).
Broken-banded Wasp-hoverfly	***Chrysotoxum octomaculatum***	1. Ascertain current status in Heathland Connections zone, possibly via a citizen science approach.
Red Barbed Ant	***Formica rufibarbis***	1. Ascertain current status in Heathland Connections zone, possibly via a citizen science approach.
Armed Nomad/Scabious Cuckoo-bee	***Nomada armata***	1. Ascertain current status in North Downs, possibly via a citizen science approach. 2. Consider protection of any emergent population as LWS/cSNCI.
Early Sunshiner (beetle)	***Amara famelica***	1. Ascertain current Surrey status, esp. within Heathland Connections zone.
Heath Shortspur (beetle)	***Anisodactylus nemorivagus***	1. Ascertain current Surrey status, esp. within Heathland Connections zone.
Necklace Ground Beetle	***Carabus monilis***	1. Ascertain current Surrey status, esp. at last known historic site (SWT Bay Pond) & within Heathland Connections zone, possibly via a citizen science approach.

Blue Plunderer (beetle)	***Lebia cyanocephala***	1. Ascertain current Surrey status, esp. within Heathland Connections zone, possibly via a citizen science project.
a rove beetle	***Erichsonius ytenensis***	1. Ascertain current Surrey status (recorded Chobham), esp. within Heathland Connections zone.
a pot beetle	***Cryptocephalus biguttatus***	1. Ascertain current Surrey status, esp. within Heathland Connections zone.