

6. Habitat priorities and measures

This section of the LNRS sets out, for each habitat type, what are considered to be the priorities to help make our landscape **bigger**, **better and more connected**.

Actions, or potential measures, related to these priorities are then presented, with a description of the nature recovery and wider environmental benefits that are expected to result from those actions. The following symbols are used to show the priority to which they relate:







Potential measures have been separated into "actions", written in blue, and "supporting actions", written in green. An action sets out the primary activity to achieve the goal of habitat creation. Some of the actions are "mapped", and so appear in the interactive mapping when specific strategic opportunities within the corresponding habitat type are selected.

These are identifiable by this symbol:

A supporting action is a secondary task which aids the completion of the primary activity and wider goal of habitat creation and nature recovery.

The tables also indicate the scale at which the action can be taken:

- Regional (county) level
- District / Borough / City level
- Local level (e.g. town or park)
- Household level

It is recommended that ecologists and legal professionals are consulted before suggested actions are undertaken, to ensure compliance with guidelines and regulations.

This information for each habitat type is preceded by a foreword, supplied by experts on the habitat in question.

Left: Chobham Volunteer © Jon Hawkins



6.1 Trees and Woodlands

Foreword by The Forestry Commission

Trees and woodlands are a treasured and intrinsic part of the Essex landscape, from the famous parkland trees of Epping and Hatfield forests, great veterans such as Mistley's 'old Knobbley', the hornbeam woods which once provided fuel which baked the bread for London, and the remnants of our once extensive orchards, to the more recent trees planted in towns and cities across the county.

As well as these more well-known trees, there are countless small woods, hedges and in-field trees dotted everywhere, supporting a plethora of scarce and important wildlife and providing a sense of place and peace for people, and contributing to the rural economy with jobs and timber and other products.

Trees don't just benefit us with their beauty and tranquillity; they provide vital ecosystem services – helping to clean the air we breathe, cooling rivers and streams to enable flourishing fish stocks whilst simultaneously filtering out pollutants from roads and agriculture. They cool our city streets by several degrees in summer and help buffer our homes from wind.

And all the while they are growing, they are removing carbon from the atmosphere, storing it throughout, even sequestering it deep into the soil through their root systems, helping to mitigate the effects of the climate crisis.

But this strategy is not just about woodlands; the urban treescape and the essential need for urban greenspace are also important for the physical and mental health benefits they bring, as well as providing a sense of social cohesion.

Through the Essex LNRS and the schemes that it will inform and support, there is great opportunity to promote and support stakeholders in developing a landscape in Essex that is more wooded, with a resilient, healthy, and broad mix of species delivering an increase in biodiversity, social and environmental benefits to address the carbon and biodiversity crises.





Essex Local Nature Recovery Strategy

Trees and Woodlands

Trees and woodlands - actions



1. Enhance existing woodlands, including Planted Ancient Woodlands (PAWS), by encouraging natural regeneration

Identify areas within the woodland where natural regeneration is likely to occur successfully, such as areas with bare soil, gaps in the canopy or edges of existing woodland patches. These areas may provide suitable conditions for seed germination and seedling establishment.

In areas where natural regeneration may be limited or insufficient, supplement it with new tree planting. Select native tree species that are well suited to the site conditions and complementary to existing vegetation.

Plant (or allow natural regeneration of) trees and shrubs or a grassy, unmown strip alongside the woodland, to create a buffer zone protecting the woodland.

Scale of action

Local

Nature recovery benefits

- Helps re-establish and extend ancient and existing woodlands and forests
- Allows for the recruitment of plants from locally adapted seed sources, promoting genetic diversity within the population
- Encourages trees that are native to the local area
- Harnesses the resilience of natural ecosystems

Wider benefits

- Reduces soil erosion by establishing vegetation cover, stabilising soil structure and reducing surface runoff.
- Improves water quality
- Helps to minimise the impacts of infrastructure development and human activity



2. Manage deer and other pest species to allow for natural regeneration of woodlands

Monitor the impact of deer on landscape objectives.

Monitor the range of existing deer populations.

Undertake culling to achieve and maintain acceptable levels of impact to landscape management objectives.

Raise awareness amongst stakeholders of the impacts of deer.

Build a local supply chain for ethical and sustainable consumption of culled deer meat (venison), including amongst public bodies' procurement processes and encourage sharing of equipment and resources to support this chain.

Consider trapping grey squirrel populations where ring barking is persistent.

Below, left to right: Common Cow-wheat; Wood anemone © Essex Wildlife Trust; Hatfield © Paul Starr; Fallow Deer, Essex © Paul Starr

Scale of action

Regional

Nature recovery benefits

- Helps control deer populations, reducing browsing pressure
- With reduced deer browsing pressure, a greater variety of tree species can regenerate in woodlands, promoting biodiversity
- Helps maintain a balanced and diverse shrub and herb layer and control weeds

- Reduces losses to farm yields and provides modest incomes from the sale of venison.
- Reduces crop losses and minimises conflicts between deer and landowners, particularly in areas where agriculture is prevalent
- Creates supply of sustainable, lowcarbon, ethically reared and culled low-fat meat





Above: Lesser Spotted Woodpecker



3. Plant native tree species



Seek advice to ensure that the "right tree is planted in the right place", and ensure a management plan is in place to care for the tree/s after planting.

Whilst all tree planting is encouraged, plant tree species to reflect local conditions, landscape character and management objectives of the specific site. Use native planting where possible, but consider the inclusion of some non-native non invasive species that could be suited to changing, warmer conditions.

Obtain high-quality seedlings or saplings from reputable nurseries or conservation organisations. Make sure the plants are healthy, disease-free, and properly labelled with their species name.

Apply a layer of organic mulch, such as wood chips or straw, around the base of the tree to conserve moisture, suppress weeds and regulate soil temperature. Install a tree guard or fence if necessary to protect the young tree from wildlife browsing or mechanical damage.

Carry out appropriate after care for young trees, ensuring they are adequately hydrated and mulched, and that tree guards are removed before they become constrictive.

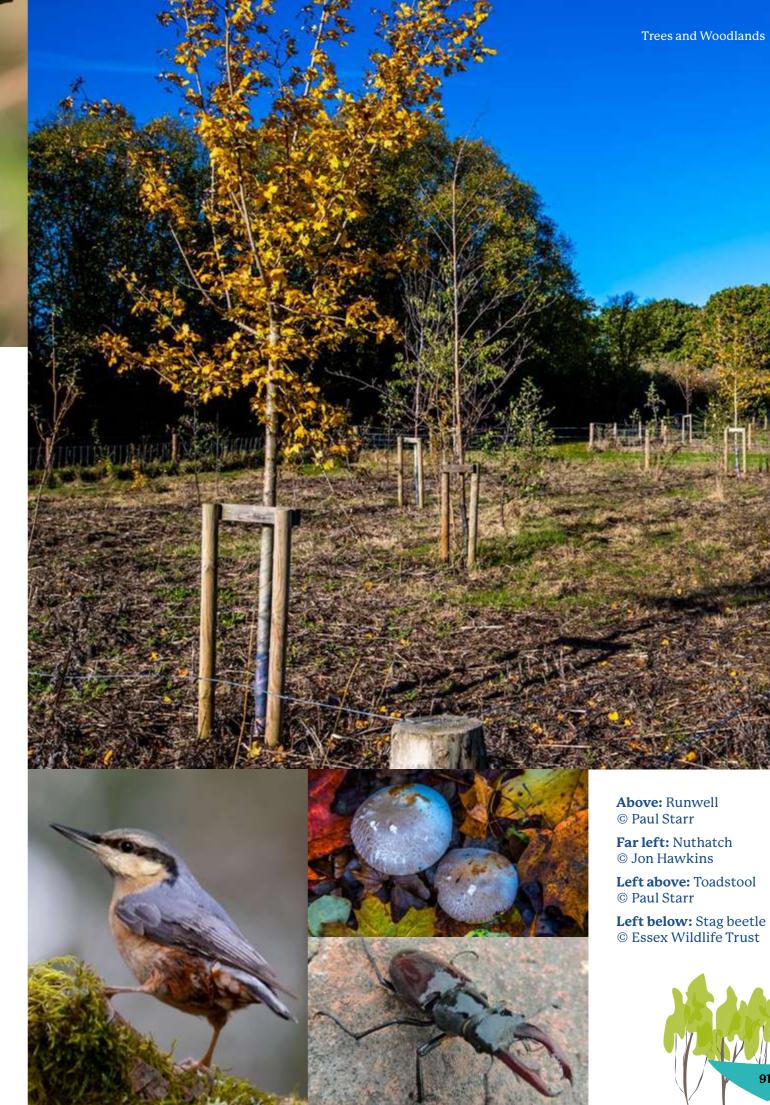
Scale of action

Local

Nature recovery benefits

- Native wildlife depends on native trees
- Lower maintenance
- Reduces needs for pesticides and artificial plant foods

- Contributes to carbon sequestration and helps reduce greenhouse gas emissions
- Helps improve water quality by filtering pollutants, reducing sediment runoff and regulating water flow
- Planting native tree species, especially those characteristic of the local area helps to strengthen the character of the local landscape



Trees and Woodlands **Essex Local Nature Recovery Strategy**



4. Manage woodland to increase structural diversity



Management techniques, to increase structural diversity, include:

- Thinning/coppicing
- Incorporation of glades and rides, small areas of bare or disturbed ground, ditches, streams, ponds and wet woodland.
- Resuming traditional forms of management where these have shaped development.
- Restoring and bringing into management ancient semi-natural woodlands, wood pasture/parkland, traditional orchards and longestablished woodlands.
- Removal of invasive non native species.

Scale of action

Local

Nature recovery benefits

- **Enhances habitat complexity**
- Promotes biodiversity
- Improves wildlife habitat
- **Enhances ecological functioning**
- Boosts resilience to disturbances
- Diversifies structure
- Promotes higher species richness

Wider benefits

- · Provides aesthetic and recreational and economic value
- Enhances the provision of ecosystem services such as pollination, seed dispersal and nutrient cycling.
- Helps mitigate climate change by removing carbon dioxide



5. Integrate a mosaic of semi-natural habitat of different types at landscape scale



Create woodland within the context of a mosaic landscape and consider other habitats such as grassland, wetlands, coast and hedgerows.

Avoid tree planting on habitats that are already rich in biodiversity, such as species rich grasslands and wildflower meadows.

Scale of action

Regional

Nature recovery benefits

- Enhances biodiversity
- Increases habitat connectivity

Wider benefits

- Enhance local landscape character
- Helps climate change adaptation
- Diversifies ecosystem services provision
- Improves ecosystem resilience



6. Protect existing trees outside woodlands and protect veteran trees³⁰



Identify and record trees and manage them to ensure they survive as long as possible. Create and/or protect successor trees in proximity to existing veteran trees.

Manage risk of introduction of harmful species, such as Honey Fungus, by adopting strict biosecurity measures in the care of veteran trees.

Leave ground undisturbed, creating a root protection area, 5m from the canopy edge or 15 times the tree's diameter (DBH), whichever is the greater.

Scale of action

Nature recovery benefits

- Enables continuity of habitat into the future
- Preserves biodiversity

- Conserves cultural heritage
- Offers recreational opportunities
- Stores carbon
- Stabilises soil and prevents erosion
- Sustains a resilient landscape
- Provides ecosystem services provision
- Creates a sense of place and tangible link with local history



Trees and Woodlands **Essex Local Nature Recovery Strategy**



7. Increase presence of dead wood

Allow as much deadwood as possible to remain in situ throughout the woodland.

Standing deadwood should be left standing where safe to do so for its unique ecological value.

Scale of action

Local

Nature recovery benefits

- Dead and dying wood supports as much as one-fifth of woodland species
- Supports invertebrate and fungi populations
- Enhances biodiversity
- Provides habitat for specialised species
- Enhances woodland structure

Wider benefits

- Facilitates nutrient cycling
- Improves ecosystem resilience

Can help control the growth of

understorey vegetation

plant species

dominant plant species, creating

and growth of tree seedlings and

• Mimics natural herbivory processes

opportunities for the establishment

Can help control the spread of invasive

Contributes to ecosystem services



8. Utilise conservation grazing



Utilise grazing animals to encourage dynamic ecology and habitat succession.

Seek advice and consultation from experts for guidance on how to implement this effectively.

Scale of action

Local

Nature recovery benefits

varying habitat preferences



· Can improve soil health through · Can create varied habitat conditions, trampling and dung deposition benefiting different wildlife species with

- Can promote habitat connectivity by creating open spaces and corridors within landscapes, allowing for the movement of wildlife between different habitat patches
- Contributes to the preservation of cultural and traditional practices associated with pastoralism and land stewardship

Trees and woodlands - supporting actions



9. Establish a network of sustainable tree nurseries

Encourage and support local growing of native trees from local seed sources on farms, in communities and within commercial nurseries, to support coordinated and sustainable creation of new native wooded habitats.

Scale of action

Regional



Nature recovery benefits

- Boosts populations of native, locally grown trees
- Helps retain local genetic diversity and increases species resilience

Wider benefits

· Fosters stewardship over local woodlands



10. Explore woodland creation funding opportunities

Take advantage of multiple grants and other incentives available for woodland creation in the UK. These include **Woodland Creation Planning Grant** (WCPG), England Woodland Creation Offer (EWCO) and Urban Tree Challenge Fund (UTCF). See: Woodland grants and incentives overview table - gov.uk

Explore Environment Agency options such as the Natural Flood Management Scheme.



Nature recovery benefits

 Enables the establishment of new woodland areas, leading to an expansion of tree cover and the enhancement of forest ecosystems

- Can provide alternative sources of income for rural and farming businesses
- Trees play a crucial role in carbon sequestration, removing carbon dioxide from the atmosphere and storing it in their biomass and soil
- Can foster a sense of ownership and stewardship among local residents
- Can provide resources for community involvement, education and capacitybuilding initiatives



Grasslands & Meadows **Essex Local Nature Recovery Strategy**

6.2 Grasslands & Meadows

Foreword by Essex Wildlife Trust

We have lost 97% of our wildflower-rich grasslands since the 1930s, particularly as a result of the intensification of farming following the Second World War. In Essex the losses were even greater, with infrastructure development an additional factor.

The stronger SSSI system that came in under the Wildlife & Countryside Act 1981 led to selected sites being protected. These legal protections, for those fortunate sites, have been relatively effective, with 90% retaining their grassland flora. However, for non-protected sites it is a starkly different picture: only a quarter now survive in a favourable, species-rich condition.

There are four main categories of grassland in Essex based on soil types - wet, calcareous, acid, and neutral. However, it is not only soils that matter. The origins and settings are key determining factors in species diversity and habitat value. This is especially true in Essex where its seawalls - around 400km of them - represent a grassland resource of national importance. Meanwhile, roadside verges, churchyards, parks and even lawns remain significant refuges for scarce species.

Grasslands are not only important for their wildflowers but for a huge variety of animals, especially invertebrates and, most notably, for pollinators. In Essex, the dry acid grasslands of the Thames terrace gravels are of national importance for rare spiders, solitary bees and wasps, while the seawalls are refuges for some of the UK's most threatened bumblebees.

Semi-natural grasslands, in all their guises, are also of immense cultural importance, their wildlife riches shaped and harvested by people over centuries. And grasslands of all kinds, with their openness and accessibility, are where many adventures in the natural world have begun for children, whether chasing bumblebees, catching grasshoppers or simply as places to just muck around with friends.

Many Essex meadows have been declared as Local Wildlife Sites (LoWS) by local authorities but remain vulnerable to loss through inappropriate management or neglect. Air pollution, also, continues to undermine their floral diversity. The Local Nature Recovery Strategy, with LoWS as a cornerstone of a connected habitat network, comes at a crucial moment for this most vulnerable of habitats. It provides local authorities with an opportunity to protect and enhance these special places, mobilising local communities to take on their management or securing decades-long agreements with developers and landowners through biodiversity net gain. There is a real appetite to take action for nature and grasslands represent one of the most suitable and accessible habitats for involving local people in the Strategy.



Biodiversity priorities



BIGGER HABITAT PRIORITY:

To create 22,000 hectares of new grassland across Essex.



BETTER HABITAT PRIORITY:

Minimise or eradicate threats to grassland habitats, including reducing use of fertiliser and chemical pesticide and prevention of further agricultural intensification or expansion onto grassland habitat.



MORE CONNECTED HABITAT PRIORITY:

Essex meadows, particularly meadows designated as Local Wildlife Sites (LoWs), to form part of a county-wide network of grassland habitat, with management of these spaces being supported by empowered local communities.









Grasslands and meadows - actions



1. Practice nature-friendly grassland management practices that consider seasonal behaviours, including "No Mow May" where appropriate



Avoid cutting grassland in the spring, during the breeding and nesting season. Leave refuges for wildlife following mowing.

Generally, wait until August for the first cut and mow/cut again in September/
October. Cutting too early can disrupt plant reproduction and reduce habitat quality for pollinators.

Remove cuttings so as not to increase soil fertility. Leave some grass uncut over winter.

These management practices are relevant for grassland habitats of all shapes and sizes.

Scale of action

Local / Household

Above: Grass snake © Essex Wildlife Trust

Nature recovery benefits

- Promotes biodiversity by allowing wildflowers to bloom
- Allows invertebrates to complete their lifecycle
- Provides habitat for birds, avoiding nesting season.
- Promotes healthy soil and plant diversity

Wider benefits

- Preserves cultural and historical landscapes
- Enhances aesthetic appeal with natural landscapes
- Supports mental well-being by connecting with nature
- Reduces carbon emissions and fuel consumption





2. Enhance and improve the mosaic of brownfield grasslands along the sea wall on the Essex side of the Thames estuary



Utilise funding opportunities available to restore the network of grassland habitats along the Thames Estuary.

Implement habitat restoration measures to enhance the diversity and quality of grassland habitats. This may include removing invasive species, reintroducing native plants, and restoring natural hydrological processes.

Install interpretive signage, educational displays and visitor centres to engage the public and raise awareness about the ecological significance of grassland habitats and the Thames Estuary.

Scale of action

District / Borough / City

Nature recovery benefits

- · Enhances biodiversity
- Contributes to wider nature recovery
- Supports a wide range of plant and animal species, including rare and threatened species

- Can help improve water quality by filtering pollutants, reducing runoff and preventing soil erosion
- Helps improve connectivity between terrestrial and aquatic ecosystems, which facilitates the movement of wildlife, enhances gene flow and promotes ecosystem functioning across landscapes



Essex Local Nature Recovery Strategy



3. Reduce or cease use of chemical fertiliser and pesticide

Reduce use of fertilisers. Replace chemical fertilisers with organic where possible and with consideration for local water ways. Avoid using any fertiliser wherever possible, instead prioritising management that creates healthy soils.

Scale of action

Regional

Nature recovery benefits

- Improves the condition and quality of grassland habitats
- Helps to protect vulnerable or endangered species
- Reduces threat to pollinator populations and other insects

Wider benefits

- Lower costs
- More organic matter makes soils easier to work, less prone to waterlogging and runoff, and more resilient to drought
- Reduces the contamination of soil, water and air with harmful substances
- Improves soil health
- · Increases carbon storage
- Improves water quality
- Promotes adaptation of sustainable agricultural practices. which enhances resilience of the landscape

Below and opposite, left to right: Cinnabar moth caterpillar © Essex Wildlife Trust; Carder Bumblebee © Jon Hawkins; Brown argus © Essex Wildlife Trust; Aerial view of Brightlingsea © Paul Starr; Common earthworm, Hylands Park, Writtle © Paul Starr



Grasslands & Meadows



Above: Roadside verge © Essex Wildlife Trust





4. Create new grassland habitats along road verges

Begin by assessing the site conditions of the road verges, including soil type, drainage, sunlight exposure and existing vegetation.

Choose a diverse mix of grasses, wildflowers and legumes to enhance biodiversity and provide habitat for a variety of wildlife species.

Prepare the soil for planting by loosening compacted soil, removing debris and incorporating organic matter if necessary. Sow seeds or plant seedlings of selected grassland species in the prepared soil. Follow recommended seeding rates and planting depths for optimal establishment.

Implement long-term management strategies to maintain and enhance the newly created grassland habitat along road verges. This may include periodic mowing, as well as ongoing monitoring and maintenance to ensure habitat quality and biodiversity.

Scale of action

Regional

Nature recovery benefits

- Provides important habitats for a variety of plant and animal species, including pollinators, birds, small mammals and insects
- Can serve as corridors that connect fragmented habitats, allowing for the movement of wildlife between different areas
- Supports pollinator populations by providing a source of nectar and pollen from flowering plants

Wider benefits

- Creates opportunity for education on the benefits of green spaces for wildlife and the wider environment
- Helps to absorb and store carbon, mitigating the impacts of climate change and reducing heat island effect in urban areas
- Provides a range of ecosystem services, including air purification, soil stabilisation and water filtration.
- Helps protect soil and water resources and reduce the risk of flooding and sedimentation in water bodies



5. Graze with livestock

Encourage livestock grazing.

Before turning livestock onto the grassland, develop a grazing plan that outlines stocking rates, grazing periods, and rotation schedules.

Rotating livestock between paddocks allows forage in each area to recover between grazing periods, promoting healthy regrowth and preventing overgrazing.

Expert advice is advised to avoid overgrazing.

Scale of action

Local

Below: Sheep at Blue House Farm © Essex Wildlife Trust

Nature recovery benefits

- Manages vegetation diversity
- Enhances biodiversity
- Helps control invasive species, suppress vegetation growth and promote the growth of native plants, enhancing habitat quality and biodiversity
- Encourages the establishment of diverse plant communities

- Improves soil health, by promoting soil aeration, nutrient cycling and organic matter decomposition
- Trampling by livestock helps break up compacted soils, enhancing soil structure and fertility
- Grazed grasslands store carbon in aboveground biomass and soil organic matter, helping mitigate climate change by removing carbon dioxide from the atmosphere





Above, left to right: Small Tortoiseshell © Essex Wildlife Trust; Hare at Stow Maries Aerodrome © Russell Savory

Grasslands and meadows - supporting actions





6. Restore grassland habitats on farms and in the wider countryside

Farmers and others restore or create grassland habitats that connect across a farm cluster catchment area.

Encourage mixed farming approaches to develop permanent grassland on farms.

Scale of action

Regional

Nature recovery benefits

- Creates large spaces for wildlife such as farmland birds
- Creates habitats for pollinators

Wider benefits

- · Improves water quality
- · Prevents agricultural runoff
- Can improve crop yield, through increased crop pollination by presence of pollinators
- Improves soil structure
- Reduces soil erosion and enhances soil fertility
- Creates nature filter, trapping sediment and absorbing nutrients from agricultural runoff
- Creates potential for business diversification for farmers through environmental land management schemes





7. Introduce seeds of appropriate grassland species, using a local seed bank resource

Develop a local seed bank accessible to stakeholders from community groups to farmers. Take advantage of the historical remains of meadow seedbanks where possible, transferring seed or green hay from the donor site.

Where appropriate utilise the local seed bank, to introduce seeds of appropriate grassland and/or wildflower species where the grassland habitat seedbank has been completely lost or degraded.

Consult ecologist or local expert to advise on the appropriate grassland species to be introduced.

Scale of action

Regional

Below, left to right: Hanningfield Wildflower Meadow © Essex Wildlife Trust; Volunteer with Big Wild Seed Sow seeds © Essex Wildlife Trust

Nature recovery benefits

- Increases biodiversity and habitat diversity
- Supports pollinators and other wildlife
- Seeds sourced locally are adapted to the specific environmental conditions of the region, including soil type, climate and precipitation patterns.
- Supports the conservation of biodiversity and prevents the spread of invasive species

- Facilitates community-led conservation initiatives
- Engages communities in grassland restoration efforts and promotes stewardship of local natural resources
- Improves soil health and fertility
- Using local seed reinforces local distinctiveness within the landscape



6.3 Scrub and Mosaic

Foreword by Essex Wildlife Trust

Scrub habitat refers to a type of vegetation community characterised by low-growing, often woody plants and is a term applied to habitats which are transitional, usually between grassland and woodland. In Essex, scrub is usually dominated by bramble, hawthorn and blackthorn, with willow.

Well-developed scrub habitats exhibit a diverse structure, with varying heights and vegetation densities. Such habitats are crucial for the survival of many species, particularly as nesting and foraging habitats for farmland and summer migrant birds including Turtle Dove, Yellowhammer and Corn Bunting. Scrub is also a vital habitat for the iconic Nightingale, of which Essex is home to two of the largest populations in the UK.

Areas of scrub are very common and can be overlooked and undervalued for their wildlife value.

They occur in urban areas, along railway lines, road verges and brownfield sites and on agricultural land as unmanaged hedge lines, field corners, woodland edges and fringing wetland and coastal grasslands. Scrub patches therefore serve as vital connectors between different habitats within the wider landscape, functioning as wildlife corridors and 'stepping stones' that facilitate species movement between woodlands, grasslands and wetlands.

This connectivity is essential for maintaining genetic diversity and population resilience.

Over time scrub diversifies with a range of tree species depending on ground conditions, proximity of seed sources and the wetness of the soils. If left unmanaged, low scrub habitats will eventually come to be dominated by maturing trees and over decades become woodland. To avoid this, cattle grazing can be an ideal management tool on larger areas to create diversity of structure and open areas of grassland to form a mosaic.

Mosaic being a mixed coverage of scrub, grasses and other flowering plants that supports a variety of vegetation heights and structures, providing important habitat for small mammals, birds and insects.







BIGGER HABITAT PRIORITY:

Expand coverage of existing scrub habitat by replanting native vegetation and encouraging natural regeneration.



BETTER HABITAT PRIORITY:

Maintain scrub habitat and promote native vegetation growth through selective thinning techniques, invasive species removal, and implementation of protective measures.



MORE CONNECTED HABITAT PRIORITY:

Establish wildlife corridors, buffer zones and green infrastructure networks, to connect scrub habitat with the wider landscape.



Essex Local Nature Recovery Strategy
Scrub and Mosaic

Scrub and mosaic - actions



1. Plant scrub habitat



Prioritise planting of locally sourced native species adapted to local environmental conditions and landscape character.

Mix species randomly when planting to create diversity or plant in clumps, to avoid creating wind tunnels and to allow any unplanted gaps to fill in naturally.

Avoid creating new scrub habitat on areas already important for wildlife, such as species-rich grassland.

Create new scrub habitat where is no natural source of regeneration, and seek expert advice.

Scale of action

Regional

Nature recovery benefits

- Increases species variety of invertebrates, reptiles, amphibians, small mammals and birds
- Helps lichens to grow, providing food and nest material for wildlife
- Maintains carbon rich soils

Wider benefits

- Helps to control soil erosion. Root systems of scrub vegetation stabilise soil by reducing erosion caused by wind and water
- Acts as a natural filter, trapping sediment and absorbing nutrients and pollutants from run-off before it enters water bodies



2. Allow scrub habitat to regenerate naturally



Reduce human activities such as grazing, mowing or development that can disrupt natural processes and prevent the establishment of scrub vegetation.

Remove any livestock initially and avoid any cultivation. Livestock can be used to graze the scrub once it has been established.

Manage and control invasive plants that can outcompete native scrub species and hinder natural regeneration efforts.

Scale of action

Regional

Nature recovery benefits

- Increases species variety of invertebrates, reptiles, amphibians, small mammals and birds
- Helps lichens to grow, providing food and nest material for wildlife
- Helps create habitat corridors, connecting fragmented landscapes and allowing for the movement of wildlife species between different areas

Wider benefits

- Maintains carbon rich soils and soil fertility, reducing the risk of sedimentation in water bodies
- Contributes to ecosystem functions such as soil stabilisation, nutrient cycling and water filtration, which are essential for supporting human well-being and maintaining environmental quality

Below: Turtle Dove © Les Bunyan RSPB images

Below: Mosaic habitat © Paul Starr





3. Create mosaic habitat



Create pockets of woodland, grassland, and scrub habitats intermixed across the wider landscape.

Consider intermittent grazing on the land to keep the ecology in various states of succession, maximising the amount of different environmental niches.

Reset the succession cycle in pockets where monocultures form, through coppicing, scrub clearance, or cut and collect, depending on where the area is in the succession cycle.

Scale of action

Regional



Nature recovery benefits

- Increases species variety of invertebrates, reptiles, amphibians, small mammals and birds
- Greater diversity of flora
- Maintains carbon rich soils

Wider benefits

- Helps to control soil erosion. Root systems of scrub vegetation stabilise soil by reducing erosion caused by wind and water
- Acts as a natural filter, trapping sediment and absorbing nutrients and pollutants from run-off before it enters water bodies



4. Allow room for scrub habitat to expand



Leave areas of uncut grassland next to existing scrub or woodland, to allow space for scrub habitats to establish. (This may take some time.)

Scale of action

District / Borough / City

Nature recovery benefits

- · Offers habitat for diverse plant and animal species
- Provides shelter, nesting sites and food sources for birds, insects, small mammals and other wildlife

 Attracts pollinators to wildflowers in uncut grasslands

Wider benefits

- · Preserves natural landscapes, enhancing aesthetics and providing recreational opportunities
- Helps prevent soil erosion and contributes to soil health and fertility
- · Captures carbon

Right, top to bottom: Scrub habitat near Bradwell © Paul Starr; Scrub habitat along footpath © Paul Starr









5. Create sunny, sheltered scrub edges



Create scrub habitat along the edges of existing habitats, particularly areas which receive a lot of sunlight, to develop a warm micro-climate for invertebrates, amphibians and reptiles.

Scale of action

Local



Nature recovery benefits

- Supports natural predators of crop pests and diseases
- Boosts populations of pollinators
- Provides basking and cover for reptiles

Wider benefits

- Provides forage for livestock that lasts later in the year compared with other grazing habitats like grassland
- Supports natural predators of crop pests and diseases

Above, left to right: Common Toad © Jon Hawkins; Badger at Fingringhoe Wick © Essex Wildlife Trust



6. Selectively cut or coppice scrub habitat



Conduct selective cutting or coppicing during dormant seasons or outside breeding periods to minimise disturbance to nesting birds and other wildlife. Typically do so in the winter months when vegetation is dormant.

Target invasive or non-native species for removal while preserving native scrub vegetation.

Selectively cutting or coppicing species of scrub can encourage re-growth and is useful for maintenance and restoration of the habitat.

Create a mosaic pattern of cleared and untouched areas to maintain habitat diversity and provide various niches for wildlife species with different habitat preferences.

Retain fallen logs, standing dead trees and brush piles as habitat structures, even after cutting, for shelter, nesting and foraging opportunities for wildlife.

Scale of action

Local

Nature recovery benefits

- Provides diverse habitats for a variety of plant and animal species
- Encourages the growth of young plants and enhances overall habitat quality
- Prevents scrub habitat from transitioning into other habitat types, maintaining its unique ecological characteristics and supporting specialised species
- Creates a diverse range of habitat structures, from dense regrowth to open areas
- Provides valuable food and cover for insects, birds and small mammals
- Light reaching the woodland floor encourages the growth of wildflowers and other ground flora
- Rejuvenates scrub habitats, promoting the growth of healthy, vigorous stems more resilient to disease and pest infestations

Wider benefits

 Enhances ecosystem resilience to environmental stressors such as climate change, invasive species and habitat fragmentation

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Essex Local Nature Recovery Strategy
Scrub and Mosaic



7. Protect scrub from predation or browsing

To avoid livestock, deer and rabbits eating shrubs within the habitat, use degradable tree guards and protectors in small areas, to physically protect young plants from browsing animals until they are established and less vulnerable.

Instal fencing around sensitive areas to prevent access by herbivores such as deer or livestock. Use fencing that is appropriate for the size and behaviour of the target animals.

Scale of action

Local

Nature recovery benefits

- Helps maintain the populations of plant and animal species that rely on these habitats
- Promotes the balance of species interactions and ecosystem functions
- · Improves habitat quality and resilience
- Can facilitate the recovery of threatened or endangered species that rely on scrub habitat for survival

Wider benefits

 Contributes to climate change mitigation efforts

Scrub and mosaic - supporting actions



8. Raise awareness about the importance of scrub and mosaic habitats and encourage community involvement in habitat restoration projects

Develop educational materials, workshops and guided nature walks focused on scrub and mosaic habitats.

Organise volunteer workdays and restoration events, where community members can contribute to habitat restoration efforts.

Scale of action

Regional

Nature recovery benefits

- Promotes biodiversity conservation
- Encourages habitat restoration
- Highlights ecosystem services
- Supports climate change mitigation

Wider benefits

- Fosters a sense of ownership and stewardship over local habitats
- Enhances cultural and recreational value



9. Create wildlife corridors and habitat linkages to connect fragmented patches of scrub

Use the Local Nature Recovery Strategy (LNRS) opportunity maps to determine where habitat connectivity is currently lacking and where corridors are needed to facilitate movement of wildlife between habitat patches.

Scale of action

Regional

Nature recovery benefits

- Facilitates gene flow, genetic diversity and population resilience
- Facilitates dispersal of individuals, particularly juveniles, allowing them to find new territories, establish new populations and avoid inbreeding

- Can help mitigate the spread of diseases among wildlife populations
- Provides essential migration routes for species that move seasonally or in response to changes in resource availability, climate conditions or breeding requirements

Wider benefits

- Enhances ecosystem resilience and adaptation to changing climates
- Contributes to the functioning of ecosystems by facilitating interactions between species
- Reduces the risk of human-wildlife conflict

Below: Chelmsford © Paul Starr





10. Engage stakeholders in the planning and implementation of scrub habitat creation projects

Identify all relevant stakeholders who may have an interest in or be affected by the scrub habitat creation project. This may include local communities, landowners, government agencies, environmental organisations, businesses, recreational users and academic institutions.

Provide information about the importance of scrub habitat creation and the benefits it brings to both wildlife and people.

Provide opportunities for stakeholders to actively participate in project activities, such as volunteering for habitat restoration workdays, participating in citizen science initiatives or attending public meetings and forums.

Scale of action

Regional

Nature recovery benefits

- Helps ensure habitat design and management decisions are informed by local knowledge
- Promotes landscape connectivity for wildlife movement and genetic exchange

- Fosters a sense of ownership and stewardship over created habitats, leading to long-term care and maintenance and increasing the likelihood of success and sustainability
- Offers opportunities for education and skill development in community
- Promotes social cohesion and community bonding
- Can create employment opportunities, stimulate local economies and enhance the value of natural areas for tourism and recreation





Essex Local Nature Recovery Strategy
Hedgerows

6.4 Hedgerows

Foreword by Spains Hall Estate

The Essex landscape is defined by a network of hedgerows, that reflects our rich history and culture through the centuries, from dense ancient and medieval species-rich hedgerows following the natural contours of a river valley to later Parliamentary Enclosure Hawthorn hedgerows marching across the landscape in their distinct field pattern.

This pattern becomes less distinct in areas where ancient Elm hedgerows and trees used to define the pattern of lanes on higher ground. The loss of hedgerows through disease, alongside increased focus on arable food production, has seen a decline in hedgerow management.

Within any local landscape, a range of hedgerow structures, shapes, heights and cutting frequencies will support hundreds of species.

Mature uncut species-rich hedgerows not only provide copious amounts of berries for Harvest mice and wintering Fieldfares, but also a long-lasting source of pollen and nectar during spring flowering, along with opportunities for nesting Turtle dove. By contrast, Yellowhammers tend to take up territory in short, dense hedgerows, generally less than two metres in height with a strong preference for an adjacent uncut herbaceous margin at least two metres in width.

A well-structured hedgerow will not only support a range of wildlife, but sequester significant quantities of carbon, and in the right location can protect stock, reduce soil erosion and wind, and soak up and store large quantities of water, whilst preventing pollutants reaching watercourses.

Whilst it is not practical to restore all hedgerows or indeed re-plant all those lost historically, there are opportunities to focus on key hedgerows and boundaries that can reconnect the hedgerow network or other wildlife habitats such as blocks of woodland or ponds within the landscape. Custodians of our Essex landscape now have an opportunity to leave a distinctive and functioning landscape as their legacy, with nature and farming once more in harmony.



Biodiversity priorities



BIGGER HABITAT PRIORITY:

Plant new hedgerow shrubs and trees alongside existing ones to extend the hedgerow's length and fill in the gaps.



BETTER HABITAT PRIORITY:

Maintain hedgerows through cycles of trimming, pruning and coppicing, to encourage dense, healthy growth, and monitor for invasive species and diseases whilst avoiding use of harmful pesticides or chemicals.



MORE CONNECTED HABITAT PRIORITY:

Improve connectivity of hedgerows through the implementation of landscape-scale habitat restoration projects, to promote connectivity of habitat corridors and ensure the long-term resilience of our ecosystems.



Hedgerows - actions



1. Plant hedgerows



Plant native shrubs and trees, trim to encourage bushier growth.

Incorporate gaps or 'wildlife corridors'.

Plant gaps with suitable species (fruitbearing are particularly beneficial to wildlife).

Connect hedges functionally to other wildlife-rich habitat, such as other hedges and woodland.

Replace lost species in hedgerows, such as ash and elm, that have succumbed to novel disease.

Scale of action

Local

Nature recovery benefits

- Prevents the loss of soil through run-off
- Supports biodiversity

- Allows species to move between fragmented habitats
- · Maintains genetic diversity
- Facilitates species migration
- Provides nesting sites and foraging resources for pollinators
- Conserves wildlife

Wider benefits

- Increases crop pollination and higher yields for farmers
- Enhances the visual landscape, providing scenic beauty and cultural significance
- Enhances the visual landscape, providing scenic beauty and cultural significance where locally characteristic species and hedge laying patterns are used
- Promotes ecosystem services including soil stabilisation, erosion control and water regulation
- Sequesters carbon dioxide from the atmosphere through plant growth and biomass accumulation





Above: Tolleshunt D'Arcy © Paul Starr



2. Diversify hedgerow habitat

Incorporate wildlife-friendly features such as nesting boxes, deadwood or habitat piles to attract diverse species.

Introduce native wildflowers and grasses.

Introduce plant species that produce berries, fruits or nuts to provide food resources for birds, mammals and insects.

Consider including species such as hawthorn (Crataegus spp.), blackthorn (Prunus spinosa), elderberry (Sambucus spp.), and hazel (Corylus avellana).

Incorporate different vegetation densities, heights and growth forms. Include shrubs with dense foliage for nesting and cover, as well as open areas for ground-dwelling species and foraging habitat.

Scale of action

Local

Nature recovery benefits

- Enhances habitat diversity and supports pollinators
- Provides essential foraging resources for pollinators such as bees, butterflies and hoverflies

- Enhances pollination services, benefiting both wild plants and agricultural crops and promoting ecosystem resilience
- Supports natural pest control by attracting predatory insects, birds, and other natural enemies of pests. This helps reduce the need for chemical pesticides in agricultural areas

Essex Local Nature Recovery Strategy
Hedgerows



3. Trim, prune and coppice hedgerows as appropriate

Implement a rotational hedge cutting regime to trim hedgerows at suitable intervals without causing disturbance to nesting birds or other wildlife.

Trim and regularly prune existing hedgerows to encourage bushier growth and denser vegetation.

Control invasive species and manage vegetation.

Scale of action

Local

Nature recovery benefits

- Prevents overcrowding
- Maintains habitat quality

- Creates a mosaic of different habitat stages, which supports a greater diversity of wildlife species
- Stimulates the growth of new shoots from the base of hedgerow plants, leading to increased plant diversity over time
- Helps maintain the structure and density of hedgerows, preventing them from becoming overgrown or excessively woody
- Helps prevent shading and competition with adjacent crops

Wider benefits

 Helps preserve cultural heritage and traditional land management techniques

Hedgerows - supporting actions



4. Fence where appropriate to protect hedgerows

Implement appropriate fencing or hedgerow protection measures.

Choose suitable fencing materials that are appropriate for the intended purpose and environment.

Determine the appropriate height and design of the fence based on the specific requirements of the hedgerow area and the types of threats it faces. For example, if protecting against livestock grazing, choose a fence height that prevents animals from reaching over or crawling under the fence. Additionally, consider adding wildlife-friendly features such as gaps at the base of the fence to allow small mammals to pass through.

Scale of action

Local

Nature recovery benefits

 Allows for natural regeneration to occur

Wider benefits

- Prevents damage from livestock browsing or trampling
- Prevents disturbance and destruction from various activities

Below, left to right: Oil beetle; White Letter Hairstreak; Chelmsford © Paul Starr; Moss Carder bee





5. Minimise disturbance to hedgerows

Conduct any necessary maintenance activities, such as trimming or coppicing, outside of the nesting season for birds and other wildlife. Avoid disturbing hedgerows during the spring and summer months when many species are breeding or raising young.

Rotate grazing livestock away from hedgerows during sensitive periods such as bird nesting season.

Create buffer zones around hedgerows to minimise the impacts of adjacent land uses, such as agricultural activities or development.

Scale of action

Local

Nature recovery benefits

- · Minimises disturbance to birds
- Protects wildlife from negative impacts or disturbance activities such as trimming, cutting or removal
- · Enhances biodiversity
- Helps maintain and enhance hedgerows as important wildlife habitats

Wider benefits

- Stabilises soil
- Controls erosion
- Sequesters carbon
- Supports pollination
- Regulates water flow
- Stabilises banks and filter runoff, reducing sedimentation and nutrient pollution in waterways



6. Collaborate

Collaborate with landowners and stakeholders to establish hedgerow networks that traverse multiple properties.

Scale of action

Local

Nature recovery benefits

 Enhances landscape-scale connectivity



Wider benefits

- By working together, stakeholders can achieve larger-scale projects and accomplish more ambitious goals than would be possible individually
- Promotes landscape connectivity by linking fragmented habitats and creating wildlife corridors across diverse land ownerships
- Helps to foster a sense of ownership, pride and stewardship among local residents





Above: Chelmsford © Paul Starr



7. Identify Connection Points

Identify areas where existing hedgerows can be extended or connected to form larger, continuous habitat corridors.

Look for gaps between hedgerows, adjacent fields or natural features where new hedgerows can be established.

Connection points provide opportunities to expand habitat availability by connecting isolated patches of vegetation.

Scale of action

Local

Nature recovery benefits

- Allows species to move between fragmented habitats
- Maintains genetic diversity

- Facilitates species migration
- Allows animals to access resources such as food, water and breeding sites, promoting genetic exchange and population dispersal
- Facilitates gene flow between populations of plants and animals
- Helps species adapt to climate change by providing pathways for range shifts and colonisation of new areas

- Provides ecosystem services by supporting healthy and functioning ecosystems
- Can utilise connection points between hedgerows for recreational activities such as hiking, wildlife watching and nature photography

Farmland **Essex Local Nature Recovery Strategy**

6.5 Farmland

Foreword by Country Land and Business Association (CLA)

The UK is half-way through the Agricultural Transition Period which sees EU subsidies for the sector phased out and replaced with a new approach based on the concept of public money for public good. Farmers and land managers who now wish to receive financial support from the government will be required to carry out environmental actions alongside their farming operations, thus bringing nature, climate, biodiversity and food production together.

In a county that is steeped in agriculture and home to a vast patchwork of unique and precious habitats, from coastal marshes to ancient woodland, and with roughly 250,000 hectares of productive farmland, Essex's farming and landowning community is strongly placed to deliver the changes needed to restore and safeguard the natural environment for future generations.

Statistics alone do not complete this picture: Essex's farmers and land managers have a strong connection with the land under their stewardship. Furthermore, their understanding of what is already being delivered for biodiversity, and where it is practical to do more as this Strategy becomes "the new focal point for a broad range of land use and management activity" is invaluable.

Whether joining up existing green spaces for nature, limiting the amount of soil disturbance throughout the growing year, or introducing new habitats in otherwise marginal, uneconomic parts of the farm - with the support of government subsidy, Biodiversity Net Gain, or any other well-reasoned green initiative – husbandry that is sympathetic to nature's recovery is increasingly found to deliver mutual benefits to both the environment and the balance sheet.

The proposals within the Strategy aim to demonstrate that food production and nature restoration can work in harmony when efforts to enhance the environment are grounded in the realities of maintaining an economically viable managed landscape for all to enjoy.







BIGGER HABITAT PRIORITY:

On less productive and low yield areas of the farm, consider putting aside that land for nature. Creating new spaces for nature alongside a working, productive farm can provide wider environmental benefits for both the farming business and wildlife.



BETTER HABITAT PRIORITY:

Sensitively farm the productive areas of the farm, with consideration given to impacts on climate and the environment, whilst establishing and maintaining systems of production that themselves enhance nature and build resilience.



MORE CONNECTED HABITAT PRIORITY: Existing connectivity features and opportunities should be utilised to connect habitats across farmland such as the location of farm clusters, river catchments, hedgerows and field margins.









Essex Local Nature Recovery Strategy

Farmland - actions



1. Create wildlife buffers: maximise the wildlife within the field and on field boundaries and margins

Assess current condition and the wildlife supported.

Create a wildlife friendly buffer around farming fields or existing habitats, to protect other adjoining habitats from agricultural practices and various forms of pollution.

Establish wildflower meadows or pollinator strips within fields to support pollinators such as bees, butterflies and other beneficial insects.

Maintain permanent grassland areas within fields.

Repair damaged hedgerows by planting any gaps with native flowering or hedgerow species.

Seek advice from an ecologist on long-term hedgerow management.

Habitat created for ground nesting birds should be located away from any public rights of way to prevent any disturbance to the birds.

Create riparian buffers around watercourses to filtrate run-off.



Scale of action

Local

Nature recovery benefits

- Increases available habitat for wildlife, aiding crop protection and pollination
- Supports a wide range of plant and animal species
- Increases productivity by increasing pollinator numbers
- Filtrates water run-off containing chemicals and soil from fields before it reaches local watercourses

Wider benefits

- Encouraging populations of natural predators such as birds, bats and insects helps control pest species, reducing the need for chemical pesticides and enhancing crop protection
- Establishing vegetation on field margins and boundaries helps stabilise soil, reduce erosion and enhance soil structure and fertility
- Buffer strips and vegetation along field boundaries filter pollutants, absorb excess nutrients and reduce sediment runoff
- Vegetated field margins and wetland areas absorb excess water during heavy rainfall, reducing the risk of flooding
- Increases ecosystem resilience to climate change impacts
- Planting along rights of way reduces damage to crops from public access while improving public spaces



2. Create or restore wet features

Create or restore ponds or other wet features on farms.

Consider the use of natural flood management techniques to hold water on the landscape for longer, where appropriate.

Scale of action

Local

Nature recovery benefits

- Promotes biodiversity
- · Benefits species movement

Wider benefits

- Aids crop production
- Helps maintain soil quality by promoting the cycling of nutrients
- Provides drinking water for livestock
- Acts as natural filters in waste water treatments
- Helps farmlands become more drought resilient
- Slows the flow of water over the landscape, improving quantity and quality of water reaching waterways
- Supports flood management



3. Create or restore flower-rich meadows



Add to any patches of wildflower rich grasslands or create new meadows.

Scale of action

Local

Nature recovery benefits

 Supports a wide range of plants, fungi, insects, reptiles and ground nesting birds

- Enhances the relationship between the cropland and habitats for nature
- Supports species movement across the landscape

Wider benefits

- Helps to restore soil health
- Aids carbon capture
- Provides high nutritional value for livestock
- Increases resilience of the landscape

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Essex Local Nature Recovery Strategy



4. Create seed rich habitats



Identify suitable locations within the farmland for establishing seed-rich habitats.

Monitor the seed-rich habitat regularly to control invasive species, manage weeds and promote the growth of desired native plants.

Scale of action

Local



Nature recovery benefits

- Creates sources of food, particularly for farmland birds, during the winter season
- Increased plant diversity can lead to higher species richness and ecosystem resilience
- Creates valuable food sources for pollinators
- Promotes pollination services for adjacent crops
- Provides cover for ground-nesting birds

Wider benefits

- Helps stabilise soil and reduce erosion
- Improves soil health by enhancing soil structure



5. Integrate woodlands within the farmed landscape (agroforestry)



Seek expertise to join up any small, isolated woods with others.

Create new woodland habitat alongside the farmed landscape, preferably with native species characteristic of the area.

Integrate Woodlands within the farmed landscape.

Scale of action

Regional

Nature recovery benefits

 Promotes ecological diversity and supports wildlife populations within agricultural landscapes

Wider benefits

- Can create reliable, diversified income streams from timber, local woodfuel, carbon offsetting, venison and recreation
- Conserves soil
- Mitigates climate change
- Enhances crop yields
- Improves water management
- Reduces nutrient runoff, sedimentation and pollution in waterways
- Can act as windbreaks, shelterbelts and shade trees, protecting crops, livestock and buildings from wind damage and soil erosion



6. Graze livestock

Introduce or increase grazing livestock on farmland.

Mimic the natural grazing patterns of wild herbivores and restore or maintain habitats that have evolved with grazing pressure.

Scale of action

Regional

Nature recovery benefits

- Helps to create a mosaic of vegetation that can benefit a range of wildlife
- Stimulates biodiversity

- Can create and maintain open habitats, such as grasslands and meadows
- Can facilitate habitat connectivity by maintaining open corridors and pathways between different habitats

Wider benefits

- Contributes to nutrient cycling by depositing organic matter in the form of faeces
- Helps maintain traditional cultural landscapes

Below, left to right: Sheep at Tolleshunt Knights © Paul Starr; Cow at Fobbing © Paul Starr; Tractor at Abbotts Hall © Essex Wildlife Trust





Above: Braxted Park © Paul Starr

Farmland - supporting actions



7. Identify space on the least productive land of the farm for habitat creation or restoration

Develop small patches for nature in areas of low crop yield on the farm.

Scale of action

Regional

Nature recovery benefits

 Increases biodiversity, supporting native plant and animal species

- Attracts natural predators of pests, reducing the need for chemical pesticides
- Supports pollinator populations, enhancing crop pollination and improving yields

Wider benefits

- Contributes to soil health
- · Prevents erosion
- Sequesters carbon



8. Survey the area to better understand existing wildlife and specific habitat requirements

Use ecologist consultancies or volunteers to survey farmland to provide an overview of current status and suitable interventions.

Survey disused pits and quarries on farmland for their potential for Nature Recovery.

Scale of action

Local

Nature recovery benefits

 Improves understanding of ecological context

- Helps assess the quality, diversity and condition of existing habitats within the study area
- Helps identify rare, threatened and endangered species that may inhabit the area
- Helps detect and monitor invasive species that may threaten native biodiversity

Wider benefits

- Facilitates monitoring and evaluation
- Aids design and placement of interventions
- Engages local communities, citizen scientists and stakeholders in wildlife monitoring and conservation efforts



9. Increase organic matter to feed soils and improve soil quality

Increase use of farmyard manure, compost and living mulch/covercrops.

Avoid disturbing the soil by decreasing ploughing or heavy doses of fertiliser.

Scale of action

Local

Nature recovery benefits

- Provides habitat and food for a diverse array of soil organisms, including bacteria, fungi and earthworms
- Releases nutrients gradually over time, providing a steady supply of nutrition to plants

- Reduces input costs by reducing the need for synthetic fertilizers and pesticides
- Improves soil structure and quality
- Improves soil water-holding capacity, reducing water runoff
- Controls erosion
- Promotes carbon sequestration
- Reduces environmental impacts associated with chemicals and excess nutrients





10. Control invasive species

Control and manage populations of invasive species.

Regularly monitor farmland for signs of pest infestations or invasive species outbreaks. Early detection allows for prompt intervention and prevents population buildup.

Employ mechanical methods such as hand-weeding, mowing or mulching to physically remove invasive plants.

Scale of action

Regional

Nature recovery benefits

- Protects vulnerable or endangered species
- Can help protect biodiversity by preventing the displacement or extinction of native species

Wider benefits

- Helps protect animals from injury, stress and disease caused by predatory attacks
- Can enhance the resilience and productivity of agricultural landscapes



11. Practice nature-friendly farming

Limit the use of pesticides and chemical fertilisers, reduce carbon emissions and use sustainable processing methods.

Prioritise soil health through methods such as reduced tillage, cover cropping and additions of organic matter.

Scale of action

Regional



Nature recovery benefits

- Mitigates climate change
- Promotes biodiversity by creating and maintaining diverse habitats
- Promotes habitat connectivity by maintaining wildlife corridors

Wider benefits

- · Improves soil health
- Protects water quality
- Enhances the provision of ecosystem services such as pollination, soil fertility and water purification
- Reduces water pollution and enhances water quality
- Is economically viable and socially responsible



Above: Tolleshunt D'Arcy © Paul Starr



12. Support farm clusters

Work together as groups of farmers locally.

Farms within a cluster are typically located near each other, often within the same region or geographic area.

Scale of action

Regional

Nature recovery benefits

- Allows larger landscape scale nature recovery projects, including connected habitats
- Enhances biodiversity across landscapes, supporting a wide range of native species and ecosystems
- Promotes ecosystem services such as pollination, pest control and soil fertility

- Enables farmers to share knowledge, exchange best practice and collectively address environmental challenges
- Fosters a culture of conservation and stewardship as well as community cohesion
- Enhances the resilience of agricultural and natural systems to environmental changes and disturbances
- Supports sustainable land management
- Provides opportunities for farmers to collaborate on various aspects of agricultural production

Essex Local Nature Recovery Strategy
Urban

6.6 Urban

Foreword by Southend-on-Sea City Council

With a population of approximately 1.9 million³¹ and rising, Essex is one of the most developed counties in England. Southend-on-Sea, Colchester, Chelmsford, and Basildon make up the largest settlements in Essex, but there are many more town and villages adding to the urban nature of the county.

A lot of amazing natural spaces in Essex are tucked away in our cities and towns. From our urban parks, street trees and community commons, to our roof crevices and back gardens, all serve as habitats for wildlife. Swifts, for instance, are migratory birds that visit the UK every year to breed, nesting in roof spaces and other suitable nooks and crannies. Urban spaces have the potential to function as green corridors, or steppingstones, to allow wildlife to connect to the wider landscape.

Parks and gardens provide habitats for a variety of plants, insects, birds, and small mammals. By incorporating diverse plant species and features like ponds, meadows and hedgerows, these green spaces can support a wide range of wildlife. Well-designed parks and gardens can help manage water runoff and reduce the risk of flooding by absorbing rainfall and allowing it to infiltrate into the ground.

However, due to the expanding human population, our green spaces and urban wildlife are under more pressure to make room for new housing and other necessities of urban life. But that does not mean that towns and cities must be devoid of nature. For example, brownfield sites—disused developed land can serve as both a valuable wild space for nearby communities and a refuge for a variety of priority invertebrates. Managing amenity urban green space so that more is left or managed for nature – whether it's scrub, grassland, woodland or wetland – can also help to make habitats bigger and better in urban areas, and is already happening in some places.

Our towns and cities' green and blue spaces are very important right now. They do more than just help save different kinds of plants and animals. They also make the air and water cleaner, reduce the chances of floods and extreme heat, soak up carbon through plants and natural materials, and make people healthier and happier by giving them places to relax and connect with nature. It is therefore important to consider all of these benefits and maximise opportunities for nature recovery when we plan new homes, businesses and other building projects.

As urban areas grow and change there will also be opportunities to improve access to nature for residents, for example by creating or expanding country parks. Southend-on-Sea City Council has a long-standing ambition to create a new country park on its northern edge to increase access to natural green space for residents in the eastern part of the city, and form part of the wider South Essex green infrastructure network.



Foreword by Colchester City Council

The outdoor spaces closest to us, such as our local parks, gardens, balconies and windowsills represent valuable and vital spaces for nature. Nature recovery action can be achieved on smaller sites and very much begins at home with small steps.

In Colchester City, a network of countryside sites, parks and open spaces of all shapes and sizes are managed with consideration for habitat connectivity.

Wildlife is very adaptable, but it needs the basics to survive, including food, water and shelter and enough space to find mates and breed a successful population. Providing linking routes for wildlife might be in the form of bird boxes on the side of our sheds, hedgehog doorways in our fences, bird baths and longer grass in our gardens, wildlife ponds, wildflower planting, or trailing wisteria on the side of our house. Anything that makes it easier and safer for the wildlife that requires more space to survive, and to be able to move in and out of the wider countryside or neighbouring habitats.

Biodiversity priorities



BIGGER HABITAT PRIORITY:

To create 3,100 hectares of new habitats in urban areas in Essex. This can be achieved by creating new green and blue spaces in the heart of our local communities, for example in gardens, balconies and windowsills; and by developing more green roofs and walls, street trees, community gardens, and SUDS.



BETTER HABITAT PRIORITY:

Embrace natural processes and allow natural events to progress organically in our urban parks, gardens and roadside verges, to encourage a more diverse range of wildlife to inhabit those spaces.



MORE CONNECTED HABITAT PRIORITY:

New developments, local amenities and green spaces should all be designed to deliver new and improved spaces for nature, to ensure nature networks are created across our villages, towns and cities, allowing wildlife to travel easily. Essex Local Nature Recovery Strategy
Urban

Urban - actions



1. Introduce more green space into urban locations

Incorporate green spaces and elements into the urban environment and infrastructure. This can include:

- street trees
- shrubs
- planters
- green roofs and walls
- small green spaces between buildings
- gardens
- 'play on the way' features/trails

Encourage and create habitat for birds that nest in or near to buildings e.g. Swifts, House Martins and Swallows. Install bat boxes on buildings and urban trees.

In urban areas, it is crucial to select appropriate species for planting by considering factors such as changing climate, soil type, and maintenance requirements to ensure the landscape's survival.

Below: Brightlingsea © Paul Starr; Bumble bee on flower © Paul Starr; Brimstone © Charlie Oliver

Scale of action

Local

District / Borough / City

Nature recovery benefits

- · Attracts high levels of biodiversity
- Provides a variety of stepping stones for wildlife

Wider benefits

- · Improves the wellbeing of inhabitants
- Reduces noise pollution
- Creates walkable neighbourhoods and promotes healthy lifestyle
- Promotes traffic-free routes in towns and cities
- Brings in investment to towns
- · Helps mitigate traffic pollution
- Provides local access to nature
- Offsets carbon emissions
- · Improves air quality
- Mitigates global warming
- Reduces flood risk





2. Create above ground drainage features in the urban environment

Create shallow depressions in the ground, planted with flowers and vegetation, to help absorb excess surface water runoff.

Scale of action

Local

District / Borough / City

Nature recovery benefits

- Provides biodiversity hotspots and vital sources of food and shelter in urban landscapes for a range of species
- Can help filter pollutants from water before it enters watercourses

Wider benefits

- Slows the rate at which water enters the drainage system
- Protects against surface water flooding due to high rainfall
- Strengthens resilience to drought
- Allows authorities to take a proactive approach to maintenance before flooding occurs
- Reduces the volume of water entering the sewerage network, thus helping to reduce combined sewer overflows



3. Create pocket forests

Plant native trees and shrubs together, to create a compact, biodiversity rich, and ultra-dense environment. These are known as Pocket or Miyawaki forests.

Scale of action

Local

District / Borough / City

Nature recovery benefits

- Accelerates carbon capture
- Generates higher biodiversity

Wider benefits

 Improves individual and community health and wellbeing



Essex Local Nature Recovery Strategy
Urban



4. Manage wildflower strips



Cut wildflower meadows or strips with flower-rich perennial planting, towards the end of the summer /early autumn, and remove the cuttings.

Scale of action

Local

District / Borough / City

Nature recovery benefits

 Helps wildflower habitats get better and richer every year Provides valuable habitats for wildlife and important refuge for wildlife in urban spaces

Supports wide range of biodiversity

Wider benefits

- Improves connection to nature for residents and the community
- Encourages people to do more for wildlife in their own spaces such as gardens or allotments
- Improves residents' health and wellbeing

Below, left to right: Chelmsford © Paul Starr; Wildflowers, grasses and hedgerows on roadside verges © Essex Wildlife Trust



5. Manage roadside verges for wildlife

Minimise mowing frequency to allow wildflowers and grasses to grow and flower, providing habitat and food for pollinators and other wildlife.

Adopt varied mowing regimes across different sections of roadside verges to create a mosaic of habitats. This includes leaving some areas unmown to develop tall vegetation, while mowing others intermittently to maintain diverse habitat structures. Some verges will need mowing for safety reasons, but consideration for wildlife is recommended.

Minimise the use of herbicides along roadside verges.

Scale of action

Local

District / Borough / City

Nature recovery benefits

- Roadside verges can serve as important wildlife corridors and habitat refuges in urban landscapes
- Serves as stepping stones and corridors for wildlife movement between larger green spaces in urban areas
- Provides valuable habitat and forage resources for pollinators such as bees, butterflies and other insects

- Contributes to the overall green infrastructure of urban areas, providing pockets of green space that improve air quality, reduce urban heat island effects and enhance aesthetic value
- Reduces stormwater runoff by absorbing and infiltrating rainwater, reducing the risk of flooding and soil erosion in urban areas
- Improves physical and mental health outcomes for urban residents







6. Incorporate green roofs and walls into built environment

Create and embed in urban areas more green roofs and walls – sustainable building features that incorporate vegetation into urban infrastructure.

They can be installed on a variety of building types, including residential, commercial and industrial buildings. On a household level, they can be embedded on the roof of a shed or bin shelter, the roof of a house, or the wall of a house or shed.

They are designed to include a layered system to intercept and retain rainfall.

Scale of action

Local

Household

Above: Monty's Hide, Two Tree Island © Essex Wildlife Trust

Nature recovery benefits

- Acts as stepping stones for wildlife, linking areas of greenspace
- Enhances biodiversity

Wider benefits

- Contributes to a more pleasing environment in which to live and work
- Allows water to be fed into a grey water system for use within the building
- Lowers urban air temperatures, helping to combat the urban heat island effect
- Reduces energy needed to heat and cool buildings by keeping them warmer in the winter and cooler in summer
- Absorbs rain water and reduces flooding risk
- Vegetation slows run-off and retains water
- · Helps manage stormwater



7. Create urban wetland

Create or restore urban parks around lakes, streams and ponds.

Start by looking at what water features existed prior to urbanisation in the area. Consider factors such as site accessibility, soil conditions, regulatory requirements and stakeholder engagement.

Scale of action

District / Borough / City
Household

Nature recovery benefits

- Provides habitat for wide range of wildlife
- Urban wetlands provide important breeding, nesting, foraging and migration habitat for wildlife, including birds, amphibians, reptiles, fish and invertebrates.

 Function as green corridors, linking fragmented habitats and facilitating the movement of wildlife between different green spaces in urban environments

Wider benefits

- Reduces the risk of overloading drainage systems during intense rainfall events
- Reduces flood risk by absorbing and storing excess rainwater, slowing down runoff, and reducing peak flow rates during heavy rain
- Serve as natural filters, trapping sediments, nutrients and pollutants from runoff before they enter waterways
- Regulates local microclimates and moderates temperature extremes
- Provides opportunities for outdoor recreation, environmental education and nature-based experiences for local residents and visitors
- Enhances the visual appeal of urban landscapes



8. Plant Trees

Seek advice to ensure that the "right tree is planted in the right place", and so that there is a management plan in place to care for the tree after planting.

Scale of action

Local

District / Borough / City

Household

Nature recovery benefits

- · Creates habitats for wildlife
- Reduces flooding risk
- Improves air quality

- Connects people to cultural heritage
- Promotes health and wellbeing
- Improves streetscape and pride of place, creating more attractive places where people live and work



Essex Local Nature Recovery Strategy



9. Create a wildlife friendly garden

Design your garden to provide food, shelter and nesting sites for local wildlife. Plant native species and incorporate a variety of flowering plants to attract pollinators. Leave some areas wild for insects and small mammals and install bird feeders and nesting boxes.

Install a mini wetland or garden pond.

If you do not have a garden, consider an allotment. Or consider window boxes for fruit and vegetables or flower planting.

Consider creating hedgehog highways by creating small access points at the bottom of fences and gates, for hedgehogs to get access between gardens.

Use drought tolerant planting schemes and harvest rainwater from roofs to reduce mains water usage.

Scale of action

Local

Household

Nature recovery benefits

- Increases local biodiversity levels
- · Creates local refuge for wildlife
- Supports pollinator populations

Wider benefits

- A greener garden can reduce risk of flooding and negative impact of extreme weather events
- Contributes to ecosystem services such as water filtration, soil health and carbon sequestration



11. Reduce use of pesticides and herbicides in public parks and open spaces

Use more organic fertiliser options or companion planting and reduce or cease use of pesticides and harmful chemicals.

Scale of action

District / Borough / City

Household

Nature recovery benefits

 Urban areas become safer havens for biodiversity, promoting the health of ecosystems and supporting populations of pollinators, natural predators and other beneficial species

Below: Play area © Essex Wildlife Trust

 Supports beneficial soil organisms, enhancing nutrient cycling and promoting healthy plant growth

• Improves ecological resilience

Wider benefits

- By reducing exposure to these chemicals, especially in densely populated urban areas where people live, work and play, the overall health and well-being of residents can be safeguarded
- Reduces a major source of pollution, which can have harmful effects on soil, air and water
- Improves water quality, benefiting aquatic ecosystems, recreational water users and downstream communities



10. Compost organic waste

Start a compost bin or pile to recycle garden clippings, food waste and other organic waste into nutrient-rich compost. Composting can enrich soil fertility.

Scale of action

Local

Household

Nature recovery benefits

 Creates a thriving ecosystem for invertebrates

- Acts a carbon sink taking carbon out of the atmosphere
- Reduces landfill waste
- Produces nutrient rich soil amendment
- Enriches garden soil
- Reduces need for chemical fertiliser
- Improves soil health
- Conserves water and reduces risk of local flooding





12. Effectively manage urban watercourses

Create or enhance space for nature along river banks passing through urban spaces.

Scale of action

District / Borough / City

Nature recovery benefits

- Creates a buffer for wildlife to travel along the river safely, improving biodiversity connectivity
- Provides important breeding, nesting, foraging and sheltering habitat
- Enhances ecological resilience in urban environments
- Facilitates the movement of wildlife between different green spaces in urban greas

Wider benefits

- Filters pollutants, sediments and nutrients from runoff before they enter waterways, improving water quality in urban rivers and streams
- Riverbank areas offer opportunities for outdoor recreation, leisure and relaxation in urban settings
- Helps mitigate the impacts of climate change by providing natural cooling, shading and carbon sequestration
- When planned at scale, riverbanks can become green corridors offering the opportunity for movement of pedestrians and cyclists from urban areas into the wider countryside





13. Create wildlife crossings

Develop green bridges (or eco-bridges) across large, busy roads such as motorways, that prevent wildlife from moving between habitats.

Scale of action

District / Borough / City

Regional

Nature recovery benefits

- · Creates a green corridor for wildlife
- Reduces landscape fragmentation and genetic isolation
- Promotes biodiversity richness

Wider benefits

- Protects both human safety and wildlife populations, reducing the number of collisions, injuries and fatalities
- Improves and supports ecosystem services, by increasing functionality of the landscape and continuity of habitat
- Provides opportunities for recreational activities such as hiking, biking and wildlife watching, allowing people to connect with nature and experience wildlife in their natural habitats
- Enhances the aesthetic beauty and cultural value of transportation infrastructure



Above: Southend on Sea © Paul Starr

Urban - supporting actions



14. Understand existing local habitats and species

Assess the existing biodiversity and connectivity of areas under your management as an important first step to creating new spaces for wildlife and protecting the wider environment.

Monitor biodiversity on brownfield sites as they can often become important habitats for invertebrates and early successional communities.

Scale of action

District / Borough / City

Household



Nature recovery benefits

- Helps to identify the habitat types needed
- Allows consideration of the needs of wildlife in nearby areas and their interactions with humans
- Local knowledge allows for more targeted habitat interventions and efforts to protect and preserve existing biodiversity
- Helps to consider changes to migratory and adaptation patterns of species in response to climate change

Wider benefits

- Local knowledge can inform land use planning and inform adaptation strategies
- Provides important information, and data, for ongoing monitoring efforts
- Fosters community sense of ownership and stewardship for local green spaces
- Citizen science initiatives can encourage community participation in nature recovery efforts

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15. Empower communities and raise awareness

Encourage and support communities to engage in environmental activity.

Provide educational opportunities to raise awareness about environmental issues, conservation practices and sustainable living strategies.

Create opportunities for community members to get involved in environmental volunteering and citizen science projects. Promote the use of new technology and mobile recording apps.

Engage youth in environmental activities and leadership opportunities to empower the next generation of environmental stewards. Partner with schools, youth organisations, and youth councils to integrate environmental education into extracurricular activities.

Establish community gardens, parks and green spaces that provide opportunities for people to connect with nature, grow food and engage in outdoor activities.

Forge partnerships and collaborations with community organisations, environmental groups, schools, businesses and government agencies to leverage resources, expertise and networks. Work together on joint initiatives, projects and campaigns that address local environmental challenges and priorities.

Scale of action

Local

District / Borough / City

Regional

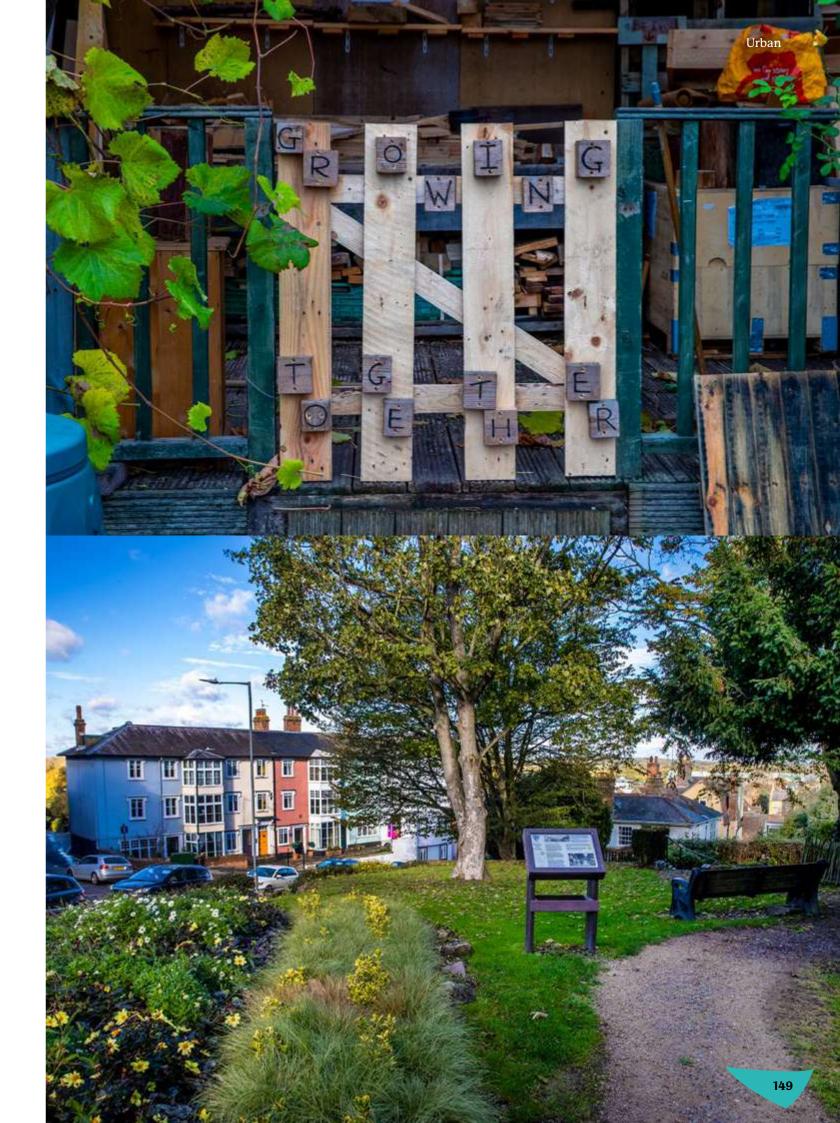
Nature recovery benefits

- Increases consideration for nature and wildlife in daily behaviours
- Raises awareness of the importance of nature

- Encourages greater action for the benefit of all
- Creates a sense of ownership, pride and responsibility among residents
- Promotes environmental stewardship
- Promotes physical activity, social interaction and mental well-being among community members
- Offers opportunities for experiential learning, skill development and capacity building
- Strengthens the sense of place and local identity within neighbourhoods and urban areas



Right, top to bottom: Trust Links Community Garden Westliff © Paul Starr; Market Hill Garden, Maldon, Essex © Paul Starr





Essex Local Nature Recovery Strategy
Freshwater and Wetlands

Foreword by WWT

Wetlands are one of the world's most biodiverse habitats, providing habitat for many threatened species and vital stopover sites for migratory waterbirds. It is estimated that 40% of the world's plants and animals depend on wetlands, and that every year, 200 new species are discovered in freshwater wetlands³².

Wetland habitats can also help to mitigate the impacts of climate change, being one of the most effective carbon sinks on the planet.

In coastal areas, saltmarshes can accumulate and store vast amounts of carbon, due to their rapid sedimentation rates and the ongoing burial of organic material. But wetland loss and degradation can transform wetlands from carbon sinks to carbon emitters.

Wetlands can reduce flood risk by absorbing floodwater and regulating flows; and help to clean water, by removing nutrients, pesticides and sediment from agricultural runoff, and filtering pollutants from industrial and urban runoff.

WWT research has also shown that when people spend time around wetlands, they can reduce levels of anxiety, stress and depression³³.

With 75% of UK wetlands having been lost over the last 300 years, there is a huge potential for wetland restoration and opportunity to bring back vital ecosystem services and biodiversity to the UK³⁴.

As part of a national study to map potential for wetland restoration focussed on maximising their ecosystem service provision, WWT has identified around 51,200 hectares of wetland potential in Essex. This includes:

- 18,100 hectares for water treatment
- 3,700 hectares for flood resilience
- 8,200 hectares of wetlands to improve urban wellbeing
- 21,200 hectares of saltmarsh potential³⁵

This potential is mostly focused on the Essex coastline, where there is opportunity to expand existing saltmarsh areas through managed realignment; and to the south of Chelmsford where wetlands could potentially provide significant water quality benefits.

Essex has considerable potential to help in the recovery of the UK's wetlands and improving landscape resilience more widely. By seizing this opportunity, Essex can reap the biodiversity-boosting, carbon-sinking, water-purifying, flood-buffering, and mood-lifting benefits that wetlands bring.



Freshwater and wetlands - actions



1. Reduce or eradicate sources of pollution



Use organic fertilizers instead of chemical fertilizers and pesticides.

Promote sustainable agricultural practices to minimize nutrient runoff, sedimentation and pesticide contamination in freshwater habitats.

Encourage farmers to implement conservation tillage, cover cropping and nutrient management strategies to protect water quality.

Scale of action

Regional

Nature recovery benefits

- Supports diverse aquatic species
- Enhances the quality and availability

of aquatic habitats, including rivers, lakes, wetlands and streams.

- Promotes growth of aquatic plants and algae, which form the base of freshwater food webs
- Can protect populations of rare and vulnerable species and help them recover

Wider benefits

- Minimises risks of waterborne illnesses and contamination, safeguarding public health and well-being
- Supports fisheries and food security
- Promotes sustainable fish populations
- Improves water purification, flood control and nutrient cycling
- Enhances water quality

Below: Kingfisher © Jon Hawkins





2. Re-establish lost ponds



Restore ponds which have become lost in the landscape over time, mostly due to agricultural land reclamation and often through in-filling.

Where ponds have been lost permanently, create new ponds in the landscape to compensate for those lost.

Scale of action

Local

Nature recovery benefits

 Can support diverse aquatic and semiaquatic species, contributing to the conservation of freshwater biodiversity

- Provides habitat for amphibians, invertebrates and other wildlife
- Improves the connectivity of freshwater habitats
- High numbers of wetland plant seeds remaining in the soil may be resurrected, leading to fast colonisation of wetland plant species

Wider benefits

- Can provide opportunities for cultural and educational engagement where lost ponds have historical and cultural significance
- Can contribute to landscape resilience
- Helps regulate water flow, filter pollutants and support nutrient cycling, improving water quality and ecosystem functioning



3. Create and enhance green infrastructure to improve water quality



Improve woodlands, grasslands, meadows, scrub and hedgerows alongside or buffering freshwater habitats. This can include the restoration and maintenance of ditches.

Scale of action

Regional

Nature recovery benefits

- Can provide shade and evaporative cooling, moderating water temperatures and creating more favourable conditions for aquatic life
- Enhances biodiversity

Wider benefits

- Helps manage nutrient runoff and reduce risk of eutrophication and harmful algal blooms
- Filters pollutants from stormwater runoff, improving water quality before it enters water courses
- Reduces pollutants reaching water bodies
- Helps stabilise soils and reduce erosion, preventing sedimentation and reducing turbidity in water bodies
- Mitigates floods
- Boosts climate change resilience



Above, left to right: Tufted duck © Essex Wildlife Trust; Silver-Washed Frittilary © Andrew Armstrong; Water vole © Essex Wildlife Trust



4. Manage invasive species



Strategically manage the eradication of INNS, for example working from upstream to downstream along a river system.

Remove the invasive non-native species Himalayan Balsam alongside riverbanks by pulling the plant out by the roots.

Remove other INNS such as Floating Pennywort and New Zealand Pygmyweed and dispose of plant matter securely.

All users of waterways should adopt personal biosecurity measures following the 'Check, Clean, Dry' procedure for clothing and equipment.

Eradicate mink, which represent a major cause of decline in water voles and ground nesting birds. It is important to note that eradication efforts for mink or any invasive species should be carried out in conjunction with projects outlined by organisations already undertaking invasive species control, with careful consideration of ecological impacts and in compliance with relevant regulations and ethical guidelines.

Scale of action

Regional

Nature recovery benefits

- Protects endangered species
- Improves habitat quality
- Conserves biodiversity
- Enhances food availability
- Boosts ecosystem resilience
- Allows for the restoration of native habitats, which are often more resilient and better suited to supporting native wildlife
- Helps preserve native flora and fauna and protects their habitats

Wider benefits

 Helps restore ecosystem processes, ensuring the proper functioning of ecosystems and the services they provide

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Essex Local Nature Recovery Strategy
Freshwater and Wetlands



5. Remove barriers to fish passage



Use the Essex Fish Migration Roadmap to identify areas where navigation for aquatic life would be restored by removing barriers to fish passages. The removal of barriers should not be completed without the involvement and engagement of key stakeholders and expertise, including government agencies, conservation organisations, local communities and landowners in the planning and implementation process.

Scale of action

Regional

Nature recovery benefits

 Enables better movement of species across the freshwater landscape, including migratory species like salmon, trout and eels

- Allows fish to access upstream spawning and rearing habitats, restoring natural migration patterns and promoting healthy fish populations
- Reconnects fragmented river and stream habitats, enhancing habitat connectivity and promoting gene flow among fish populations

Wider benefits

- Increases fishery productivity and supports sustainable fisheries management
- Improves connectivity between rivers and floodplains, allowing fish to access important floodplain habitats for feeding, spawning and refuge during high-flow events
- Healthy fish populations contribute to water quality by controlling algae growth, consuming organic matter and recycling nutrients



6. Create river buffers



Enhance natural buffers along waterways to filter pollutants.

Create wildlife river buffers by establishing vegetated zones along the banks of rivers and streams to provide habitat for wildlife, improve water quality and protect the integrity of the waterway.

Scale of action

Regional



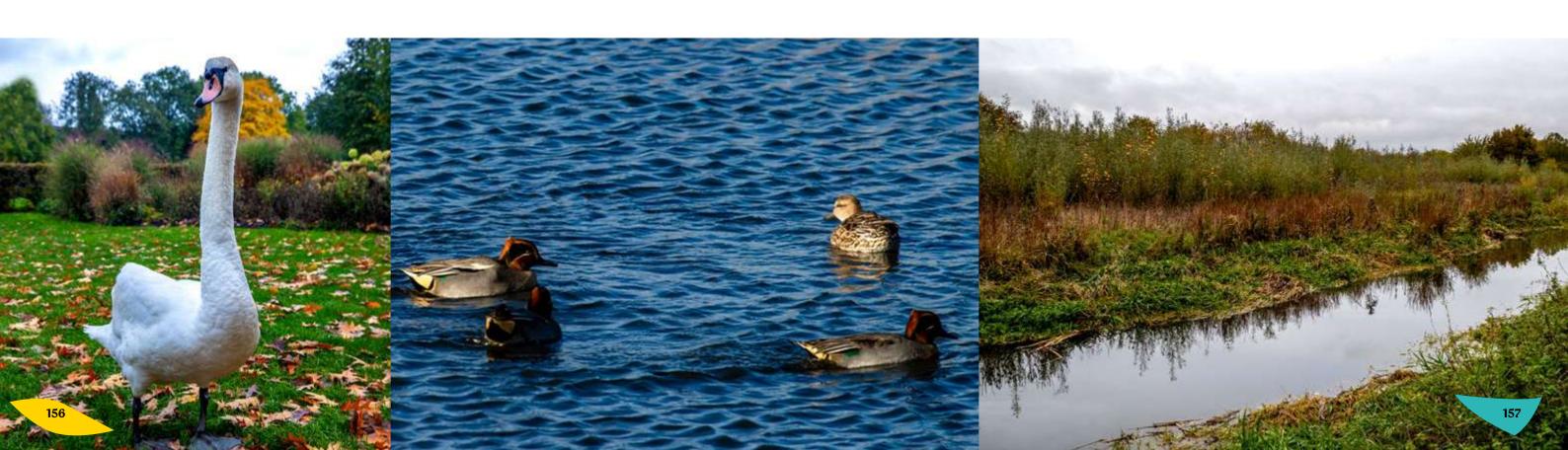
Nature recovery benefits

- Habitat enhancement
- Provides habitat for a diverse range of plant and animal species, such as fish, amphibians, insects and mammals

Wider benefits

- Helps filter and absorb pollutants, sediment and nutrients from surface runoff, thereby improving water quality.
- Acts as natural floodplains, absorbing and slowing floodwaters during heavy rainfall or high flow events

Below, left to right: Mute Swan © Paul Starr; Eurasian Teal © Paul Starr; Chelmer Valley Nature Reserve © Paul Starr





7. Safeguard deep peat sites by restoring natural hydrological function

Restore natural hydrological function by blocking up or removing drainage features on site.

Where removal of trees on deep peat is proposed, the Peatland Decision Support Framework Tool³⁶ should be used to inform decisions.

Scale of action

Local

Nature recovery benefits

Habitat for rare and specialist species

Wider benefits

- · Stores and sequesters carbon
- Slows the flow of water on the landscape

Freshwater and wetlands - supporting actions



8. Empower communities to manage local freshwater habitats

Co-design, co-create and co-manage wetland creation in the community, for example via school and community outreach.

Scale of action

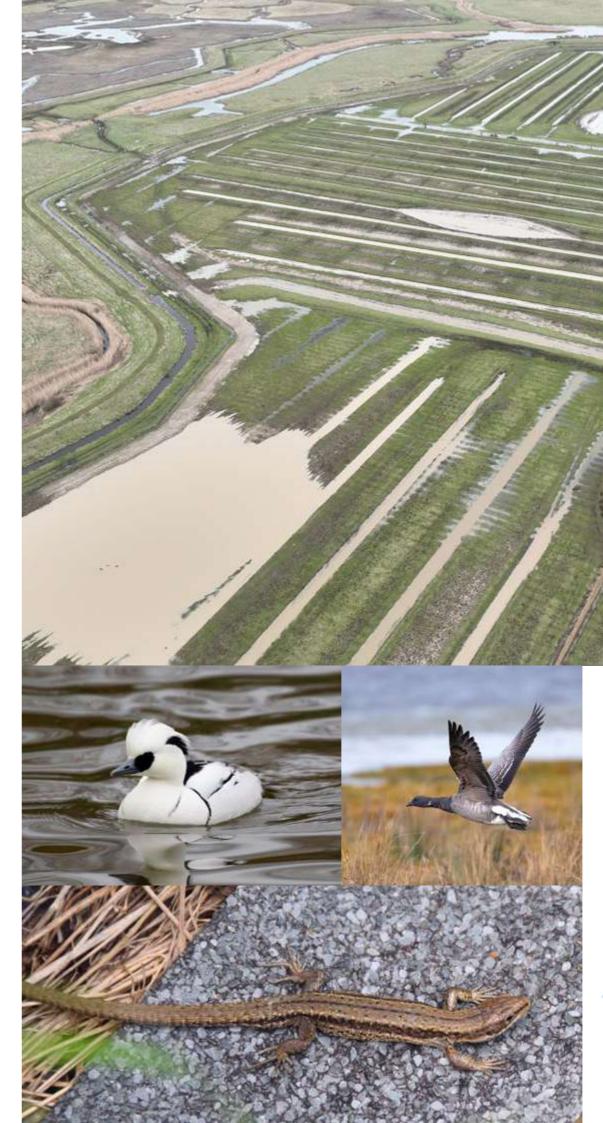
Local

Nature recovery benefits

- Promotes sustainable use of freshwater resources, ensuring long-term viability and resilience of aquatic ecosystems
- May allow better monitoring and enforcing of regulations, leading to more effective protection of freshwater habitats against illegal activities and pollution

Wider benefits

- Fosters a sense of ownership and responsibility, leading to more active involvement in conservation efforts
- Valuable traditional knowledge about local ecosystems can complement scientific understanding and inform effective management practices
- Empowers communities
- Promotes sustainable habitat management



Above: Blue House Farm Wetland development © Essex Wildlife Trust

Freshwater and Wetlands

Far left: Male smew © Essex Wildlife Trust

Left: Brent Goose © Jon Hawkins

Left below: Common Lizard © Essex Wildlife Trust



9. Investigate sites for potential large-scale wetland creation

Assess existing, adjoining sites that could be potential opportunities for wetland habitat creation such as brownfield sites, local authority owned land, NHS land, new development sites, mineral extraction sites and other publicly owned land.

Scale of action

Regional

Nature recovery benefits

Large-scale wetlands:

- provide habitats for diverse plant and animal species
- are among the most biologically diverse ecosystems

 restore degraded ecosystems and enhance connectivity between fragmented habitats

Wider benefits

- Can offer opportunities for outdoor recreation such as birdwatching, fishing and kayaking, attracting tourists and benefiting local economies
- Can act as natural buffers against floods by absorbing and storing excess water, reducing the risk of flooding in downstream areas
- Filters pollutants and improves water quality
- · Helps mitigate climate change







10. Support citizen science by local communities to gather data on freshwater, wetlands and pollution

Support citizen science, community or partner projects to gather more detailed and consistent information on local sources of pollution and information about where action is needed most urgently.

Scale of action

District / Borough / City

Nature recovery benefits

- Can contribute to large-scale data collection efforts, gathering valuable information on biodiversity, habitat conditions and environmental changes.
- This data can help researchers and conservationists better understand ecosystems

Above: Volunteer river survey at Roman river © Essex Wildlife Trust

- Monitoring efforts can cover larger geographic areas and extend over longer periods of time than would be possible with traditional scientific methods alone
- Fosters a sense of connection to the environment and encourages stewardship behaviours

- Increases knowledge of green and blue spaces around us
- Empowers community to take ownership of the spaces around them
- Creates opportunities for people to connect with nature and wetlands
- Raises awareness of the detrimental effects of pollution on water quality and biodiversity
- Can improve mental and physical wellbeing





11. Raise awareness about local water quality issues

Organise workshops, seminars and public forums to educate community members about local water quality and quantity issues, including sources of pollution, potential health risks and ways to protect water resources.

Use social media, websites and online forums to share information about local water quality issues, share updates on water quality monitoring efforts and provide resources for community members to get involved in conservation activities.

Use the 'Essex Action for Water' information tool in the Essex Water Strategy.

Scale of action

Regional

Above: Redshank © Jim Higham

Nature recovery benefits

 Can promote conservation efforts aimed at preserving water quality and restoring degraded waterways

Wider benefits

- Raises awareness around local water quality issues and water improvement funding available, to reduce ecological impact of agricultural runoff on water bodies
- Encourages responsible water use and conservation practices, such as reducing water consumption, preventing pollution and implementing water-saving technologies
- Can help safeguard local economies that rely on clean water for livelihoods and economic growth
- Enables users to explore actions they can take to improve water quality



12. Utilise water improvement funds

Use water improvement funds, such as Water Industry Nature and Environment Programmes (WINEP), to deliver nature-based solutions to work towards eliminating all adverse ecological impact from pollution sources and water abstraction.

Scale of action

District / Borough / City

Nature recovery benefits

 Promotes environmental conservation and climate resilience Nature-based solutions create and restore habitats for a diverse range of plant and animal species, including aquatic organisms, birds and insects

Wider benefits

- Can support community livelihoods and economic growth
- Cleans water
- Protects health
- Naturally filters pollutants, nutrients and sediments from water bodies
- Can help mitigate the impacts of flooding by absorbing and storing excess water



13. Manage rivers and estuaries with a catchment based approach

Support local catchment based partnerships, that plan and implement coordinated action to improve rivers and estuaries, working with landowners and industry³⁷.

Contact the **Essex Rivers Hub partnership**.

Scale of action

Regional

Nature recovery benefits

· Enhances biodiversity

Wider benefits

- Increases stakeholder engagement
- Enhances success through integrated planning
- · Improves water quality
- Reduces flood risk

- Optimises ecosystem services
- This holistic approach considers the interconnectedness of different parts of the waterways and facilitates coordinated management action
- Enables targeted measures to improve water quality by addressing pollution sources such as agricultural runoff, urban stormwater and industrial discharges
- Promotes sustainable water use and allocation
- Supports long-term water security and resilience
- Encourages collaboration and engagement among diverse stakeholders, including government agencies, local communities, industry, agriculture and conservation groups

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and Marine

Foreword by RSPB

The Essex coast is a big, dynamic, and complex landscape that is globally important for nature and a candidate World Heritage site. Starting near London, the Inner-Thames is the narrowest part of the Estuary and wildlife coexists alongside one the UK's most important economic growth regions, an area dominated by ports and industry.

Moving East, the coast soon gives way to wilder marshes, wide mudflats, open sea and the North Sea. Running throughout this coastline is a characteristic range of habitats, divided almost entirely along its length by coastal sea defences; mudflats, saltmarsh, seagrass beds and beaches, alongside grazing marsh, saline lagoons and scrub-mosaics on the landward side.

The invertebrate-rich tidal mudflats act as a giant feeding station for the thousands of waders, ducks and geese using the East Atlantic Flyway. Both saltmarsh and seagrass beds can sequester and store carbon, provide a natural defence against coastal erosion and act as nursery grounds for fish populations. Shingle and sand beaches provide breeding habitat for vulnerable species such as Little Tern and Ringed Plover.

Under the waves, the marine landscape connects the Essex coast to the North Sea and reveals subtidal habitats including sandbanks, mud and mixed sediments. These help to support a wealth of biodiversity, including the ecologically important native oyster, common seals, and a multitude of shellfish and finfish species including European Bass.

Native oysters are a culturally important marine species, whose restoration will support a range of ecosystem services, as well as increased biodiversity³⁸. On the landward side of the sea wall, grazing marsh provides habitat for one of the UK's most important populations of breeding lapwing and redshank, scarce invertebrates and water voles, and as a farmed environment contributes to food production.

The Essex coast will be significantly impacted by climate change, with rising sea levels resulting in the 'coastal squeeze' of intertidal habitats and dry summers diminishing freshwater wetlands. Thankfully there are a range of actions we can take to not only mitigate these impacts but potentially improve the landscape and seascape as a whole.





By adapting the coastline, we can create new saltmarsh habitat and saline lagoons. By using dredged material more beneficially we can restore saltmarsh and create new breeding islands for seabirds.

We can also:

- continue to trial techniques to restore existing and create new seagrass beds
- restore and create new areas of grazing marsh using tried and tested techniques
- manage sea walls more sensitively to benefit bumblebees
- create new areas of scrub using Biodiversity Net Gain
- restore existing habitat by working with local community groups
- take a holistic and connected approach, reducing the pressures on the marine and coastal environment to support its recovery

All of this needs a vision and a plan. The RSPB hopes that the Essex Local Nature Recovery Strategy will be the right framework at the right time to ensure that this vitally important landscape is not only saved but becomes one of the best coastal and marine wetlands in Europe.



Biodiversity priorities



BIGGER HABITAT PRIORITY:

To create 4,000 hectares of new coastal habitat, and 1,000 hectares of new marine habitat to support the creation of a dynamic, resilient ecosystem.



BETTER HABITAT PRIORITY:

Restoration of existing coastal and marine habitats by a combination of active restoration and pressure reduction or removal measures.



MORE CONNECTED HABITAT PRIORITY:

The creation of an adaptive, resilient network of coastal and marine habitats across the landscape that acknowledges the connection between marine, coastal, freshwater and terrestrial ecosystems.







Coastal and marine - actions



1. Create and restore coastal grazing marsh



Replicate natural tidal flooding patterns and support diverse wetland vegetation in suitable coastal areas.

Employ hydrological management techniques such as sluices and tidal gates.

Use grazing and habitat restoration to introduce or encourage salt-tolerant grasses and sedges to grow.

Monitor regularly and manage adaptively.

Restoration of existing grazing marsh, including the use of pumps, sluices and bunds to improve hydrology, fencing and corrals to improve grazing management and harrowing to restore rills.

Predator management, by installing barrier fencing.

Scale of action

Regional

Nature recovery benefits

 Grazing with livestock helps maintain vegetation structure and diversity

- Enhances coastal resilience while providing ecological benefits
- Diversifies habitat for wildlife
- Provides habitat for rare, threatened and migratory species
- · Additional breeding habitat

Wider benefits

- Reduces the risk of flooding by absorbing and storing floodwaters during high tides and storm events
- Mimics tidal influences
- Helps to stabilise coastal sediments and prevent erosion along shorelines
- Sequesters carbon dioxide from the atmosphere
- Filters and purifies water by trapping sediment, nutrients and pollutants before they enter coastal waters
- Enhances the resilience of coastal ecosystems and communities to climate change impacts
- Preserves landscape and cultural heritage
- Maintains food security and rural jobs by maintaining livestock farming



2. Create and restore saltmarsh



Consider managed realignment strategies to allow coastal ecosystems to migrate inland in response to sealevel rise and coastal erosion.

Consider removal of sections of coastal defences and/or move them further inland, replacing hard coastal defence measures with soft coastal landforms.

Scale of action

Regional



Nature recovery benefits

• Provides valuable habitats for wildlife

Wider benefits

- Acts as natural buffers against storm surges
- Provides valuable ecosystem services such as filtering and cleaning water
- Prevents further coastal erosion
- Adapts coastal habitats to the impacts of climate change, making them more resilient to potential future changes to the coastal landscape

Below, left to right: Jaywick © Paul Starr; Mersea Island © Paul Starr; Cormorant © Essex Wildlife Trust





3. Use beneficially dredged material (BUDS) to create beach-nesting bird islands and 'coir rolls' to restore saltmarsh

Encourage sedimentation on existing marshes and mudflats, creating new intertidal areas landward of existing defence lines or enhance estuary edges in urban areas.

Areas close to existing saltmarshes will have vegetation that will develop naturally into saltmarsh within a few years.

Create new beach nesting bird islands by using dredged sand and shingle material placed in the intertidal area.

Scale of action

Regional

Below: Maldon © Paul Starr

Nature recovery benefits

- Improves biodiversity
- · Provides food for birds
- Additional breeding habitat for birds reliant on disturbance free beaches
- Provides extra roosting areas for internationally important populations of wintering wildfowl and waders

Wider benefits

- · Offers recreation and wellbeing benefits
- · Offers economic benefits
- Enhances flood and coastal defences
- Improves water quality
- Increases climate change resilience
- Sequesters carbon
- Enhances flood and coastal defences by reducing direct wave action on vulnerable seawalls



4. Create saline lagoons



Use man-made structures such as embankments, weirs and sluices to control water levels and salinity.

Introduce or encourage native aquatic plants to establish.

Carefully monitor and manage, making periodic adjustments to maintain optimal environmental conditions for aquatic life.

Scale of action

Local

Nature recovery benefits

- Mimics the fluctuating conditions of natural lagoons
- Supports a diverse array of plant and animal species adapted to brackish water conditions

- May serve as vital stopover sites for migratory birds and provide vital feeding, resting and breeding grounds for coastal birds
- Offers important nursery areas for juvenile fish, providing shelter, food and suitable water conditions for their growth and development
- Contributes to habitat diversity and complexity in coastal landscapes

- Improves water quality by filtering pollutants, sediment and excess nutrients from runoff and tidal inflows
- Sequesters carbon dioxide from the atmosphere
- Acts as natural buffers against storm surges, coastal erosion and sea-level rise





5. Minimise disturbance to coastal and marine areas

Reduce pressures on sensitive coastal and marine habitats by:

- · zoning prohibited areas
- restricting times of public access to the coast
- using boats and jet skis responsibly

Follow the <u>Marine and Coastal Wildlife</u> <u>Code</u>, and use resources for advice on how to behave around seals, birds and dolphins.

Follow advice by <u>Bird Aware Essex</u>
<u>Coast</u>, to learn more about the impact of bird disturbance along the coast, and how you can reduce your impact.

Below, left to right: Little tern; Lapwing © Essex Wildlife Trust; East Mersea © Paul Starr

Scale of action

Regional

Nature recovery benefits

- Allows ecosystem recovery
- Supports increase in rare bird populations via undisturbed breeding season
- Helps preserve fragile coastal and marine habitats
- Protects species from harm and disruption

Wider benefits

- Helps manage coastal and marine tourism sustainably and responsibly
- Supports sustainable fisheries management by preserving marine habitats, protecting spawning grounds and maintaining fish stocks





6. Use fencing, wardening and engagement to protect beach-nesting bird colonies

Fence off nesting areas.

Use trained wardens to monitor nesting activity, enforce protective measures and educate beach visitors about the importance of respecting nesting areas and keeping a safe distance from birds.

Engage with local communities, beach users and stakeholders.

Scale of action

Regional

Nature recovery benefits

- Safeguards nesting sites
- Minimises disturbances
- Raises awareness about the presence of nesting birds
- Mitigates threats to beach nesting bird colonies, ensuring their longterm survival
- Contributes to the conservation of coastal biodiversity

Wider benefits

- Prevents human and animal intrusion
- Promotes responsible behaviour
- Garners support for conservation efforts



7. Recover Native Oyster beds



Support restoration/creation of native oyster beds in the MCZ, and expansion into additional sites.

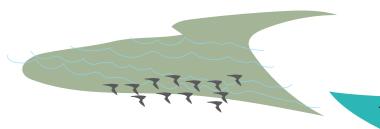
Scale of action

Regional

Nature recovery benefits

- Increases biodiversity levels
- Provides a nursery habitat for fish

- Improves ecosystem services of the marine environment
- Improves water quality
- Creates buffer habitats against rising sea tides and storms by forming natural breakwaters that help protect shorelines from erosion
- Filters and clean surrounding waters





8. Enhance existing seagrass beds



Support active restoration trials at existing seagrass beds, such as those being conducted by **Project Seagrass**.

Monitor natural spread of seagrass around coastal sites.

Scale of action

District / Borough / City

Nature recovery benefits

 Provides habitat and nursery grounds for a diverse range of marine organisms, including fish, invertebrates and juvenile species

- Provides food and energy for a wide variety of marine organisms
- · Supports high levels of biodiversity

Wider benefits

- Supports fisheries
- Encourages recreation and tourism
- · Offers economic benefits
- Stabilises ocean sediment, improving water quality and reducing coastal erosion
- Stores carbon
- Improves water quality
- · Protects the coast



9. Transplant seagrass



Carefully select healthy seagrass specimens from donor sites and relocate them to degraded or barren areas.

Monitor and manage adaptively to ensure the success of transplantation.

Scale of action

Regional

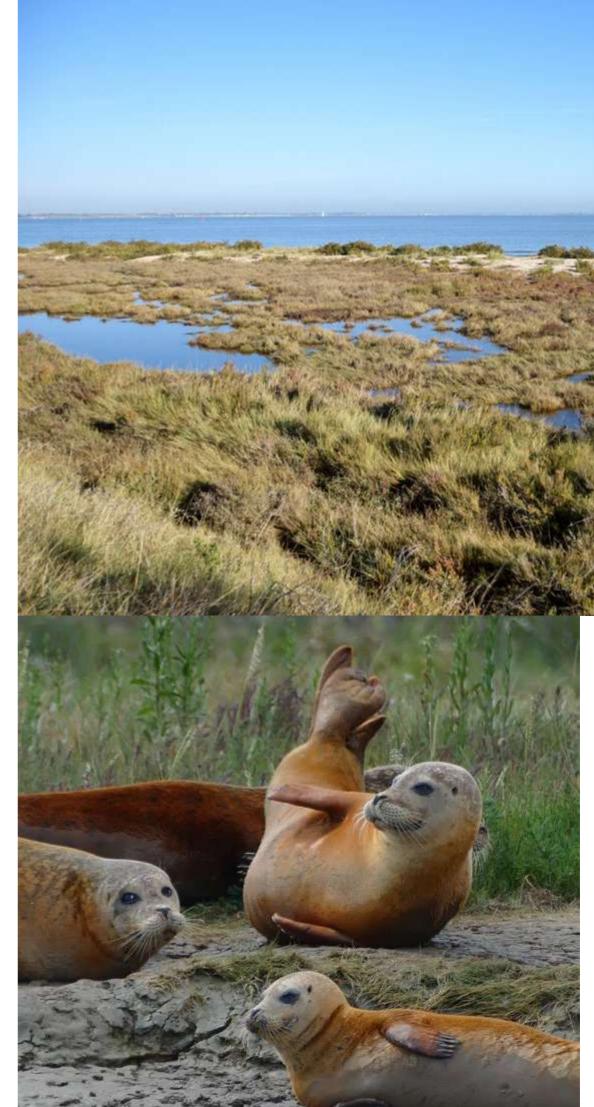
Nature recovery benefits

- Enhances habitat quality
- Promotes seagrass recovery
- Mitigates physical damage to seagrass beds

- Minimises the disruption of sensitive marine habitats
- Raises awareness among recreational users about the importance of minimising impact on seagrass ecosystems
- Fosters biodiversity

Wider benefits

- Supports ecological resilience of coastal marine environments
- Helps restore degraded coastal habitats, enhancing biodiversity and providing essential habitat for marine species
- Improves water quality





Coastal and Marine

Left: Common seal © Essex Wildlife Trust

Coastal and marine - supporting actions



10. Utilise hydrological grazing and manage predators on grazing marsh

Regulate water levels by mimicking natural flooding and drainage cycles characteristic of grazing marsh ecosystems.

Concurrently introduce sustainable grazing practices and strategically rotate livestock to maintain vegetation structure and prevent overgrazing.

Install fencing or predator deterrents.

Continuously monitor and manage adaptively to assess effectiveness, and adjust as necessary.

Collaborate with stakeholders.

Scale of action

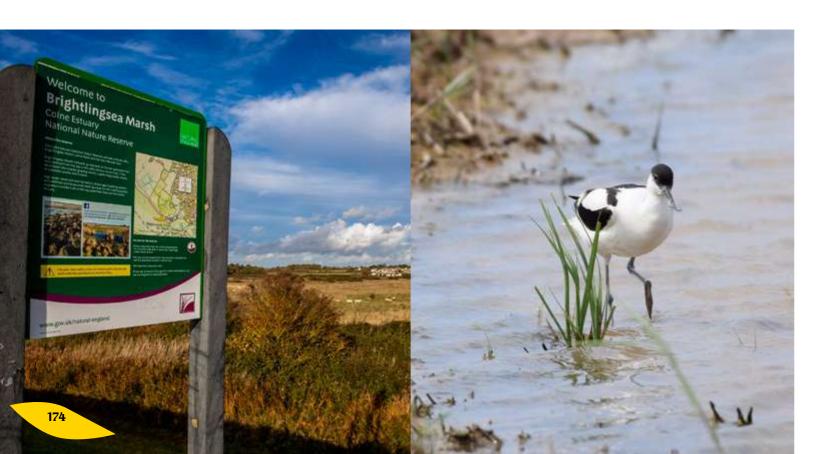
District / Borough / City

Nature recovery benefits

- Ensures optimal conditions for wetland vegetation growth and wildlife habitat creation
- Mitigates the impact of predators on vulnerable species
- Supports the long-term conservation and management of grazing marsh habitats

Wider benefits

- Fosters successful implementation and stewardship of these habitat improvements
- Can support sustainable agricultural practices, such as livestock grazing, which contribute to rural livelihoods and food production







11. Mitigate pollutant threats to the coastal and marine environment

Use education and behaviour change to reduce harmful pollutants, including nutrients and plastic, making their way into the marine and coastal environment.

Working with water companies, improve waste management systems to prevent litter, plastic debris and other solid waste from entering waterways and coastal areas.

Promote the use of sustainable practices in aquaculture and fisheries to minimise nutrient runoff, sedimentation and chemical contamination from fish farms and fishing activities.

Undertake nature-based solutions projects on land that reduce pollutants into the system.

Scale of action

Regional

Left: Brightlingsea © Paul Starr; Avocet © Essex Wildlife Trust **Above:** East Mersea © Paul Starr

Nature recovery benefits

- Preserves marine ecosystems
- · Supports diverse marine life
- Safeguards endangered species
- Sustains fish populations
- Improves water quality

- Supports sustainable fisheries, ensuring a vital food source for coastal communities
- Reduces the risk of contamination in seafood, safeguarding human health and preventing illnesses related to seafood consumption
- Creates healthier marine environments for recreational activities
- Boosts tourism and coastal property values, contributing to local economies and livelihoods
- Can help mitigate ocean acidification, preserving marine ecosystems' ability to sequester carbon



12. Check, Clean, Dry: Ensuring biosecurity

For watercraft users and recreationalists:

- 1. Thoroughly "check" equipment and vessels for any signs of invasive species, such as clinging organisms or debris.
- Subsequently, 'clean' meticulously to remove any potential hitchhikers or contaminants from the equipment, utilising appropriate cleaning agents or methods.
- 3. Ensure that all equipment is completely "dry" before entering new water bodies.

Scale of action

Regional

Below, left to right: Southend © Paul Starr; Oystercatchers © Essex Wildlife Trust

Nature recovery benefits

- Combats the spread of invasive coastal and marine species
- Safeguards coastal and marine ecosystems
- · Preserves native biodiversity

Wider benefits

- Reduces costs invasive species can have significant economic costs, including damage to agriculture, fisheries, infrastructure and recreational activities
- Protects human health
- Supports sustainable tourism and outdoor recreation
- Promotes environmental stewardship and responsible behaviour



13. Create a network of coastal lagoons that provide safe roosting, feeding and breeding habitat

Strategically place man-made structures, such as weirs and channels, to help regulate water flow and salinity levels, creating conditions conducive to lagoon formation and connectivity.

Introduce or encourage native vegetation and aquatic species to colonize the newly created habitats.

Collaborate with local communities, stakeholders and conservation organisations to secure support, resources and long-term management commitment.

Scale of action

Regional

Nature recovery benefits

 Supports a diverse array of plant and animal species, including birds, fish, invertebrates and aquatic plants

- · Serves as vital habitat for birds
- Enhances habitat connectivity, allowing birds to move between sites and access resources throughout their life cycles
- Provides important stopover sites for migratory birds

- Enhances ecosystem resilience by providing connectivity among habitats
- Offers opportunities to study coastal processes, ecosystem dynamics and the impacts of human activities on coastal habitats and species
- Helps stabilise coastlines and protect vulnerable coastal communities and infrastructure





14. Create a network of safe beach-nesting bird (BNB) islands

Establish islands or protected areas, either naturally or through artificial means, to provide safe breeding grounds for beach nesting birds, which are interconnected through habitat corridors or protected zones.

Monitor and manage to ensure the integrity of nesting habitats and minimise disturbances.

Collaborate with stakeholders.

Scale of action

Regional

Nature recovery benefits

- Facilitates movement and dispersal of bird populations
- Contributes to the conservation of beach nesting bird populations and their coastal ecosystems

Wider benefits

 Helps to secure support, funding, and effective management of the network





Essex Local Nature Recovery Strategy
Geology & Soils

6.9 Geology & Soils

Foreword by Geo Essex

Natural soil is the planet's thin, vital layer where geology and biology combine to recycle dead matter back into life. This means that nature recovery vitally depends upon the geology – the rocks and sediments beneath the land surface. Soil is made during an amazing exchange process involving fungi, microbes and small animals, notably earthworms. Rock particles are dissolved and their chemical building-blocks transferred into plant roots along millions of threads of fungus; in exchange, the fungus gains energy from 'sugar chains' produced by the plant out of sunlight shining on their leaves.

Different surface rocks give rise to differing soils and thus to different plant and animal communities. Most of the soils in Essex have been worked by humans since the farming revolution around 7,000 years ago.

Essex has an underlying geology of chalk, clay, sands and crag exposed along the eroding coast, and revealed in quarries and pits, overlain by river and glacial deposits left behind during the last ice age.



Biodiversity priorities



BIGGER HABITAT PRIORITY:

When creating new habitat, consider both the ecological and geological features of a site, to ensure the habitat being created aligns with the appropriate conditions under the ground, enabling habitat expansion alongside safeguarding of soil health and geodiversity.



BETTER HABITAT PRIORITY:

Improve the quality of our soil and local geological sites through erosion control measures, such as minimum tillage and no-till farming, reducing pollution in our soils and reducing compaction of our soils.



MORE CONNECTED HABITAT PRIORITY:

Incorporate green infrastructure elements such as vegetated buffer zones and permeable surfaces into development projects to mitigate soil erosion, enhance soil permeability, and preserve geological features of a site.

Geology and soils - actions



1. Control soil erosion

Plant vegetation such as grass, trees or shrubs (preferably native species); mulch the soil; instal silt fencing and physical structures such as gabions and large stones.

Reduce tillage, practise cover cropping and organic farming methods.

Scale of action

Regional

Nature recovery benefits

- · Prevents habitat degradation
- Maintains soil structure
- · Prevents erosion

- Minimises soil compaction
- Help preserve habitat integrity, maintain ecosystem connectivity and support diverse plant and animal communities

- Reduces sediment runoff, improving water clarity, and reducing the negative impacts on aquatic ecosystems
- Supports the long-term viability of farming operations and food security
- Reduces the costs associated with soil loss, land degradation and environmental damage



Geology & Soils

Geology and soils - supporting actions



2. Safeguard soil quality and geodiversity when planning for landscape changes

Develop landscape plans that consider both ecological and geological features, identifying areas suitable for habitat expansion.

Safeguard areas with unique geology that supports rare habitat.

Scale of action

Regional

Nature recovery benefits

- · Safeguards soil health
- Protects geological diversity
- Maintains biodiversity by preserving habitats for soil-dwelling organisms and supporting the food web

Wider benefits

- Supports diverse ecosystems by providing essential nutrients, habitat for microorganisms and stability for plant growth
- Stores carbon
- Improves water quality
- Maintains nutrient cycling
- Sustains crop yields and ensure the availability of nutritious food for human populations
- Preserves important sites for scientific research, education and cultural heritage

Below: Tilled field © Paul Starr





3. Utilise the Local Sites Partnership in Essex to support the monitoring and assessment of local geological sites

Regular monitoring and assessment of geological sites to identify potential threats and areas for improvement.

Scale of action

Regional

Nature recovery benefits

 Allows for early detection of environmental changes, such as erosion, pollution or habitat degradation

Wider benefits

- Helps identify areas suitable for development, conservation, agriculture, recreation and other purposes
- Helps identify suitable locations for construction projects and assesses risks associated with ground stability and geological hazards





4. Safeguard vulnerable geological sites and their unique features

Manage visitors, enhance habitat of the surrounding area, monitor and conduct risk management.

Scale of action

Regional

Nature recovery benefits

- Protects and conserves geological sites within larger habitat restoration projects
- Preserves and enhances geological features
- Helps conserve biodiversity and maintains ecological balance

 Rare geological features can provide environmental niches for unique and vulnerable species

- Ensures that future generations can continue to study and appreciate this natural heritage
- Provides valuable opportunities for scientific research, allowing scientists to study past geological events, climate change and evolutionary processes
- Provides valuable educational resources for students, teachers and the general public



5. Educate

Foster partnerships between academic institutions, government agencies, NGOs and industry stakeholders to facilitate collaborative research projects and knowledge-sharing initiatives.

Raise awareness about the importance of soil and geology through educational campaigns, outreach programmes, public lectures and media initiatives to engage the general public and policymakers.

Increase public awareness of the importance of soil health to food webs, and thus the wider ecosystem.

Scale of action

Regional

Nature recovery benefits

 Addresses environmental challenges such as pollution and soil degradation

Wider benefits

- Helps identify natural resources such as minerals
- Enhances sustainability practices in construction and land use
- Fosters appreciation and stewardship of natural landscapes



6. Collaborate and partnership led action

Collaborate with governmental agencies, conservation organisations and relevant local experts to develop and implement tailored nature recovery site plans that consider the importance of soil health and geodiversity on a local scale.

Scale of action

Regional

Nature recovery benefits

 Supports integrated habitat creation and conservation initiatives

Wider benefits

- Fosters partnerships
- Leverages expertise, resources and support
- Brings together diverse stakeholders, including government agencies, local communities, farmers, conservation organisations and researchers, enabling a holistic approach to soil erosion control
- Fosters innovation by encouraging the development and adoption of new technologies and practices, leading to more sustainable and cost-effective solutions

Right: Thameside Nature Discovery Park © Paul Starr





Above: Native oysters

7. Species priorities

Species abundance and diversity serve as crucial indicators of the health of natural environments. The potential measures described in Section 6 of this LNRS will benefit many species in Essex, but some require targeted habitat management or improvements in environmental quality beyond this.

These species are identified on the LNRS Priority Species Shortlist and described below, along with the specific habitat interventions that they need. They are presented in order of degree to which they are endangered, from most to least threatened. Please see appendix 4, for more detail on how the LNRS Priority Species Shortlist was formed.

Two sources have been used to establish the degree of threat: the Joint Nature Conservation Committee (JNCC) and the International Union for Conservation of Nature (IUCN) red list. The JNCC is the public body that advises UK government on UK conservation. Its data cover species found in the UK and take account of multiple UK designations. The IUCN red list of threatened species is a comprehensive source of information on the global extinction risk status of species. It divides species into nine categories: not evaluated, data deficient, least concern, near threatened, vulnerable, endangered, critically endangered, extinct in the wild, and extinct.

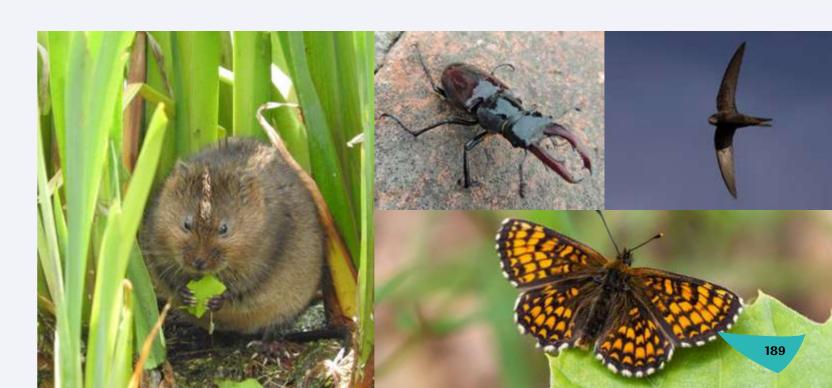
Priority Species	Habitat	Potential Actions
JNCC status: Critically Endangered		
Distinguished Jumping spider (Nationally Rare)	Brownfield sites	Establish a management plan for habitats for invertebrate species on brownfield sites where long term management has been secured
Turtle Dove	 Woodland edges Dense scrub or hedgerows Farmland Open land with scattered bushes 	 Establish feeding habitat including low plants and patches of open ground Allow plants to regenerate naturally to provide natural seeds as a source of food Plant a bespoke seed mix if natural regeneration of seeds is not suitable for the site Establish nesting habitats by planting up hedgerows or scrub habitat by encouraging thorny species such as Bramble, Hawthorn and Blackthorn To maintain dense scrubby habitats, cut areas on a long term rotational basis Create suitable habitats for turtle doves in gardens and green spaces near an existing turtle dove site Reduce herbicide use to allow native arable plant regeneration as a seed food source for mating pairs
IUCN Red List: End	angered	
Native Oyster (Priority species in the UK)	Seabed in shallow coastal waters and estuaries	 Essex Native Oyster Restoration initiative (ENORI) works to restore native oysters back to the seabed. The initiative actions include: Put back old shells and gravels onto the sea bed for oysters to settle on and grow Translocate mature oysters to other sites to improve reproductive success

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Essex Local Nature Recovery Strategy
Species priorities

Priority Species	Habitat	Potential Actions
JNCC status: Endangered		
Crested cow wheat	 Grasslands Coppiced woodland	 Protect, expand and enhance grasslands with existing populations of crested cow wheat Carefully plan coppiced woodland management, to incorporate rides and glades
Heath Fritillary Butterfly	 Coppiced woodland Sheltered woodland or vegetation Woodland that has abundant levels of common cow wheat 	 Carefully plan coppiced woodland management, to incorporate rides and glades Tailor woodland management to encourage presence of common cow wheat
Least Lettuce	 Meadows Fields Roadsides Waste places	 Protect least lettuce habitat by establishing buffer zones around existing locations, to protect it from surrounding land uses and activities
Swift	 Buildings and urban areas Roofs of old buildings such as churches or houses 	 Garden for wildlife to provide food sources and places for roosting and nesting Preserve existing nesting sites Create new nest sites, by installing a nesting box on your house Increase insect numbers as a food resource, by growing wildflowers, creating a wildlife pond or allowing grass to grow longer Avoid use of pesticide to allow insect population numbers to increase Incorporate swift bricks into new developments
Water Vole	 Rivers, streams, ditches Ponds, lakes Marshes, reedbeds 	 Eradicate mink and monitor For landowners, consider opening up sections of the river bank to expose areas to the sun by coppicing trees in densely shaded areas Create reedbeds and ponds, which can provide refuge for water voles Establish wet ditch networks in wetlands and floodplains

Priority Species	Habitat	Potential Actions	
UK status: Rare	UK status: Rare		
Stag Beetle	 Woodland Hedgerows Urban areas, parks and gardens – where there is a lot of dead wood habitat Traditional orchards 	 Create dead wood habitat in woodlands and urban areas Keep tree stumps in place when trees and woody shrub are cut down 	
JNCC status: Vulne	rable		
Barbastelle Bat	 Deciduous woodland Wet meadows Woodland streams and ponds 	 Reduce or cease use of artificial fertiliser and pesticides Use woodland management practices which enhance wet woodland areas such as streams and ponds Connect key woodlands with foraging sites to other woodlands Keep deadwood in-situ 	
Fancy Legged Fly	 Saltmarshes Wet mud on the edges of pools in the zone between saltwater and freshwater Saline habitats Borrowdykes 	 Reduce levels of disturbance to saltmarsh habitats Conserve and protect freshwater streams onto saltmarshes Reduce disturbance to saline pools and lagoons 	



Priority Species	Habitat	Potential Actions
Grizzled Skipper Butterfly	 Woodland rides Glades and clearings Chalk grassland Unimproved grassland Abandoned industrial sites as well as railway lines 	 Maintain open habitats such as rides, glades or clearings, particularly in sunny conditions Coppice and manage rides to create open spaces in woodlands Practise conservation grazing by livestock to create patches of bare ground Manage scrub habitat to retain patches of new and old growth vegetation
Hazel Dormouse	New growth of woody vegetationCoppiced woodlandScrublandHedgerows	 Conduct reintroduction programmes Plant new woodlands Manage and maintain hedgerows
Hedgehog	 Urban areas Gardens Grassland Arable Woodland edges Hedgerows 	 Create opportunities for access between gardens by creating small access points at the bottom of fences and gates - also known as "hedgehog highways" Create areas of undergrowth in gardens, by planting shrubs and hedges which ideally should be placed next to the hedgehog hole in the fence Practise wildlife friendly gardening by encouraging insects with wildflowers and scrub habitat Reduce or cease use of artificial fertiliser and pesticides Create or allow to develop dense vegetation areas through compost, log and leaf piles in your garden Introduce hedgehog house in your garden - which can be created yourself or purchased

Right, left to right: Hedgehog; Grizzled Skipper Butterfly; Nightingale; Lapwing © Essex Wildlife Trust; Hazel Dormouse



Priority Species	Habitat	Potential Actions
Lapwing	 Wet grassland Farmland Open landscapes 	 Practise spring cropping and maintenance of short swards on wet pastures Ensure farming field operations do not destroy / remove nests Create spaces of bare ground scattered across landscape during autumn and winter – as Lapwings may nest and feed in these areas Minimise or avoid cattle grazing between mid March and May to avoid cattle trampling nests Manage sward heights through grazing in the autumn and early winter to create the ideal short sward for March and reduce grazing over the breeding season
Nightingale	 Closed canopy scrub or young woodland Coppiced woodland Areas of low thick vegetation such as bushes and scrub Structurally diverse woodlands Scrub mosaics 	 Management of scrub habitat that maximises scrub at thicket stage. Cut reasonable blocks of scrub, rather than many very small and widely dispersed patches of different growth stages Coppice woodland Control deer populations to promote diverse vegetation structure

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Essex Local Nature Recovery Strategy

Species priorities

Priority Species	Habitat	Potential Actions
JNCC status: Near Threatened		
Adder	 Heathland Woodland edges Moorland 	 Create adder hibernaculum within associated habitats of adder, such as woodland edge, areas of long grass, or hedge line that has some sun and some shade Create hibernaculum for adders, next to scrub or bracken, which can include large stones, timber or organic material, with entrances available and some areas exposed to direct sunlight Reduce recreational disturbance in key locations and increase public awareness
Eelgrass	 Seafloor Marine Shallow seas 	 Collect eelgrass seeds from healthy populations (ensure appropriate permits and permissions are obtained for seed collection). Follow by seed preparation and propagation. Plant eelgrass seeds directly into the restoration site using appropriate methods. Monitor and maintain planted populations Reduce sedimentation in eelgrass habitats Reduce human disturbance to eelgrass habitats
Fishers Estuarine Moth	 Hogs Fennel, which grows in coastal areas, is its only food source A combination of hogs fennel and long coarse grasses Coastal grassland and sea walls 	 Create a landscape scale network of suitable sites for the moth, that are resistant to the threats of flooding Create suitable habitat, including hogs fennel Control scrub to maintain open grassland habitat on existing sites

Priority Species	Habitat	Potential Actions
Green Winged Orchid	Unimproved grasslands	 Control invasive species Manage grazing, with reduced grazing during key periods such as flowering Cut and collect to keep soil fertility low
Marsh Tit	 Broadleaved woodland Large, mature, deciduous woodland with a dense and diverse understorey Parks Gardens 	 Control deer populations which may be impacting on the coverage of the understorey vegetation Practise landscape scale management to restore connectivity between woodlands Create and manage rides and glades with shrubby edges Conduct rotational cutting of the understorey Retain deadwood in-situ
Ringed Plover	 Marine and intertidal Wetland Grassland	 Reduce human recreational disturbance at selected sites along the coast Prevent nest loss through human activity (e.g. instal fencing around nests)
JNCC UK Status: Nationally Scarce		
Lesser Calamint	 Grasslands Meadows Roadsides and hedgerows Woodland edges	 Control invasive non native plant species to reduce competition Avoid excessive disturbance where it already exists, to encourage natural regeneration

Below, left to right: Eelgrass; Adder © Emily McParland; Green Winged Orchid; Fishers Estuarine Moth; Marsh Tit; Lesser Calamint; Ringed Plover



Essex Local Nature Recovery Strategy

Species priorities

Priority Species	Habitat	Potential Actions
JNCC UK Status: N	ationally rare	
Sulphur Clover	 Grasslands Meadows Woodland edges and clearings	 Manage grazing pressures to prevent overgrazing in meadow habitats Support populations of pollinators by providing nesting sites, reducing pesticide use and planting native flowering plants
Rare and scarce sp	ecies (not based on IUCN cr	iteria)
Shrill Carder Bee	 Dry grasslands Coastal sea walls Brownfield sites Open, extensive flower rich habitats, close to undisturbed nesting habitat Field edges Hedgerow margins 	 Maintain and manage flower-rich habitat until late September Leave wide uncut buffer zones at the edge of fields Ensure some areas of hedges, ditches and banks are cut later on in the year, rotate cutting regimes Create new wildflower grasslands Create tussocky grass areas for nesting, leaving them undisturbed between March and October Manage and protect brownfield sites, and maintain mosaic of habitats within them by rotational clearance of vegetation



Priority Species	Habitat	Potential Actions
Other		
Four Banded Weevil Wasp	 Bare sand Light sandy soils Sand-clay habitats exposed to the sun 	 Create bare ground sand habitats on natural banks and slopes, edges of woods, sides of sand pits and quarries, or flatter ground in grassland and heathland Create new bare ground habitats next to pollen and nectar sources such as flower rich margins or meadows Ideally create several patches of bare ground in a variety of shapes, and in different areas on one piece of land. Ensure that there is no vegetation shading the bare ground patches. Bare ground habitat can be created with machinery or hand with a space Use livestock to create areas of bare ground Create this habitat during autumn and winter, when invertebrates won't be nesting
Glow Worm	 Grassland Hedgerows Woodland edges Railway embankments	 Reduce light pollution in and around glow worm habitats, as excessive light can interfere with their mating behaviours
Yellow Loosestrife Bee	 Wetlands Alongside rivers and canals The bees rely on the yellow loosestrife plant, which thrives in wet soils next to rivers. 	 Restore or enhance wetland habitats where yellow loosestrife is present Establish plantings of yellow loosestrife in or near wetland habitats Reduce or eliminate use of pesticides in or around wetland habitats Use rotational management to create diverse vegetation of young and new growth on wet soil/ scrub habitat Cut back scrub alongside rivers or canals to restore the scrub habitat and create diversity in the vegetation

Left, clockwise from top left: Sulphur Clover; Yellow Loosestrife Bee; Shrill Carder Bee; Glow worm © Alan White



8. The state of nature today

Essex's landscape is rich and diverse, from 350 miles of coastline to large stretches of farmland, from ancient woodlands and coastal grazing marshes to cities and towns. This landscape hosts a range of important habitats, about one-seventh of which (13.4%³⁹) receive some level of protection through national and international designations.

Besides the urban areas, the county – still governed by its geological history – can be divided into the largely agricultural interior with its river valleys, meadows, and scattered woodlands and the coastal strip – all those habitats influenced by the sea now or in the past.

Essex is estimated to be home to over 5 million **trees**⁴⁰. It is estimated that the woodland cover of Greater Essex is 7% (24,502 ha) of which 2.4% is defined as ancient woodlands⁴¹.

The area of **meadow** in Essex has probably declined by more than any other habitat type in the last 100 years. Outside of nature reserves, there are very few meadows in good ecological condition, which means that the distribution of many, more notable meadow plants is now severely restricted, and fragmented.

There is a diverse array of **scrub** and **mosaic** habitats in the county. Scrub habitat refers to a type of vegetation community characterised by low-growing, often woody plants, frequently dominated by shrubs and small trees rather than taller forest trees. When patches of scrub grow amidst habitats like farmland, grassland, meadows, or wetlands, they form what is known as a mosaic. Well-developed scrub habitats are crucial for the survival of many species, particularly those that thrive in transitional environments for breeding, feeding, and hibernating, such as the Turtle Dove, Yellowhammer and Corn Bunting.

Biodiversity in **hedgerows** is rich and varied. They provide shelter, nesting sites, and foraging opportunities for numerous species of birds, insects and small mammals. The dense vegetation offers protection from predators and harsh weather conditions, contributing to the survival of both common and rare species. Hedgerows serve as corridors for wildlife movement, enabling species to traverse through the landscape, access essential resources, and maintain gene flow between populations.

Essex is estimated to be home to over

5 million trees

Left: Hatfield © Paul Starr

Essex Local Nature Recovery Strategy

The state of nature today

Around two-thirds (61%) of Essex today is **farmland**⁴². The balance between the agricultural industry and the environment is fundamental to the health of our ecosystems, the resilience of our food systems and the sustainability of our planet as a whole. The yield and quality of food production is dependent upon pollination by invertebrates, such as bees, wasps, flies, butterflies, moths, and beetles, which are also essential for biodiversity and wider environmental benefits. The combination of practices such as building soil health, crop rotation, organic farming, wildflower areas, agroforestry, uncropped areas, scrub habitats and hedgerows allows pollinator numbers to recover and thrive across the farmed landscape. Embracing such regenerative farming practices – 'putting nature back into the farm' – will enable land to remain productive for agriculture whilst also driving the recovery of wildlife.

Urban areas account for about 18% of Greater Essex⁴³. Here, green infrastructure – that is, green spaces, including verges, street trees, rain gardens, parks, church yards, green roofs and walls – and 'blue infrastructure' – water features of various types – all have huge potential to conserve and support wildlife⁴⁴. Urban areas and the nature within these areas are extremely important not only for biodiversity, but for human health and wellbeing too. As the human population in Greater Essex increased from 1.9 million⁴⁵ to over 2 million by 2024⁴⁶, and continues this upward trajectory, it is crucial that nature is considered across our urban landscape.

Essex has a range of **freshwater and wetland** habitats such as streams, ditches, ponds, rivers, canals, lakes and reservoirs. Rivers in Essex are an essential part of the ecosystem, and support many different species, connect local communities, and provide the link between freshwater habitats and coastal and marine ecosystems. However, in Essex, only 5 out of 91 (5%) water bodies achieve a good ecological classification status, and 18 out of 91 (20%) are poor status⁴⁷.

The Essex coast – the second longest coastline in England – stretches from the Thames Estuary in the south to the port of Harwich in the north. The network of **coastal and marine** habitats in Essex are an extremely important habitat for wetland birds and form a key migration route used by millions of birds each year. However, over the last 400 years, the Essex coast has lost 91% of its intertidal saltmarsh⁴⁸.

Geology and soils vary widely. The characteristic intertidal habitats of Essex are mudflats and saltmarsh. Dynamic coastal habitats of sand, shingle and shell are present in several, more exposed parts of the coast, while the high ground in the northwest corner of the county, around Saffron Walden, holds the most significant natural chalk outcrops as well as boulder clays deposited by glaciers. The land to the south and east is characterised by a combination of chalk and London clay. Active processes still modify the Essex landscape for example erosion along the coast.



More detail on some of these habitats is provided over the following pages.



8.1 Trees and woodlands

Old and Ancient woodland in Essex is varied, as it has without exception been subject to human management and modification over thousands of years, but it falls into two main types which are characteristic within the Essex landscape.

On the free-draining sands and gravels, there is dry Oak woodland, characterised by the dominance of Oak in the canopy with some Silver Birch and Rowan, and Holly often prominent in the understorey. The ground flora in this woodland type is generally less diverse, but is often characterised by an abundance of Bluebell, together with the presence of Bracken.

Most Essex woodland is of a type known as Ash-maple, which is characterised by variable proportions of Ash and Pedunculate Oak in the canopy together with the presence of Field Maple. Alongside Hazel, the understorey is usually dominated by Hawthorn and Midland Hawthorn. The ground flora in these woodlands can be very diverse, especially so on the chalky boulder clay soils in the north and west of the county. Characteristic species include Dog's Mercury, Bluebell, Wood Anemone and Yellow Archangel.

The chalky claylands in the north and west of the county are characterised by old hedges, parkland, and small woodlands in a gently undulating landscape of plateaux cut by small river valleys which are often planted with cricket bat Willows. These are the typical woods of the area; old coppiced Hornbeams, Oaks and small-leaved Limes, with a rich understorey and ground flora and productive stands of Ash and Maple.

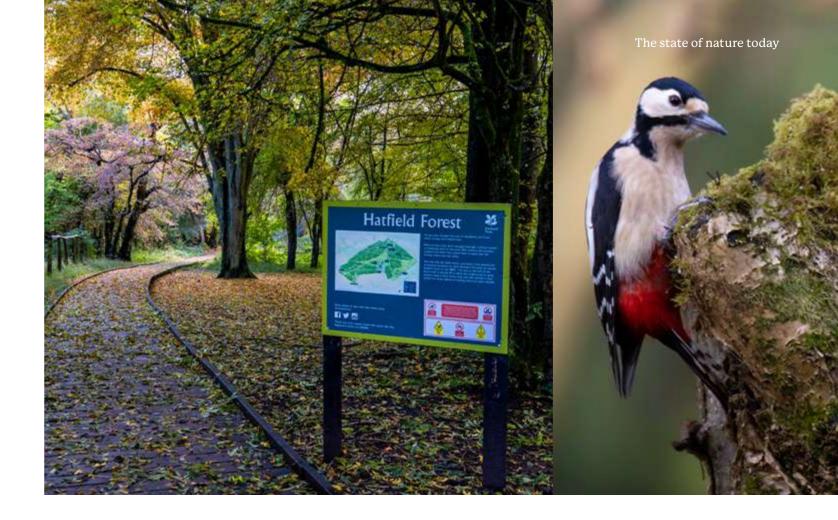
To the south and east, where the boulder clays give way to sand and gravel on the higher ground with London clay in the slopes and valleys, the magnificent veteran Beech trees and ancient wood pasture, once the hunting grounds for London nobility, can be found. Here too there are many ancient Hornbeam, Oak and Hazel coppice woodlands and former heathlands of secondary woods.





Some of the trees at Hatfield Forest are

over 1,000 years old



Key woodland sites in Essex include Hatfield Forest and Epping Forest. Hatfield Forest, National Nature Reserve and Ancient woodland, in Uttlesford, provides habitat for a whole range wildlife, with some of the trees at Hatfield Forest being over 1,000 years old; this ancient woodland is an example of the important biodiversity that Essex is home to. Epping Forest is a haven for people and wildlife, with much of the forest being of national and international conservation importance with two-thirds of the site being designated as a Site of Special Scientific Interest (SSSI).

There have also been large areas of woodland planted around the county more recently, most notably in the Thames Chase Community Forest, where 160 hectares of woodland and scrub have been planted since 1990.

Of perhaps international significance are the many documented veteran trees across the county, where management has in places continued uninterrupted for centuries and where much of our knowledge of the importance of these habitats arises. These trees are highly significant for dead wood invertebrates, bats, and hole nesting birds, but also for their cultural significance, withstanding wholesale changes in our social and environmental landscape.

The populations of the less common woodland birds have suffered in Essex in recent years, but the larger remaining woodlands are important for populations of species such as Marsh Tit, Lesser Spotted Woodpecker and Nuthatch.

Above, left to right: Hatfield Forest, a key ancient woodland site in Essex © Paul Starr; Great Spotted Woodpecker © Jon Hawkins

Essex Local Nature Recovery Strategy

The state of nature today

8.2 Grassland and meadows

Essex contains a wide variety of grassland and meadow types, dependent on underlying soil and geology, and each of these supports particular species, as indicated in the table below.

Habitat	Species
Chalk grasslands	Upright Brome, Greater Knapweed, Stemless Thistle, Clustered Bellflower, Marjoram, Crosswort and Knapweed Broomrape
Chalky boulder clay grassland	Crested Cow-wheat and Sulphur Clover
Chalk quarry	Man Orchid
Acid grassland	Common Bent, Red Fescue, Sweet Vernal-grass, Sheep's Sorrel, Harebell and Tormentil
Neutral Grassland	Common Knapweed, Crested Dog's-tail, Field Scabious, Meadow Vetchling, Agrimony, Lady's Bedstraw and Common Birdsfoot-trefoil
Lowland Meadow grassland	Adder's-tongue, Green-winged Orchid, Pepper Saxifrage and Sneezewort
Permanent pasture along river valleys	Cuckoo-flower and Ragged Robin
Thames Terrace grasslands	Autumn Squill, Clustered Clover, Suffocated Clover and Perennial Flax
Clay slope grasslands	Deptford Pink, Hartwort, Hairy Vetchling, Field Garlic, Bithynian Vetch

Chalk grasslands are mainly found around Saffron Walden, mostly on road verges. Good chalk boulder clay grassland sites, also mostly on road verges but also on the large village greens, are found across Uttlesford District in particular.

Grays Chalk Quarry in Thurrock, where the underlying chalk has been exposed by quarrying, represents a site supporting species of national significance.

Flower-rich grassland is often an important component of open mosaic habitats, such as those found on aggregates sites and previously developed land (brownfield).

Acid grassland habitat is restricted to the areas of more recent sands and gravel surface geology, predominantly in the southern half of the county and is also found in a mosaic with the few areas of heather heath that are now found in the county, the most notable being Tiptree Heath, Epping Forest, Millgreen Common, Galleywood Common and several locations on the Danbury Ridge.

Grassland in Essex is generally neutral (neither acid nor alkaline). This includes the classic Lowland Meadow grassland habitat and nationally more significant species of meadows.

Permanent pasture along the river valley floodplains is generally of low diversity, dominated by palatable grasses and subject to nutrient enrichment from floodwaters.

Thames Terrace grasslands are found on the south facing slopes that run through Thurrock and Basildon Borough. These are free-draining sites, exposed to the south and so are prone to drought in the summer months, which promotes floristic abundance and slows the speed of scrub growth.

Clay slope grasslands, which are more productive and therefore vulnerable to scrub encroachment, are found on the lower slopes of the Thames valley, often called the Thames Foothills.

These last two grassland types are distinct to Essex.

Thames Terrace grasslands and clay slope grasslands are

distinct to Essex

Below, left to right: Barn owl © Jon Hawkins; Great Green Bush Cricket; Grass Emerald Moth



The state of nature today **Essex Local Nature Recovery Strategy**

8.3 Freshwater and wetlands

From ponds in our gardens to rivers flowing through our local neighbourhoods, waterbodies are an important habitat for wildlife. Clean river gravels are essential to freshwater aquatic insects, such as dragonflies and river-flies, and also provide spawning grounds for fish.

Links between land and water are vital in a drained landscape like Essex. Many aquatic species are directly associated with wood, such as fallen branches, and woody debris also provides fish with essential protection from predators. Wet woodland is not a common habitat in Essex, but small blocks and linear forms can be found along all our main river catchments, featuring Alder and combinations of Willow species. Typically occurring as small pockets, wet woodlands can also be found along streams, on floodplains and at the edges of bogs and mires. In the warmer weather, wet woodlands can soon be bursting with life, including Great Crested Newts, dragonflies, damselflies and water beetles.

Most Essex rivers flow from the higher ground in the northwest of the county. The Colne, Blackwater and Chelmer flow southeast to the coast where they form significant estuaries and these rivers represent a key focus for recovery work. Rivers such as the Lee and Roding head south to join the Thames before making their way to the coast. The River Cam and its tributaries flow towards the North of the County.

Below, clockwise from left: Brown trout; Scarce Emerald Damselfly; Bullhead

In the south east of the county, rivers such as the Crouch and the Roach, as well as some of the smaller brooks that flow into Southend, represent important wetland habitats. The valley of the Mardyke forms a highly significant corridor of semi-naturals habitats in an otherwise urban setting. The River Cam and The River Stort systems form almost the entire western boundary of Essex, and are priority habitats for chalk streams. Essex Chalk streams are one of the nationally rare and fragile ecosystems in Essex.

Essex rivers do not demonstrate any distinctive plant communities, probably due to their history of modification and the influence of agriculture run-off and other sources of pollution. However, there are many sections that support a diverse marginal and aquatic flora, with characteristic species such as Purple Loosestrife, Reed Sweet-grass, Water Dock, Branched Burreed, reedmace and Common Reed.

Common Reed is also a common component of the Lowland Fen type vegetation found along the floodplains of our rivers, often in association with willow plantations. These are generally composed of a mosaic of tall herbaceous species such as Hemp Agrimony and Great Willowherb, alongside sedge beds, Reed Canary-grass and marshy grassland. The best examples include species such as Small Teasel, Greater Tussock Sedge.

Although there are no large, natural bodies of standing water in Essex, there are man-made reservoirs at Abberton and Hanningfield, both of which are designated as SSSIs due to their importance for breeding and wintering bird populations.

Essex is home to a handful of deep peat sites. These areas serve as invaluable carbon sinks and are a unique habitat for a variety of plant and





8.4 Coastal and marine

Most of the Essex coast is protected under designations such as Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites⁴⁹, as well as SSSIs and a Marine Conservation Zone (MCZ).

There are multiple nature reserves along the Essex Coast, such as Old Hall Marshes, Tollesbury Wick, Colne Point and Wallasea Island nature reserve, which are home to some of the most threatened beachnesting birds.

Coastal grazing marsh is a habitat for which Essex is nationally important and it consists of land reclaimed from saltmarsh over the last 1,000 years. The water-courses, or fleets, often show a gradient from freshwater to brackish, with an associated diverse plant community that in turn supports a significant variety of invertebrates.

Habitats such as mudflats and saltmarsh can act as natural flood defences as well as benefiting a wide range of birds, plants, mammals, and humans. Intertidal habitats also help to mitigate the effects of climate change, as they act as important carbon stores. The major estuaries in Essex, such as the Colne, Blackwater, Crouch and Roach rivers form an extensive area of estuarine habitat, including open coastal mudflats and sandbanks.

Essex seawall grasslands have a distinctive character that reflects their historic connection with coastal grazing marshes as well as climatic influences and many species of national significance are found in the county's older saltmarsh – see table opposite.





Habitat	Species
Fleets	Great Silver Diving-beetle, Hairy Dragonfly and Scarce Emerald Damselfly
Grassland sward	Meadow Barley, Strawberry Clover, Hairy Buttercup, Knotted Hedge-parsley, Divided Sedge and Spiny Restharrow
Seawall	Slender Hare's-ear, Sea Barley, Curved Hard-grass, Annual Beard-grass, and Least Lettuce
Older saltmarsh	Sea Purslane, Seagrass Saltmarsh, Sea Lavender, Small Cord-grass, Sea Aster, Samphire, Perennial Glasswort, Sea Couch-grass, Golden Samphire and Shrubby Seablight
Coastal sand and shingle	Oystercatcher, Little Tern and Ringed Plover, Sea Holly, Sea Kale, Sea Spurge, Sea Bindweed, Marram, Grey Bush Cricket
Transition from saltmarsh to stabilised shingle	Rock Sea Lavender, Sea Heath and Shrubby Sea-blite

Our coastal sand and shingle support many of the key plant and invertebrate species adapted to exploit the harsh environmental conditions, as well as important populations of ground nesting birds – see table.

The marine environment is similarly home to a wide variety of habitats, such as intertidal seagrass meadows, shellfish reefs and subtidal mud and sandbanks. Seagrass can act as natural flood defences, native oysters can improve water quality, and saltmarshes can store carbon and support commercially important fish species.

Essex is also home to a variety of marine species, such as the common seal, harbour porpoise, native oyster, and eelgrass.



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8.5 Geology and soils

Geology and active processes influence habitats like wetlands, forests, and grasslands, creating diverse landscapes that support biodiversity.

For example, exposed rock can support species of lichens, as well as bare ground surfaces providing habitat for a range of invertebrates and nesting sites for birds, while disused quarries offer refuge for a range of species.

Essex is home to a number of geological sites, including Chafford Gorges Nature Park, Thurrock, which consists of seven geological sites. Spectacular chalk cliffs can be seen here, the chalk being overlain by Thanet sand and gravels from former routes of the Thames during the ice age. Another example is the geological site at Walton on the Naze, Tendring, home to a classic cliff selection in London clay, red crag, brickearth and Thames Gravel⁵⁰.

More than half of the world's species live in soil⁵¹, making it one of the world's most diverse habitats, and it is also important as a store for carbon. Soil is a home for tiny creatures such as bacteria, fungi, insects, worms, and small animals like moles. These organisms play important roles in soil health by breaking down organic matter, recycling nutrients and improving soil structure.

Chalk lands fringe the Essex area. These have dry valleys and shallow, stony, free-draining alkaline soils. Adjacent to the chalk in both the north and the south are sands and gravels which produce dry, less fertile soils. Sandy, free-draining soils top the higher hills of south Essex. Through the centre of Essex, soils on the London Clay are very heavy – these soils expand with winter rains and contract markedly in dry weather.

Glacial till, dumped by the huge Anglian ice sheet that reached Essex from the north, covers much of north west Essex, overlying some of the chalk and much of the younger rock layers. The till is composed of a 'rock-flour' of Jurassic clays and other sediments brought along in the ice. It contains up to 30% chalk fragments together with flint and other rocks⁵². This produces a fertile, clay rich, alkaline soil.

Sand and gravel, deposited by the ancestral Thames flowing from the west, lies beneath the glacial till in north and central Essex. Gravel is found in the sides of valleys where rivers have cut down through the till; here the soil is free draining. In south Essex, spreads of gravel left by the ancient Thames and other rivers produce infertile, dry heathland soils.

In the southeast around Southend and in northeast Essex, windblown deposits from ice-age dust storms produce fertile 'brickearth' and silt. Brickearth, spread by water across gravel terraces, has been extensively quarried for brickmaking despite its fertility. The sides of many river valleys across Essex have been covered by landslip soils, produced during years of freezing and thawing of permafrost. River alluvium and coastal marshland make very fertile soils with high organic and clay-mineral content.



Below, from left to right: Clacton © Paul Starr; Cudmore Grove Erosion © Essex County Council; Essex soil © Paul Starr

