Local Nature Recovery Strategy for Cambridgeshire and Peterborough

Prioritisation and Mapping Methodology

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1. Introduction & Principles

This overview has been prepared to describe the methodology for developing the LNRS.

The LNRS statutory guidance has a strong focus on building ecological connectivity, including identifying areas to join up or expand existing core local nature sites and networks of similar biodiverse habitats across the landscape. We have drawn on the best available ecological advice, considered national environmental objectives, local priorities and adopted an evidence-based approach.

Our approach in developing this LNRS has been to adopt the Lawton Principles, which can be summarised in four words: more, bigger, better and joined, to enable the establishment of larger, more resilient networks of high-quality habitats in Cambridgeshire and Peterborough. The delivery of the LNRS will support our ambition to double the amount of rich wildlife areas and address the nature crisis.

2. Background

As per the Environment Act 2021, each Local Nature Recovery Strategy (LNRS) must include:

1. A Statement of Biodiversity Priorities, including:
    i. A description of the strategy area and its biodiversity
    ii. Opportunities for recovering or enhancing biodiversity in the strategy area
    iii. Priorities for biodiversity recovery or enhancement, considering contributions to other environmental benefits
    iv. Proposals for potential measures related to those priorities

2. A **Local Habitat Map** that identifies:
    i. National conservation sites in the strategy area
    ii. Local Nature Reserves in the strategy area
    iii. Other areas in the strategy area which:
        a. are, or could become, of particular importance for biodiversity, or
        b. are areas where the recovery or enhancement of biodiversity could

The **Local Habitat Map** shows those areas that are already identified as 'of particular importance for biodiversity' (APIBs) - termed ***"core local nature sites"***, and those areas that 'could become of particular importance for biodiversity' (ACBs) - termed ***"opportunity areas"***. These areas are the most important priorities for nature recovery that have been identified locally. These areas are made up of the mapped **actions** (referred to in the Environment Act 2021 as 'potential measures'), which are suggestions for how and where locally identified priorities for nature recovery can be delivered.

In preparing the LNRS, partners were keen not to duplicate work that has been undertaken over the past 25 years to identify nature conservation priorities in

Cambridgeshire and Peterborough. However, it was important to review and if necessary, refresh those priorities based on the latest evidence.

3. Processes for Identifying Priorities

Identifying Priorities

Four major strands of work have been undertaken to inform the LNRS:

a) Identification of **habitat** priorities for Cambridgeshire & Peterborough
b) Identification of **species** priorities for Cambridgeshire & Peterborough
c) Development of the **actions** required to support recovery of the habitats and species identified as local priorities.
d) Identification of opportunities for nature recovery and **mapping of the actions** to support the recovery of the habitats and species identified in (a) & (b) above.

The processes and key steps in the preparation of each of these are set out below.

Habitat Priorities

Priorities are "the end results that the strategy is seeking to achieve"[1] and the following steps were taken to identity habitat priorities in the strategy area.

Step 1. Gathering habitat priorities

Priorities were explored and gathered from the following exercises:

- Wide ranging stakeholder engagement gathering the views of the wider public, interest groups such as catchment partnerships, nature conservation organisations, government bodies, local authorities, farmers and landowners.
- A series of public surveys aimed at interest groups, farmers and landowners and the wider public. It gathered the views of 1400 individuals and 50 community groups.
- Spatial information and plans (e.g. Natural Cambridgeshire Priority Areas, Cambridge Nature Network, and the East Cambridgeshire, Fenland and Huntingdonshire Interim Nature Recovery Networks etc).
- Existing Plans and Strategies (e.g. Cambridgeshire County Council GI Strategy, Peterborough Biodiversity Strategy, and Natural Cambridgeshire Doubling Nature Report, Water Resources East etc.).

Step 2. Create habitat priority long list

All information gathered from step 1 was collated into a long list and refined further with assistance from local experts (ecologists from local authority and conservation organisations, planning & policy officers, Environment Agency officers, farming representatives etc.).

Step 3. Test and refine

Once the long list was completed, the following short-listing activities took place.

[1] LNRS statutory guidance, paragraph 51

- Expert led shortlisting
  - Experts were asked to identify their top 3 priorities for each habitat theme.
  - A total frequency analysis was applied to the outputs.
  - A prioritisation workshop was organised to review the results from the total frequency analysis and agreed 'expert' draft short list.
- Wider stakeholder shortlisting
  - Wider stakeholders were asked to participate in a short list survey, to understand if they agreed with the draft short list.
- Second draft short list created.

Step 4. Check/ format

A group of Local Authority Ecologists was established to:

- Review, adjust and confirm the current list of important habitats identified through the prioritisation process and confirm the criteria, cross-referencing with the wider engagement and species outputs to ensure alignment. This included applying the 'Ratcliffe Criteria', which includes factors such as size, diversity, rarity, and fragility, to assess the nature conservation value and potential of habitats gathered from the exercises above.
- Review, adjust and confirm the current list of priorities, refining / rewording where required. Identify how other environmental benefits and co-benefits are being used in the development of priorities and actions.
- Confirm how these priorities will be presented with justification for each habitat grouping chosen (e.g. theme, BAP priority habitat and local significance).
- Review, adjust and recommend the list of actions, refining / rewording where required.

Species Priorities

The LNRS must describe opportunities, set priorities and propose actions for recovery and enhancement of species. The approach involves two broad stages: identifying threatened and other locally significant species relevant to the strategy area and determining which of these species should be prioritised for recovery action.

We worked closely with the Cambridgeshire and Peterborough Environmental Record Centre (CPERC) to identify species priorities for the strategy area, through the following steps.

Step 1. Create a long list

- Species under the following designations:
  - The International Union for Conservation of Nature (IUCN) Great Britain Red List Threatened (CR, EN, VU) or Near Threatened (NT)
  - UK Biodiversity Action Plan Priority species (UKBAP)
  - Cambridgeshire and Peterborough Additional Species of Interest (CPASI)
  - England Red List Threatened plants

    - Birds of Conservation Concern Red List
    - Nationally Rare
- Species with records on the CPERC database post 1970.
- Consultation with over 40 local experts and recorders added more species.

Step 2. Create a short list

Refinement of long list created in step 1, using the following criteria to create a short list.

Criteria	
Threat	Significant level of threat (at risk of severe population declines or extinction at least at the Cambridgeshire and Peterborough level).
Significance	Native species to Cambridgeshire and Peterborough with long standing populations associated with semi-natural habitats.
Deliverability	Improved or new management interventions would aid the maintenance and recovery of the species, and these are possible.

Step 3. Create priority list

Final development of priority list by:

- Assigning species identified in step 2 into 'habitat-based assemblages', where possible. These are groups of species which share habitat requirements and will benefit from proposed habitat creation and enhancement actions.
- Species for which the strategy area is, or could feasibly be, of national importance or high significance. This included some species that were added despite not meeting the criteria in step 2 (due to having a relatively low local threat level) because a significant proportion of their national range is present in Cambridgeshire and Peterborough. Therefore, Cambridgeshire and Peterborough have a major role in supporting their national population.
- Species to be potentially considered for translocation were added separately, along with a list of species considered as 'wild ambitions', namely those species that could be considered for re-introduction if sufficient areas of suitable habitat were created.
- Develop actions for individual species that describe specific practical actions that, if taken, would contribute to the recovery or enhancement of the priority species.
- The species listed with actions in the main report were chosen primarily because their threat level was deemed to be higher in terms of extinction at the Cambridgeshire and Peterborough level, due to being present at only a few sites in the area or for other reasons which make them vulnerable to steep population declines. Therefore the need for species actions to be listed in the LNRS in addition to the habitat actions was deemed to be higher.

4. Local Habitat Map & Mapping of Actions

The Defra guidance on production of a LNRS requires that a Local Habitat Map is prepared. The Local Habitat Map is a critical component of the LNRS to give visual representation to the local habitat and species priorities identified and the actions required to promote nature recovery.

The Local Habitat Map should comprise at least two mapping layers. The first identifies the **core local nature sites** ('Areas of Particular Importance for Biodiversity'). The second identifies the **opportunity areas** (those 'areas that could become of particular importance for biodiversity' or 'where the recovery or enhancement of biodiversity could make a particular contribution to other environmental benefits'). The **opportunity areas** are those areas where **actions** to restore habitats are mapped to achieve the best outcomes for biodiversity and the wider environment.

Local Habitat Map (Core Local Nature Sites)

We have followed the definition provided by Defra in the statutory regulations and guidance, and further guidance provided by Defra, to identify and map areas as core local nature sites.

The following existing areas were mapped on the Cambridgeshire-Peterborough Habitat Map:

a) All Sites of Special Scientific Interest (SSSI), including GSSSIs, within the meaning of Part 2 of the Wildlife and Countryside Act 1981.
b) All National Nature Reserves declared in accordance with section 35 of the Wildlife and Countryside Act 1981.
c) All Ramsar sites, within the meaning of section 37A of the Wildlife and Countryside Act 1981.
d) All European sites, within the meaning of regulation 8 of the Conservation of Habitats and Species Regulations 2017 (S.I. 2017/1012).
e) All Local Nature Reserves in the strategy area provided under section 21 of the National Parks and Access to the Countryside Act 1949.
f) All National Nature Reserves in the strategy area provided under National Parks and Access to the Countryside Act 1949.
g) All existing 'Local Wildlife Sites' defined as all such sites classified as 'County Wildlife Sites' or 'City Wildlife Sites' as identified by the Local Wildlife Sites partnership and provided for in Local Plans or similar planning policy documents.
h) All areas of irreplaceable habitats, as defined by The Biodiversity Gain Requirements (Irreplaceable Habitats) Regulations 2024.

Local Habitat Map (Opportunity Areas)

Baseline Information – Identification of Potential Habitat Opportunities

The first stage in identifying the potential opportunity areas for the LNRS was to undertake a habitat and ecosystem services modelling exercise across the whole county following a recognised methodology. Although detailed field by field habitat opportunity mapping based on sites visits and up-to-date habitat survey information

has been undertaken across parts of Cambridgeshire and Peterborough this is nowhere near comprehensive. It was therefore decided to adopt a comprehensive approach to covering the whole county, which could later be refined and updated using more detailed local data where this was available.

The chosen methodology followed an approach set out in Planning for Biodiversity – opportunity mapping and habitat networks in practice: a technical guide. English Nature Research Reports, No 687. This approach was further modified to take account of the highly fragmented landscapes of Cambridgeshire and Peterborough. Full details are set out in Appendix 2 but are summarised below:

Step 1: Create a habitat and land use basemap

The first step was to produce a detailed map of the habitats present across Cambridgeshire and Peterborough. To do this, we used Ordnance Survey Mastermap polygons (over 1.8 million) as the underlying mapping unit. A wide range of available data sets were used to classify each polygon to both a Phase 1 habitat type and to a broad habitat type (woodland, grassland and wetland). This basemap provides the best approximation of habitat types that can be achieved based on available data. However, the datasets used vary with age, and no field survey was undertaken so the data, although carefully checked, will inevitably contain errors.

Step 2: Undertake habitat opportunity mapping

The second step was to use computer Geographical Information System (GIS) modelling to identify woodland, grassland and wetland habitat opportunity areas. This was based on the average habitat needs of a typical group of species associated with each broad habitat. A detailed set of rules were applied to the GIS modelling following established ecological principles to identify the habitat creation potential for each land parcel. Constraints such as built-up areas, energy infrastructure or existing high-quality habitats were excluded.

This resulted in the identification of buffer zones around existing habitat patches and the potential for habitat stepping stones in between habitat patches. The width of these buffers varied depending on the habitat size, surrounding land uses and its distance to other nearby habitats. Many of the buffer areas around habitats were relatively narrow, so these were converted to whole fields, an approach recommended by Natural England, as this better represents how land use might change.

The result was the identification for each land parcel of whether it had good or poor potential for woodland, grassland or wetland habitat creation and whether this was as a buffer to existing habitat or as a new habitat stepping stone.

Step 3: Ecosystem services modelling

The third step was to map a range of ecosystem service benefits to each land parcel to identify those that might provide additional benefits to society. The ecosystem service opportunities were combined with the habitat opportunities identified at step 2 to identify land parcels which could deliver multiple benefits. The final maps showing multiple benefits only included those areas which had also been identified as habitat opportunities.

Step 4: Final habitat modelling outputs

The final opportunity maps thereby combine the woodland, grassland and wetland habitat opportunity maps with their ecosystem benefits and identify all potential

opportunities within the LNRS area. This produces a consistent theoretical map of the best habitat opportunities across the whole of the LNRS area.

These maps formed the starting point for the Mapping of Actions, however, there are several limitations to using them:

- The opportunity areas identified cover a significant proportion of the LNRS area and are not prioritised.
- The modelled opportunity areas only relate to broad woodland, grassland and wetland habitats, not to the individual habitat priorities identified through the LNRS prioritisation process.
- The habitat opportunities mapped are highly fragmented reflecting the fragmented pattern of core local nature sites.
- Local stakeholders hold a range of local data and information, often based on recent surveys or site visits, which add greater accuracy to the above theoretical mapping.
- The modelled opportunity areas do not identify or recognise landscape-scale, strategic nature recovery opportunities. There are many initiatives in Cambridgeshire and Peterborough already underway taking a long-term and strategic approach to nature recovery, e.g. Great Fen, Wicken Fen, Ouse Washes Landscape Recovery, John Clare Countryside and Cambridge Nature Network.

Baseline Information – Identification of Priority Landscapes for Nature Recovery

Additional local information is available to refine the modelled habitat opportunity areas. Prior to the LNRS, significant work was undertaken in Cambridgeshire and Peterborough to identify the best areas to promote nature recovery in line with the Lawton Principles and our Doubling Nature vision.

Six priority landscapes were identified by Natural Cambridgeshire from work undertaken over the past 25 years and these are described in part 2 of the LNRS.

- Cambridge Nature Network
- Connected Fens
- Great Ouse Valley
- John Clare Countryside
- Nene Valley
- West Cambridgeshire Hundreds

In addition, other district-scale mapping of habitat networks has been undertaken to identify local landscape opportunities for nature recovery. This includes:

- East Cambridgeshire Interim Nature Network
- Fenland Interim Nature Network
- Huntingdonshire Interim Nature Network
- Greater Cambridge Biodiversity Strategy
- Peterborough Biodiversity Strategy

The above studies have identified **priority natural landscapes** across the whole of Cambridgeshire and Peterborough. These areas support the highest concentrations of priority habitats and species and offer the best opportunities for nature recovery at a landscape-scale. This work forms a key dataset when prioritising nature recovery action and the LNRS actions, refining and adding to the modelled habitat opportunities.

Proposed Habitat Actions

The Local Habitat Map must identify the actions required to support the recovery of the habitats and species identified as local priorities.

The LNRS statutory guidance (paragraphs 65 to 67) gives clear instruction on the writing of the actions ('potential measures'). Key requirements are summarised below:

i. Potential measures should include enough detail so that non-experts can understand their purpose and be able to seek further guidance (if necessary) to carry them out successfully (but not be detailed guidance of how to do something).
ii. Most potential measures should be ways of enhancing existing habitat and creating new habitat and should clearly state the habitat they refer to. A small number of measures that do not involve enhancing or creating habitat may be included where necessary to achieve a strategy priority.
iii. Potential measures should only be included if they are likely to be implemented in the foreseeable future.

A series of stakeholder workshops were held to develop a broad set of actions to deliver locally identified priorities. These were grouped by habitat and species. The actions were then refined by the Local Authority Ecologist Sub-group and Natural Capital Solutions to create a set of mappable actions.

Once the initial set of actions had been mapped a stakeholder mapping workshop was held to review the outputs. This highlighted several areas known to be important opportunities locally either missing from the maps and or the draft actions.

- Initiatives to restore and create habitat networks at a landscape scale in the Fens e.g. Great Fen, Wicken Fen and Ouse Washes Landscape Partnership. Landscape-scale conservation initiatives in the Fens were not identified from the theoretical habitat opportunity mapping so were added as specific actions.
- Some nationally important sites did not have habitat opportunity areas identified around them, or had the wrong habitat type shown, e.g. woodland next to a chalk grassland site.
- Local information from initiatives to create habitat networks focussing on significant core local nature sites e.g. within the John Clare Countryside, Cambridge Nature Network and Great Ouse Valley were not fully represented.
- Some proposed individual habitat banks withing priority natural landscapes were not captured.

The initial mapping highlighted that single habitat actions did not best represent some of the local nature conservation priorities or the need to create mosaics of habitats at both the landscape and site-scale to best support nature recovery locally. As well as

revising the habitat actions to correct obvious errors, an additional habitat mosaic action was written along with a set of **site-specific actions** to reflect existing nature recovery initiatives underway or planned by local stakeholders.

The writing of the actions and the preparation of the Local Habitat Map showing the opportunity areas was revised through an iterative process, whereby the actions were re-written based on the mapped outputs and vice versa. A second stakeholder workshop was held to review the changes and to finalise the mapping of **actions** on the Local Habitat Map.

Proposed Site-specific Actions

The Defra / Natural England LNRS guidance on mapping actions encourages being as specific as possible when recommending a particular habitat action on a parcel of land. The aim is to create a Local Habitat Map that provides information to landowners / managers on what would be the preferable priority habitat to create within any given land parcel.

In some areas one habitat is a clear priority, however in many areas, combinations of habitats in proximity would be ecologically more beneficial, and in many locations more than one habitat type could provide an equally beneficial outcome. This is particularly the case when trying to achieve nature recovery in an intensively farmed and highly fragmented lowland landscape such as Cambridgeshire and Peterborough.

In response to this a set of **site-specific actions** were identified from the detailed nature network mapping studies undertaken locally**.** Specific parcels of land have been identified from fieldwork and discussions with landowners to identify the best opportunities for habitat restoration and creation within many of the priority natural landscapes. These opportunities often cover multiple habitats, and the desired outcomes are usually mosaics of habitats across a local landscape area and sometimes even within the same field. These were mapped separately as **site-specific actions** and not included in the mosaic layer.

Through the stakeholder engagement and consultation, additional actions were identified by individual landowners and stakeholders e.g. proposed Habitat Bank sites. These were also mapped as **site-specific actions**, where they were within priority natural landscapes and otherwise not identified from the habitat opportunity mapping.

Proposed Species Actions

The mapping is predominantly habitat driven rather than species driven, as by safeguarding habitats and working towards a nature recovery network this will benefit many species across Cambridgeshire and Peterborough, rather than focussing on the specific conservation needs of a single species.

The LNRS Species Priorities section (see part 2) describes which species are associated with specific habitats and where action for those habitats is likely to conserve the species or help it to recover.

However, for some species habitat specific actions were not sufficient. For these species bespoke actions were identified. However, our current approach is that bespoke actions for species will not be mapped. When rare species require bespoke actions in very specific locations, sharing these locations could increase their vulnerability. In addition, some species which require bespoke actions could be distributed across a larger landscape or across the whole of the strategy area so mapping these actions would not be feasible or useful.

Mapping of Actions and Opportunity Areas

Our approach to mapping and prioritising individual **actions** (measures) whether they are related to habitats, species, landscapes or are site-specific is set out below.

Actions were not mapped to designated nature sites (SSSIs) because there is already a legal duty on landowners to manage these sites.

The approach to defining and mapping the actions followed the Lawton principles of:

- **More** – Increase the extent of habitat to meet the Cambridgeshire and Peterborough Doubling Nature ambitions and to achieve 30% high-value habitat cover in discrete priority natural landscape areas.
- **Better** – Enhance the ecological condition of designated sites and other high-value nature sites identified as Core Local Nature Sites on the Local Habitat Map.
- **Bigger** – Buffer and extend the Core Local Nature Sites to provide more space for species to expand their populations and range.
- **Joined** – Create stepping stone habitats, functional nature corridors and more nature-friendly land uses, whether farmed or urban, to provide an environment in which species can move between Core Local Nature Sites in response to environmental changes.

Although the combined habitat opportunity and ecosystem services mapping is based on the Lawton principles, it produces a set of habitat opportunities that are not prioritised. Where multiple habitat opportunities exist within an area, these areas were mapped to an additional habitat mosaic action (Create Action M1A).

Natural England advised against widespread and unprioritised mapping, requesting that actions were targeted to those areas where it is possible to achieve the best nature recovery outcomes and ensure the effective allocation of limited resources.

The different approaches were chosen to identify more land for nature recovery within the **priority natural landscapes** identified from previous detailed Nature Network mapping undertaken across Cambridgeshire and Peterborough. These provide the best opportunity for achieving approximately 30% land cover of high-value habitats within discrete local landscape areas to deliver nature recovery in line with ecological principles. Focussing on these areas also represents the most efficient way of achieving the local Doubling Nature ambitions.

Other factors used to prioritise mapping of individual habitat actions and the identification of opportunity areas were the size of habitat parcels (a minimum size threshold was applied to all create actions) and their proximity to other parcels, following the Lawton principles.

The method combined a data driven, evidence-based modelling approach with an expert opinion derived approach to deliver the best of both approaches.

The final approach taken to mapping each of the individual habitat **actions** and resulting habitat **opportunity areas** on the Local Habitat Map is set out below:

Theme 1: Woodlands

Lowland Mixed Deciduous Woodland

Wo1A Enhance Action - enhance the management of unmanaged woodlands with a minimum size of 1 hectare to UK Forestry Standards to achieve a varied structure and greater diversity.

Method: All mixed deciduous woodland over 1 Ha (from the habitat basemap) that were also within unmanaged woodland identified in the Forestry Commission's dataset: Woodland that is sustainably managed in England were selected.

Any unmanaged woodlands within the Nene Washes, Great Fen, Holme Fen, Wicken Fen and Chippenham Fen were removed, as these woodlands are managed for wetlands, not woodlands.

Reasoning: The Lawton principles are '**more**, bigger, **better**, and joined up'

Woodlands constitute less than 4% of the strategic area, and there are few large woodlands. Consequently, even smaller woodlands, although supporting lower biodiversity and exhibiting less structural diversity, serve as essential refuges for wildlife, enhance landscape diversity, and provide a greater proportion of edge habitat compared to larger woodlands. Additionally, they offer higher pro-rata ecosystem services than their larger counterparts. When managed effectively, woodlands of all sizes deliver multiple benefits; therefore, the management of numerous small woodlands, along with more diverse, larger woodlands, will contribute both to local nature recovery and wider environmental outcomes.

Wo1B Enhance Action - enhance all woodlands of at least 1 hectare and within 200 metres of ancient woodlands by managing to UK Forestry Standards to achieve a varied structure and greater diversity and act as corridors, stepping stones or buffers.

Method: All mixed deciduous woodlands over 1 Ha (from the habitat basemap) that were also within 200m of ancient woodlands (identified by Natural England's Ancient Woodland Inventory) were selected.

Reasoning: Enhancing woodland adjacent or close to ancient woodlands will buffer, expand and enhance protection for these irreplaceable habitats. It will also provide better quality habitat that can be easily colonised from source populations in the ancient woodlands.

Wo2A Enhance Action - restore designated plantations on ancient woodland sites back to appropriate native species.

Method: All woodlands from the ancient woodland inventory (Natural England dataset) identified as 'PAWS' were selected.

Reasoning: Planted ancient woodland sites still retain ancient soils and often the remnants of ancient woodland flora and fauna. They are a priority for restoration to native tree and shrub species, which should be completed over the next 10 years before the ancient woodland seedbank starts to degrade significantly.

Wo3A Create Action - improve biodiversity by creating mixed deciduous woodland consisting of appropriate native or climate change tolerant (European only) species to increase resilience and diversity. Such newly created woodlands are to be within 2.5 kilometres of existing woodland, though in practice to be much closer (ideally within 500 metres). Newly created woods would ideally form a woodland block (or group of

woodlands within 200 metres of each other) which are ideally at least 40 hectares in size. Woodland creation would be expected over approximately 80% of the site area mapped under this measure, with the remaining 20% a mosaic of other complementary habitats such as species-rich grassland, scrub, ponds, and individual trees.

Method: The woodland opportunity map derived from the habitat opportunity modelling was prioritised by focusing on opportunities close to nationally designated sites and ancient woodlands everywhere, but also including opportunities close to locally designated sites in the priority landscape areas.

Reasoning: Creating larger woodlands by expanding existing ancient woodlands, or as large new stepping stones in well-wooded areas will be the quickest and most efficient way of starting nature recovery. The size recommendation is to encourage the creation of woods or groups of woods that can support the full range of woodland habitats and be of a size which is efficient to manage. Additional opportunities were selected in the priority landscape areas, as these areas have already been highlighted as key areas for nature recovery, and it is better to focus resources on these key areas rather than create small areas of woodland across the wider landscape. Focusing on designated sites and ancient woodlands means that we are expanding and connecting the most important sites.

Wo3B Create Action - deliver wider environmental benefits such as improving water quality, air quality and reduce flood risk through tree and woodland creation in appropriate locations such as upper catchment locations, adjacent to rivers and close to centres of population. Such sites should be a minimum of 0.5 hectares.

Method: This uses the woodland combined opportunities layer (described in the Identification of Potential Habitat Opportunities section), which combines woodland opportunities with opportunities to deliver multiple environmental objectives. The amount of environmental benefit that could be delivered in each location can be quantified, and the areas that delivered the top 20% of multiple benefits were then selected. Opportunities for this action were not restricted to the priority landscape areas.

Reasoning: Delivering environmental objectives is a key component of the LNRS, and this action enables us to show where woodland can be created that would deliver the greatest quantity of environmental benefits at the same time as delivering biodiversity benefits. It is not restricted to the priority landscape areas as the best opportunities often occur close to where people live.

Wet Woodland

Wo5A Enhance Action - enhance the management of existing wet woodlands to create varied woodland structure at the site and landscape scale, in line with the UK Forestry Standard.

Method: Existing areas of wet woodland were identified from the habitat basemap. Note that this habitat type is underrepresented in the basemap, due to a lack of data showing which woodlands are wet woodlands. Hence there will be additional areas of wet woodland that are not currently shown, but should nevertheless be targeted for enhancement.

Reasoning: This action is to encourage management of all wet woodland of any size within the LNRS area, due to the scarcity of the habitat.

Wo6A Create Action - create wet woodland within appropriate hydrological areas, consisting of native or climate change resilient (European only) species. Newly created wet woodland should not be created in areas that buffer internationally designated areas such as the Ouse and Nene Washes, archaeological sites, or where wet grassland, fen and floodplain meadow habitats have been identified as priorities for habitat creation without further consultation.

Method: Opportunities to create woodland close to designated sites and ancient woodlands were mapped (see the Identification of Potential Habitat Opportunities section) and those that also lay on the indicative floodplain, as identified using EA Flood Zone 2, were considered potential locations for wet woodland. All opportunities were initially selected due to the scarcity of wet woodland. However, opportunities were removed from land within the Ouse and Nene Washes Swan and Goose Functional Land area, from archaeological sites and where wet grassland, fen or floodplain meadow habitats were also identified as priorities for habitat creation.

Reasoning: This action is to encourage the creation of wet woodland of any size within the LNRS area, where hydrological conditions are suitable, due to the scarcity of the habitat. However, woodland planting is not appropriate within areas identified as critical feeding areas for the internationally important numbers of swans and geese associated with the Washes. It is also not appropriate on archaeological sites. Finally, wet grasslands, fens and floodplain meadows are a higher local conservation priority, so these take precedence over wet woodland creation.

Wood Pasture and Parkland

Wo7A Enhance Action - enhance the biodiversity value of designated or other mapped parkland and wood pasture sites, ensuring protection of and continuity of veteran and ancient trees in accordance with best practice, and the provision of complementary habitats such as species-rich grasslands, ponds and wetlands.

Method: All registered parks and gardens (from the Historic England dataset) with the addition of the following parks in Ely: Dean's Meadow, Ely Castle, and Cherry Hill were selected.

Reasoning: This action is to encourage management of wood pasture and parklands of any size within the LNRS area, due to the value of the habitat including their veteran and ancient trees.

Traditional Orchards

Wo8A Enhance Action - restore and enhance the biodiversity value of traditional orchards. Where possible ensure such enhancements deliver gains for cultural and landscape continuity and for the genetic diversity of fruit trees. Enhance grasslands under the fruit trees to create complementary species-rich habitats.

Method: All traditional orchards of any size within the LNRS area were selected due to the local importance of this habitat.

Reasoning: This action is to encourage management of all traditional orchards including the genetic diversity of local fruit varieties, the protection of veteran orchard trees and the enhancement of complementary habitats, particularly species-rich grasslands.

Wo8B Create Action - create traditional orchards close to existing traditional orchards. These should deliver enhanced biodiversity and heritage value through the planting of heritage variety fruit trees and the creation of species-rich grassland.

Method: Using the woodland opportunity mapping (derived for the habitat opportunity modelling), all opportunities that were close to existing traditional orchards were selected.

Reasoning: This action is to encourage buffering and extension of traditional orchards within proximity of existing orchards, to foster movement of species and more efficient management.

Theme 2: Grasslands

Lowland Calcareous Grasslands

G1A Enhance Action - enhance existing chalk and limestone grassland sites to create a diverse set of micro-habitats to support the diversity of scarce and common species associated with this habitat.

Method: All calcareous grassland sites of any size within the LNRS area, but outside the designated sites, were selected due to the local importance of this habitat.

Reasoning: This action is to encourage management of all calcareous grassland that is not already designated, to support species-rich grasslands and their associated species.

G1B Create Action - improve biodiversity by creating species-rich calcareous grassland adjoining to, and up to 500 metres from, existing designated and other chalk and limestone grasslands. There is no minimum site size, but larger sites are preferable (in combination with other complementary habitats), and there should be a realistic ambition for sites to become priority habitat in the future.

Method: The semi-natural grassland opportunity map derived from the habitat opportunity modelling was prioritised by focusing on opportunities close to nationally designated sites everywhere, and also including opportunities close to locally designated sites in the priority landscape areas. Only those opportunities where the underlying geology is calcareous in nature were retained.

Reasoning: This action is to encourage buffering and extension of calcareous grasslands within proximity of existing sites, to foster movement of species and more efficient management. Additional opportunities were selected in the priority landscape areas, as these areas have already been highlighted as key areas for nature recovery,

G1C Create Action - deliver wider environmental benefits such as runoff reduction, water quality enhancement and potential access to nature, by creating species-rich calcareous grassland in appropriate locations.

Method: This uses the semi-natural grassland combined opportunities layer, derived from the habitat opportunity modelling, which combines grassland opportunities with opportunities to deliver multiple environmental objectives. The amount of environmental benefits that could be delivered in each location can be quantified, and the areas that delivered the top 20% of multiple benefits were then selected. Only those opportunities where the underlying geology is calcareous in nature were

retained. Opportunities for this action were not restricted to the priority landscape areas.

Reasoning: Delivering environmental objectives is a key component of the LNRS, and this action enables us to show where calcareous grassland can be created that would deliver the greatest quantity of environmental benefits at the same time as delivering biodiversity benefits. It is not restricted to the priority landscape areas as the best opportunities can occur anywhere.

Lowland Meadows

G2A Enhance Action - enhance existing species-rich neutral grassland sites to support the diversity of scarce and common species associated with this habitat.

Method: All lowland meadow sites of any size within the LNRS area, but outside the designated sites, were selected due to the local importance of this habitat.

Reasoning: This action is to encourage management of all lowland meadows that are not already designated, to support species-rich grasslands and their associated species.

G2B Create Action - improve biodiversity by creating species-rich neutral grassland adjoining to, and up to 500 metres from, existing designated and other neutral grassland sites. There is no minimum size threshold, but larger sites are preferable (in combination with other complementary habitats) and therefore should be a realistic ambition for site to become priority habitat in the future.

Method: The semi-natural grassland opportunity map derived from the habitat opportunity modelling was prioritised by focusing on opportunities close to nationally designated sites everywhere, and also including opportunities close to locally designated sites in the priority landscape areas. Only those opportunities where the underlying geology is not calcareous in nature were retained.

Reasoning: This action is to encourage buffering and extension of lowland meadows within close proximity of existing sites, to foster movement of species and more efficient management. Additional opportunities were selected in the priority landscape areas, as these areas have already been highlighted as key areas for nature recovery,

G2C Create Action - deliver wider environmental benefits such as runoff reduction, water quality enhancement and potential access to nature, by creating species-rich neutral grassland in appropriate locations.

Method: This uses the semi-natural grassland combined opportunities layer, derived from the habitat opportunity modelling, which combines grassland opportunities with opportunities to deliver multiple environmental objectives. The amount of environmental benefits that could be delivered in each location can be quantified, and the areas that delivered the top 20% of multiple benefits were then selected. Only those opportunities where the underlying geology is not calcareous in nature were retained. Opportunities for this action were not restricted to the priority landscape areas.

Reasoning: Delivering environmental objectives is a key component of the LNRS, and this action enables us to show where lowland meadows can be created that would deliver the greatest quantity of environmental benefits at the same time as delivering biodiversity benefits. It is not restricted to the priority landscape areas as the best opportunities can occur anywhere.

Theme 3: Wetlands

Lowland Fens & Floodplain wet Grasslands and associated habitats

We2A Enhance Action - manage floodplain wetland mosaics through sustainable grazing to create habitats that are wetter for longer and support a greater diversity and abundance of wetland flora and fauna, including breeding and wintering wetland birds.

Method: All lowland fen and floodplain wet grassland sites of any size within the LNRS area, but outside the designated sites, were selected due to the local importance of this habitat.

Reasoning: This action is to encourage management of all wetland sites that are not already designated, to enhance the habitat and support a greater diversity and abundance of wetland flora and fauna.

We1A Create Action - in the following large-scale Fenland wetland vision areas: Wicken Fen; Great Fen; Ouse Washes Landscape Area; and Nene Washes, together with surrounding areas associated with such Vision Areas, create mosaics of wetland habitats such as fens, reedbeds, wet grasslands for breeding and wintering waterbirds, ponds, wet woodlands and other complementary habitats.

Method: The areas selected correspond to landscape-scale wetland restoration and creation vision areas within the Fens being taken forward by stakeholders and the priority natural landscapes identified from district Nature Network mapping. The latter cover the remnant peat soils adjacent to the internationally important wetlands in the Fens. In addition, the lowland wet grassland and wetlands opportunity map derived from the habitat opportunity modelling was used to select more local opportunities close to existing sites.

Reasoning: This action is to include the landscape-scale wetland restoration visions being taken forward by the National Trust, Wildlife Trust and RSPB to buffer and extend our internationally important wetlands and provide space for the associated species to expand their populations. The areas identified include all areas of peat soils adjacent to the internationally important wetlands, to promote land uses and farming methods that protect the peat soils and reduce the carbon emissions associated with current arable farming practices. In addition, it encourages the buffering and extension of wetlands within close proximity of existing sites, to foster movement of species and more efficient management.

We3A Create Action – create areas of floodplain wetland mosaics within the embanked floodplain land of the major rivers to enhance connectivity between wetland sites and reverse habitat fragmentation to support diverse species assemblages.

Method: Opportunities close to nationally and locally designated sites, and all opportunities close to existing lowland fen habitat, were selected.

Reasoning: This action is to ensure all areas of natural floodplain form part of the nature recovery network and form habitat corridors through the landscape. The large areas of grassland between the embankments of major rivers provide significant opportunities to create wet grassland habitats suitable for breeding and wintering waterbirds.

Reedbeds

We4A Enhance Action - enhance existing reedbeds to benefit the bird and invertebrate species associated with this habitat. This can include managing reeds to a variety of heights at different stages of growth, areas of wet reedbed with varying water depths, dry reedbed and a network of open water pools and channels.

Method: All reedbed sites as identified on the Local Habitat Map were selected.

Reasoning: This action is to encourage positive management of reedbeds for their associated priority species.

We4B Create Action - create reedbed habitats that are resilient to climate change in suitable locations beyond the landscape-scale wetland vision areas. Large examples are likely to be associated with the restoration of mineral sites.

Method: All reedbed creation opportunities were selected due to the importance of this habitat for priority species. This included sites identified through habitat opportunity mapping (as above), as well as sites identified by stakeholders.

Reasoning: This action is to encourage reedbed creation in strategic locations with the biggest and best opportunities being associated with restoration of sand and gravel mineral sites.

Gravel Pits, Lakes and Reservoirs

We5A Enhance Action - enhance existing former sand and gravel pits sites through best practice management to maintain areas of open water, fringing reedbeds and other wetland habitats such as pollard willows and wet woodland for wetland birds, invertebrates and flora. Reduce nutrient enrichment and pollution and where necessary reprofile edges to create shallow sloping margins and bare areas for natural regeneration.

Method: Sites were identified where locally designated (e.g. CWS) open water (and associated) habitats occurred on former sand and gravel pits.

Reasoning: This action is to encourage positive management of former gravel pits and other bodies of open water to support larger populations of wetland species.

We6A Create Action – around the Fens reservoir create a range of wetland habitats including reedbeds and wet grassland. This measure does not apply to the reservoir itself.

Method: The location of the Fens Reservoir was selected.

Reasoning: The Fens Reservoir will be a major new landscape and habitat feature in the Fens once constructed so should be shown on the Local Habitat Map.

Theme 4: Rivers and Floodplains

Rivers

RD1A Enhance Action – establish natural or semi-natural buffer zones 50 metres wide adjacent to all rivers to improve river water quality, and consequently their biodiversity value and ecological functionality. Within such buffer zones, appropriate measures should be introduced which both enhance biodiversity and reduce sediment or pollutant run off into the water. Restore natural function of the river channel through restoration of natural processes, reconnecting rivers with floodplains and creating

backwaters and backchannels to provide fish spawning and riparian habitats along the river.

Method: A buffer zone of 50 metres wide either side of all rivers (identified using the OS Open Rivers dataset) that were not chalk rivers was selected, and constrained areas (such as infrastructure, existing high quality habitats, and historic sites) were removed.

Reasoning: This action is to buffer all rivers including tributaries to protect water quality and create habitat corridors through the landscape. A 50m buffer was chosen on advice from the EA, which also matches buffer distances used in a number of other LNRS's in the region.

Chalk Streams

RD3A Enhance Action – establish natural or semi-natural buffer zones 50 metres wide adjacent to all chalk rivers and their headwaters, winterbourne sections and springs to improve river water quality, and consequently their biodiversity value and ecological functionality. This will help reduce sedimentation of rivers by better land management of the chalk river catchment to create habitats that help prevent soil erosion and stop sediments entering watercourses. It will also help prevent spray drift from agricultural activities into the chalk rivers.

Method: A buffer zone of 50 metres wide either side of all chalk rivers, their headwaters, and springs was selected, and constrained areas removed. Chalk rivers were identified using the Chalk River (England) dataset, from Natural England. A 50m buffer was chosen on advice from the EA, which also matches buffer distances used in a number of other LNRS's in the region.

Reasoning: This action is to buffer all chalk streams and their water sources to protect water quality and create habitat corridors through the landscape.

Fenland Main Drains

RD4A Enhance Action - Maximise opportunities for nature in fen main drains by choosing nature-supporting and enhancing maintenance and management approaches such as enhancing in channel habitats to provide more habitat for wetland wildlife alongside managing flood risk and water levels.

Method: All fen statutory main rivers (identified by the EA) and main drainage channels (from data supplied by drainage boards) were selected.

Reasoning: This action allows for the Drainage Boards to implement channel habitat improvements in line with their statutory biodiversity duty.

RD4B Create Action - within corridors 50 metres either side of the fen rivers and main (excluding the 20 metre internal drainage board bylaw maintenance corridors) drains, create wetland stepping-stone habitats including, reedbeds, fens, wet grassland, ponds and open water features.

Method: A buffer zone of 50 metres wide each side of the Fen statutory main rivers and main drains was selected to provide landscape-scale opportunities for the creation of wetland stepping stone habitats across the Fens. Constrained areas were removed.

Reasoning: This action is to encourage strategic habitat creation corridors through the fens landscape.

Fen Drainage Ditches

RD5A Enhance Action - maximise opportunities for nature in fen drainage ditches by choosing nature-supporting and enhancing maintenance and management approaches such as enhancing in channel habitats to provide more habitat for wetland wildlife alongside managing flood risk and water levels.

Method: All IDB (Internal Drainage Board) drains were selected (from data supplied by IDBs).

Reasoning: This action allows for the Drainage Boards to implement channel habitat improvements in line with their statutory biodiversity duty.

RD5B Create Action – establish uncultivated riparian buffer zones at least 15 metres wide from the top of the bank (including the 9 metre internal drainage board bylaw maintenance corridor). Plant or promote low growing, non-woody vegetation such as diverse grasses or wet grassland mixes that are compatible with regular ditch maintenance operations, to provide habitats for nature.

Method: All IDB drains were selected with a buffer zone of 15 metres, with constrained areas removed.

Reasoning: This action is to encourage the creation of habitat buffers across the Fens landscape and to reduce pollution and sedimentation entering the water courses. 15 metres was chosen to allow a 6m buffer in addition to the IDB statutory access rights within 9 metres of a IDB drainage ditch.

Theme 5 Habitat Mosaics

M1A Create Action - Where two or more mapped actions arise on the same land parcel, the preference (but not compulsory) is to create mosaics of the identified habitats, with at least one of the habitats of a sufficient quality to meet the minimum standards for that habitat.

Method: This groups together the create actions for the five main habitats: woodland, grassland, wetland, rivers and floodplains (includes enhance actions), and urban. It then overlays these layers, shows where these overlay and how many different habitats overlay.

Reasoning: This action allows for the creation of multiple habitats and mosaics of habitats in specific locations where a single preferred habitat type is not obvious.

Theme 6: Urban Parks and Green Spaces

Urban Parks and Natural Greenspaces

U1A Enhance Action – enhance the biodiversity value of parks and green spaces within our cities, towns and villages including allotments, churchyards, country parks, public parks and gardens, community gardens and river corridors.

Method: Parks and open spaces data were obtained from the Cambridgeshire and Peterborough Future Parks Project. Unsuitable types of open space, such as sports pitches and play areas were screened out.

Reasoning: Urban parks and natural greenspaces provide access to nature for the majority of local people and are proven to provide for a wide range of environmental

and health benefits. They provide the best opportunities to support nature recovery within urban areas.

U2A Create Action - create new natural greenspaces prioritising areas at most risk of health impacts (as identified by the Environmental Justice Index). New natural greenspaces would be of a minimum 0.5 hectares in size, with larger sites preferable, to contribute to natural greenspace accessibility standards.

Method: The habitat opportunity maps (woodland, grassland and wetland) described in Step 2 of the Identification of Potential Habitat Opportunities section were combined and then filtered so that only those opportunities in or adjacent to urban areas and larger than 0.5 ha were selected/retained. These were then prioritised by selecting the opportunities that fell within the 50% highest scoring wards according to the Environmental Justice Index.

Reasoning: The creation of new natural greenspaces close to areas of urban deprivation can contribute to improving the quality of life outcomes for these areas helping to provide recreation benefits, access to nature and improve mental well-being, and improve air quality and local climate regulation. The Environmental Justice Index (developed as part of the Cambridgeshire and Peterborough Future Parks Project), scores each ward across the area by bringing together multiple indicators across the broad themes of health and deprivation, environmental risk, and natural greenspace access and demand. The highest scoring wards (so selected here), suffer from higher levels of deprivation, higher exposure to environmental risk, and lower access to natural greenspace but with high demand. A minimum size threshold of 0.5 ha was used as this corresponds to the smallest Accessible Natural Greenspace Standard (ANGSt) for a doorstep greenspace as recommended by Natural England.

U2B Create Action - deliver nature-based solutions through tree planting and woodland creation in beneficial locations within urban areas and close to centres of population to provide benefits such as air quality improvement, urban cooling, noise pollution, climate change resilience, and health and wellbeing.

Method: This uses the woodland combined opportunities layer (described in the Identification of Potential Habitat Opportunities section), which combines woodland opportunities with opportunities to deliver multiple environmental objectives. The amount of environmental benefits that could be delivered in each location can be quantified, and the areas that delivered the top 20% of multiple benefits were then selected. Opportunities were restricted to those located in or adjacent to urban areas and larger than 0.5 ha in size.

Reasoning: The creation of new urban woodlands and tree cover can provide recreation benefits, access to nature and improved mental well-being, and improve air quality and local climate regulation.

U2C Create Action - deliver new strategic natural greenspaces at the proposed Whittlesey Country Park and as an extension to West End Park, March.

Method: The boundaries of the two proposed sites were provided by Fenland District Council.

Reasoning: Identified as a nature recovery opportunities in the recent report prepared by the Wildlife Trust for Fenland District Council for which mapped boundaries were supplied.

Transport Corridors

U4A Create Action - connect fragmented habitats through the delivery of strategic wildlife crossings of major road and rail infrastructure (e.g. identify locations where green bridges would support landscape connectivity and nature recovery).

Method: Priority locations for green bridges identified by Local Ecologists working with Natural England in 2024 were selected.

Reasoning: Transport infrastructure can provide significant barriers to wildlife dispersal and migration. The creation of green bridges in selected locations will improve landscape connectivity as adaptation to climate change impacts.

Theme 7: Farmland

Arable Land & Field Margins

F1A Unmapped Action – identify hotspots of rare arable plant species and promote suitable stewardship in field and margin measures in the areas around these hotspots.

F1B Unmapped Action – identify hotspots for declining farmland bird assemblages and promote a suite of suitable Stewardship measures in the areas around these hotspots.

Reasoning: These actions apply throughout the farmed landscape and are too extensive to map. They are required to identify the priority locations where specific actions should be targeted and may identify areas to be added to a future version of the Local Habitat Map.

Ponds

F2A Unmapped Action – manage networks of farm ponds to support aquatic biodiversity as well as provide a valuable water source for terrestrial wildlife.

F2B Unmapped Action - restore historic ponds that have been previously infilled (ghost ponds). Ponds should be surrounded by uncropped and unsprayed buffers to prevent pollution.

F2C Unmapped Action - create networks of new farm ponds across the farmed landscape, particularly on clay soils. Prioritise locations that provide connection / stepping stones to existing areas of priority habitat and wildlife sites. Creation of clusters of two or three ponds is better than single ponds. Ponds should be surrounded by suitable uncropped and unsprayed buffer zones or other habitat types to prevent pollution. Ponds should be created following best practice design.

Reasoning: These actions apply throughout the farmed landscape and are too extensive to map.

Temporary Pools

F3A Unmapped Action – identify the best locations to create temporary water bodies and pools in chalk landscape locations known to support species associated with this scarce habitat type. Avoiding ploughing and spraying of seasonally wet areas, and do not create permanent ponds.

Reasoning: This action applies to specific areas of the chalk farmed landscape, but further work is required to map the priority locations where it should be targeted. This will identify locations to add to a future version of the Local Habitat Map.

Hedgerows

F4A Unmapped Action – enhance the biodiversity value of existing hedgerows to maximise their wildlife benefits through the implementation of best practice hedgerow management.

F4B Unmapped Action – identify all fen droves with important populations of elms or assemblages of invertebrate species and prioritise the protection and enhancement of the hedgerows and associated grasslands.

F4C Unmapped Action - plant new native hedgerows to create ecological links between two existing features such as woodlands, priority hedgerows and historical hedgerows. Where such new hedgerows are created, they should be buffered by strips of uncultivated land at least six metres wide adjacent to at least one side of the hedge created.

F4D Unmapped Action – create networks of hedgerows between core local nature sites within the priority natural landscape areas on clay soils, as listed below:

- West Cambridgeshire Hundreds
- Cambridge Nature Network: Boulder Clay and Woodlands
- East Cambridgeshire Nature Network: Boulder Clay Woodlands; Soham Grasslands; Chettisham to Ely North
- Huntingdonshire Nature Network: Grafham-Brampton-River Kym; fen edge Woodlands; Folksworth-Etton-Ashton Wold; and Hail Weston to Bushmead

Reasoning: These actions apply throughout the farmed landscape, particularly on the claylands, and are too extensive to map. The actions support nature-friendly farming and the delivery of landscape-scale change in those priority natural landscapes where woodland and hedgerows are a target habitat.