



# Statement of Biodiversity Priorities Oxfordshire's Local Nature Recovery Strategy

Draft version 06 September 2024



OXFORDSHIRE  
COUNTY COUNCIL

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# Local Nature Recovery Strategy (LNRS) draft Statement of Biodiversity Priorities.

Oxfordshire. Draft version, 06 September 2024.

## Introduction

'Biodiversity' is a term that refers to the variety of all life forms (sometimes called species) including plants, animals, fungi, and micro-organisms. A stable and healthy variety of species provides people with a wide range of benefits that enable people to survive, from fresh water, clean air, and climate regulation to food, medicines, and more. These benefits do not typically come from individual species but from a rich variety of species working together as functioning habitat systems.

## What is the draft Statement of Biodiversity Priorities?

In 2023, authorities across England were asked by Government to start developing [Local Nature Recovery Strategies](#) (LNRSs) aiming to publish these in 2025. One element of the LNRS is the 'Statement of Biodiversity Priorities' which is a written list of realistic, ambitious, and deliverable priorities to achieve in the county. Each statement of biodiversity priorities must set out 'the priorities, in terms of habitats and species, for recovering or enhancing biodiversity (taking into account the contribution that recovering or enhancing biodiversity can also make to other environmental benefits)'. Priorities are the outcomes which the strategy aims to achieve to benefit biodiversity. Each statement of biodiversity priorities must also include 'proposals as to the potential measures relating to those priorities'. Potential measures are the practical actions which, if taken, would contribute towards delivering the priorities. Examples of potential measures could include actions like 'rotational coppicing of native woodland to provide dormouse habitat' or 'ditch blocking to re-wet degraded peat to mitigate climate change'. The priorities identified by every local nature recovery strategy should reflect local circumstances and local opportunities including the most important biodiversity issues to local people and organisations.

The types of actions which could be included as LNRS 'potential measures' are:

- Actions to create, improve, or restore habitats (expanding and/or enhancing habitat or changing management practices to better support biodiversity)
- Actions needed to benefit specific local species\*
- Actions to connect up habitat areas to improve the resilience of nature and enable species to move through the landscape

\* Local species in this document means those which are already present in (or near) an area, and those which could become local or present in or near that area (considering those species that may migrate or move, and species which may be translocated or introduced to suitable habitats).

It contains a table that shows a list of priorities (outcomes to achieve for Oxfordshire) and the potential measures (specific actions which would help to achieve each priority). Within this document you will also see 'wider benefits' which are the improved services which Oxfordshire could benefit from if we achieved each of the priorities. These are further explained within Appendix 1. People and organisations across Oxfordshire will need to be supported to deliver these actions across the county and this will require an investment of resources from a range of sources to support Nature recovery efforts.

**Under the Environment Act (2021), the written statement of biodiversity priorities must include:**

- a description of the strategy area and its biodiversity (which can be found as one of our key LNRS [consultation](#) documents called the 'Description of the Strategy Area')
- a description of the opportunities for recovering or enhancing biodiversity in the strategy area
- the priorities for recovering or enhancing biodiversity (taking into account the contribution that this can also make to other environmental benefits)
- proposals for potential measures relating to those priorities (potential measures are found within this document and those which are specific to particular species can be found on the [consultation](#) draft 'Species Priorities List').

### How does the Statement of Biodiversity Priorities fit with the other LNRS documents?

The LNRS Statement of Biodiversity Priorities is one of four key LNRS elements (three core written documents and one map tool). Some of the potential measures from this statement of biodiversity priorities have been mapped onto the LNRS draft Local Habitat Map. The purpose of mapping the measures, is to create a shared vision of locations where habitat action could be focused by local people and organisations to create a connected network of nature and achieve the local biodiversity priorities. Whilst many measures could be possible in a variety of locations, the LNRS draft Local Habitat Map only shows the locations where these measures could have the greatest impact on achieving the priorities and would achieve greater connectivity of biodiverse habitats across the landscape. By mapping specific locations to take such actions, the LNRS aims to drive funding towards achieving action in these areas. Where a potential measure could feasibly be delivered in many locations across the county, responsible authorities were not expected to map specific locations unless it was clear that the measure(s) would have great benefit to biodiversity if delivered in particular locations.

## Who is this document for?

Local Nature Recovery Strategies may be used by a wide range of groups and people who may want to deliver local priorities through action including:

- Environmental charities and organisations
- Landowners and managers (including growers, graziers, and producers)
- Local authorities and planners
- Government organisations, such as Natural England, the Environment Agency, Forestry Commission, and National Highways
- Businesses
- Local groups, communities, parish councils

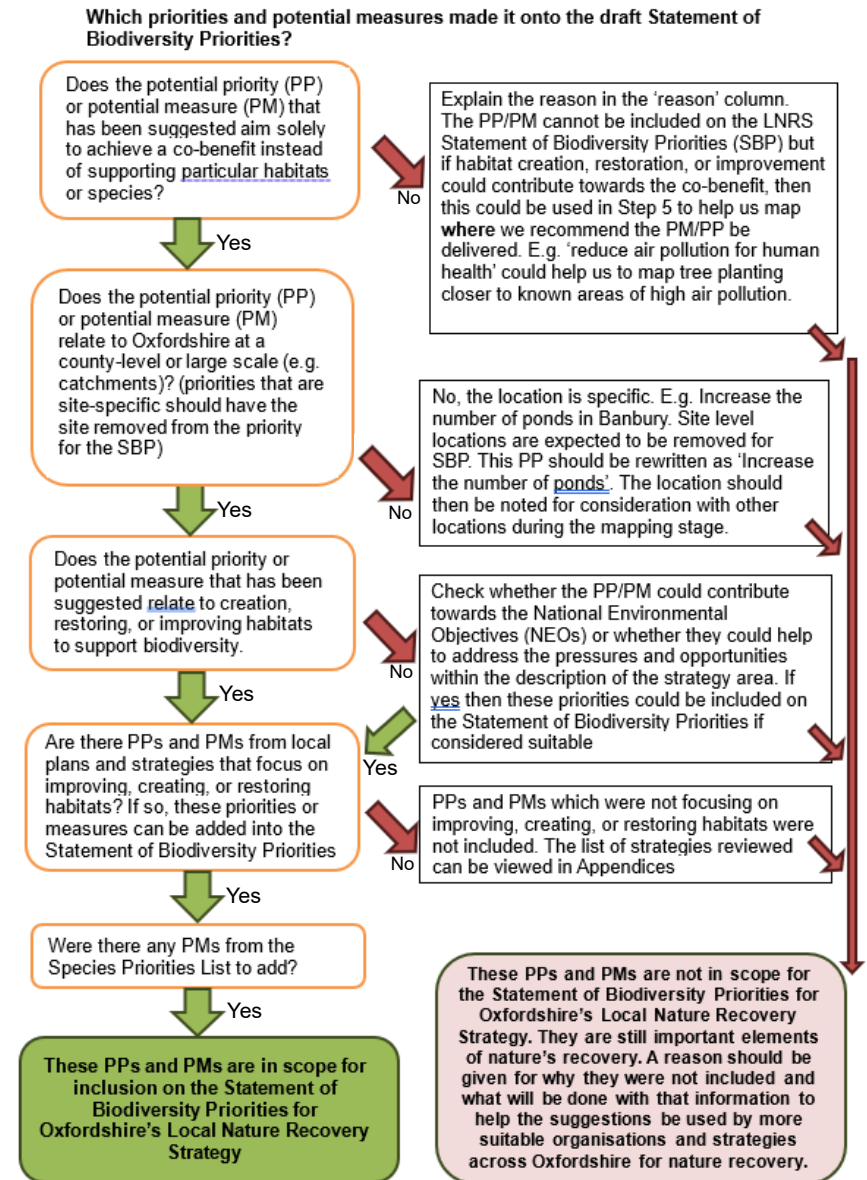
## How was this list made?

This draft 'Statement of Biodiversity Priorities' was produced by first collecting the actions and priorities from local people and organisations who joined our workshops and used our survey in February and March 2024. We received 7,959 mentions of priorities and actions that people wanted to see be achieved in Oxfordshire and these were grouped into themes e.g. 'create meadows', 'improve river condition'. The LNRS was able to include the 4,667 comments which mentioned creating or improving habitats for biodiversity. We were unable to include actions which don't relate to habitat creation or improvement since these are outside the legal scope of the LNRS. These mostly included requests to:

- Stop or reduce house building, developments, and infrastructure
- Regulate, fine, or punish, for poor practice
- Stop the creation of pollution
- Reduce litter, traffic, or pets

Whilst the LNRS is not the appropriate strategy to resolve those requests, it is of key importance to nature's recovery that each of these issues are addressed by their relevant authorities and organisations.

On this page you can then see an image which shows a flowchart of the process taken to include or exclude priorities and potential measures. The full process



and further information about the 7,959 comments we received can be viewed on the LNRS [website](#). The strategies which contributed to this process can be found in Appendix 2.

In Oxfordshire, the process of agreeing the priorities and potential measures which are included in this document was overseen by representatives from a range of organisations (see Appendix 3). These representatives helped to shape and refine priorities and potential measures and helped to sense-check the process whilst reviewing the priorities of local people and organisations from our workshop and survey results. To view further documents and spreadsheets that show how the draft statement of biodiversity priorities was made in more detail, please view the documents on Oxfordshire County Council's LNRS [website](#).

### How will the LNRS 'Statement of Biodiversity Priorities' contribute towards national environmental objectives?

Statements of Biodiversity Priorities were asked to include priorities which contribute towards national environmental objectives (NEOs) including those legally binding targets established by the Environment Act. This is so that local nature recovery strategies can also work together coherently at a national scale to recover and enhance biodiversity and improve the natural environment across England. Examples of national environmental objectives that all local nature recovery strategies priorities should seek to contribute to are:

- mitigating climate change (for example, through the potential measure of planting trees)
- improving the water environment (for example, through the potential measure of creating wetlands)
- mitigating flood risk (for example, through the potential measure of restoring degraded upland peat)

The table also indicates how the priorities and measures could help to deliver wider benefits, focusing on 'ecosystem services'. These are described in more detail in Appendix 1. The table lists some examples of the main services that could be enhanced through each group of measures. This shows that the LNRS can contribute to other important policies and priorities for the county, such as tackling climate change and improving public health and wellbeing. However, the actual benefits delivered will depend on many factors (see Appendix 1 for more detail).

## How to navigate this document?

On the next page, you will see the table which contains 37 biodiversity 'priorities' and 79 'potential measures'. The measures are actions which could be taken to achieve their relevant priorities. The priorities are grouped by habitat types starting with 'Grasslands including scrub'. Each priority and each potential measures also has an identification code which increases in numerical order (e.g. 'PM01', 'PM02' and so on) so that you can more easily look up codes for measures shown on the Local Habitat Map to find further information. Links are included throughout this document to help readers find useful guidance on how to create or improve habitats but you can search for alternative guides, for example [here](#).

## Is every potential measure mapped onto the Local Habitat Map?

Not all of the measures are mapped onto the Local Habitat Map, those which are mapped are indicated within the table below. All of the potential measures below could be delivered across various places in the county and there is not always complete data about where all of the habitats are or could be. These unmapped measures should be conducted in suitable places after a site is identified as being suitable to achieve their relevant priorities (e.g. nature-friendly farming measures and measures for gardens, towns, and cities). However, it was possible to map focused locations for delivering a third of the measures. These measures have been mapped to locations where habitat creation or improvement work would offer the greatest benefits towards achieving biodiversity priorities and towards creating a network of nature through the county.

**The next pages list the draft Statement of Biodiversity Priorities and the potential measures in a table.**

## Statement of Biodiversity Priorities

#	<b>Priority</b> In bold you will find the priority. A priority is a key outcome to achieve for Oxfordshire.  Underneath the priority, you will see some wider benefits which could be delivered by achieving each priority.	#	<b>Potential Measure (PM)</b>  In bold you will find the potential measure (action) that, if taken, would be expected to contribute towards achieving the priority (left).  Underneath the potential measure you will find further information.
<b>Grassland (including scrub)</b>			
Please note that wet grassland has been included within a section below called 'Rivers, streams, standing water, wetland habitats and floodplains'.			
P1	<b>There are more grassland habitats which are larger and better connected in Oxfordshire which include scrub and mosaic habitats.</b>  Wider benefits: Food production, Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Erosion protection, Water quality regulation, Carbon storage, Pollination, Pest control.	PM01 (mapped)	<b>Create areas of calcareous species rich grasslands in suitable locations, particularly slopes.</b>  Follow management <a href="#">guidance</a> and handbooks to create new areas of <a href="#">calcareous grassland</a> habitat on suitable soils.  Some locations were regularly mentioned by people and organisations for this action to occur, however this is not an exhaustive list: White Horse Hill and Hackpen Hill, steep calcareous banks and slopes, Berkshire Downs border.
		PM02 (mapped)	<b>Create areas of neutral species rich grasslands in suitable locations</b>  Follow management <a href="#">guidance</a> and handbooks to create new areas of <a href="#">neutral grassland</a> habitat on suitable soils.



		PM03 (mapped)	<p><b>Create varied physical ground structure when creating new grassland habitats.</b></p> <p>Whilst creating new grasslands, use techniques to create a more varied physical ground structure similar to the lumps and bumps of historic delves. Seek opportunities to keep areas of thin skeletal soils as well as areas of rocky, bare, and disturbed ground with a variety of aspects and gradients. Aim to support varieties of sward heights suitable to the location and local species. This can be done on any new habitat (including <a href="#">quarry restoration</a>).</p>
P2	<p><b>Improve and manage existing species rich grassland to become wildlife-rich and achieve good ecological condition long-term.</b></p> <p>Wider benefits: Food production, Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Erosion protection, Water quality regulation, Carbon storage, Pollination, Pest control</p>	PM04 (mapped)	<p><b>Improve (or maintain a high quality of) existing calcareous grassland.</b></p> <p>Use land management <a href="#">techniques</a> to improve or support grassland biodiversity, especially in ancient and unimproved grassland. Plan to undertake cutting, collecting, and/or grazing of vegetation according to the broad habitat requirements whilst working to meet the specialist needs of species in the area. Where appropriate, continue hay-making practices and manage grazing of sites flexibly in response to seasonal variations in vegetation growth. See <a href="#">guidance</a> on management.</p>
		PM05 (mapped)	<p><b>Improve existing neutral species rich grasslands using management to maintain and improve grasslands to support biodiversity.</b></p> <p><a href="#">Maintenance</a> through hay making and or grazing should be planned according to the broad requirements of the habitat whilst working to meet the specialist needs of any particularly notable species in the area.</p>

		PM06	<p><b>Maintain or introduce grazing, cutting, or mowing techniques to achieve diverse grasslands that support local species on existing grassland including ancient and species-rich grassland.</b></p> <p>Introduce or maintain management <u>techniques</u> and grazing regimes that are site-appropriate using breeds which achieve a variety of sward heights and structures to benefit local species. Consider utilising traditional and rare breeds which are hardy and well suited to conservation grazing. Aim to create periodic disturbance of the soil and turf to create bare ground which encourages the dispersal of many flowering plant species. Where species require short turf, cut, graze, or mow some areas of grassland vegetation across calcareous, acid, and sandy sites to maintain a short sward and a low nutrient grassland. Using grazing to maintain the turf and to disturb the soils could be used on these sites in spring, autumn, and winter but grazing and cutting times may change based on seasonal weather changes or particular species that you may be working to conserve.</p>
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P3	<p><b>There are more areas of scrub and pockets of 'messier, less tidy, areas' created and kept for their importance to biodiversity.</b></p> <p>Wider benefits: Education and knowledge, Interaction with nature, Carbon storage, Flood protection, Erosion protection, Air quality regulation, Cooling and shading, Pollination, Pest control.</p>	PM07	<p><b>Create and maintain pockets of diverse scrub on grasslands as suitable.</b></p> <p>Continue management to prevent excessive scrub from taking over species rich wildflower grasslands but where appropriate, integrate scrub habitat creation into the site to increase biodiversity. This can be achieved through allowing occasional areas of <a href="#">scrub</a> to grow within or around <a href="#">grasslands</a>, to provide shade for animals, livestock, people, and to offer food, nectar, and shelter to invertebrates, birds, and wider species. Scrub on floodplains can provide a refuge for invertebrates and reptiles during prolonged flooding. Aim to allow different pockets of scrub to grow up at different points in time to create a variety of ages including much older scrub. Also aim for diversity of tree and shrub species, various shapes, and sizes of scrub pockets. This could be achieved through low intervention techniques (e.g. fencing an area off from browsing and/or allowing natural regeneration). Accept changes to community composition (the types and amounts of different species within your scrub growth) when driven by climate change.</p> <p>A large number of locations were mentioned by people and organisations for this action to occur and this should be applied to all grasslands including parish nature reserves and local projects where suitable land has been acquired to allow nature to recover itself.</p>
		PM08	<p><b>Manage existing areas of scrub to create a varied age and physical structure including glades and scalloped edges.</b></p> <p>Avoid damaging or removing existing scrub habitat for fear of untidiness, this habitat is dynamic (changes quickly) and is a complex mix of grassland and woody habitat that offers great value to biodiversity but which has often been removed by people.</p>

P4	<p><b>Improve the connectivity of habitats. Have more grasslands which are bigger, better, and more joined up. (Increase the size, heterogeneity and connectivity of existing grasslands and factor this into long term site management objectives)</b></p>	PM09	<p><b>Grassland habitats are better connected amongst a mosaic of habitats across Oxfordshire.</b></p> <p>The creation of new wildflower grassland is prioritised in locations where they would make existing areas of habitat better, bigger, and more joined up across Oxfordshire. This would contribute towards creating a large, functioning ecological network of grassland and open habitats which are fit for purpose and which allow wildlife to move through landscapes whilst adapting to climate change.</p>
	<p>Wider benefits: Recreation and leisure, Aesthetic value, Interaction with nature, Sense of place, Erosion protection, Water quality regulation, Carbon storage, Pollination, Pest control</p>	PM10	<p><b>Reduce barriers to wildlife movement (enable, improve, or create animal crossings)</b></p> <p>This could be achieved through various techniques including the reduction of physical barriers or the creation of multifunctional barriers (which allow more, suitable species through). Create and maintain corridors along or through fences and hedges which connect to neighbouring land to support animals and/or people to be able to move through the landscape without barriers.</p>
		PM11	<p><b>Use grazing techniques which minimise or reduce the need for permanent physical fencing</b></p> <p>Aim to use techniques to suitably control the movement of grazing livestock whilst reducing the need for permanent physical barriers that limit the movement of other animals through the landscape. Within pasture and grasslands, consider approaches like regularly moving livestock through fields by creating 'cells' within those fields that you move regularly using electric wire fencing. Collar-based virtual fencing and other technology is also rapidly developing and could enabling grazing animals to be focussed on particular locations and moved as needed to achieve the best conservation outcomes.</p> <p>A particular location within Oxfordshire where you can see this being practiced is <a href="#">FAI farm</a> in Wytham.</p>

P5	<p><b>There are more road verges which are managed to allow wildflowers to grow in safe locations across Oxfordshire.</b></p> <p>Wider benefits: Aesthetic value, Sense of place, Erosion protection, Carbon storage, Pollination, Pest control.</p>	PM12 (mapped)	<p><b>Improve (or maintain a high quality of) existing road verges including road verge nature reserves to increase biodiversity.</b></p> <p><u>Manage</u> road verges to allow them to grow by reducing the cutting regime and/or by cutting late in the year where suitable. <u>Management</u> should aim to allow plants and wildflowers to grow, flower, and set seeds for the future. Manage verges for any particular species which may be rare. Reducing cutting patterns can support a range of wildlife including insects to complete various life cycles with greater success. Where road verges already are being managed in this way, continue to do so in safe and suitable locations where vegetation and cut vegetation do not reduce the safety of road or path users (i.e. they do not block paths, roads, or lines of sight).</p>
		PM13	<p><b>Create new road verge nature reserves (RVNR) to allow wildflowers to grow, flower, and set seed by changing their management.</b></p> <p>Creating new RVNRs should be completed in safe and suitable locations where vegetation and cuttings would not block paths, roads, or lines of sight. Avoid using topsoil to create new verges, consider laying out cuttings from existing local road verge nature reserves to spread local seeds and increase biodiversity. Plan for long-term changes to the cutting pattern to reduce the number of cuts, this allows existing seeds from those places to flower and set seeds again. See a range of creation techniques and guidance <a href="#">here</a>.</p>
		PM14	<p><b>Where new roads are created assess the opportunity for new road verge nature reserves.</b></p> <p>Create and manage road verges for biodiversity in suitable locations.</p>

P6	<p><b>Improve the population abundance of grassland and scrub species that need specific additional potential measures</b></p> <p>Wider benefits: Education and knowledge, Interaction with nature, Sense of place, Pollination, Pest control.</p>	N/a	<p>See the draft 'Species Priorities List' to see the potential measures which could be taken to support species that use and benefit from habitats within this type of environment. Some of these measures are mapped.</p>
<b>Heathland and acid grassland</b>			
P7	<p><b>Improve the condition of Oxfordshire's existing pockets of lowland heathland and acid grassland</b></p> <p>Wider benefits: Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Erosion protection, Pollination, Pest control.</p>	PM15 (mapped)	<p><b>Improve and manage existing heathland and acid grassland habitats to increase their quality and biodiversity.</b></p> <p>Use suitable techniques to increase the quality and biodiversity of these habitats to avoid losing these habitats and specialist species from Oxfordshire. <a href="#">Techniques</a> that support <a href="#">heathland</a> and acid grassland species can include grazing to control scrub encroaching (though some scrub can be beneficial), cutting gorse and heather, removing bracken, creating patches of bare ground and scraping. Bring in <a href="#">actions</a> which may support any specialist species which are present in the area. Preventing nutrient enrichment is needed in this habitat type and it can be important to prevent some activities which present particular challenges to <a href="#">heathland</a> success (trampling and disturbance to ground nesting birds). On <a href="#">acid grassland</a>, aim to create and manage a variety of sward heights including areas of short sward with bare ground and soil disturbance.</p> <p>There are some examples of these types of habitats found across Boars Hill, Frilford Heath, Shotover and other areas in Oxfordshire.</p>

P8	<p><b>Create (or restore) areas of lowland heathland and acid grassland in Oxfordshire.</b></p> <p>Wider benefits: Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Erosion protection, Carbon storage, Pollination, Pest control.</p>	PM16 (mapped)	<p><b>Create new habitat areas of heathland and acid grassland on suitable soil types.</b></p> <p>Create new areas of heathland and/or acid grassland habitat with a commitment to long term management. The opportunities in Oxfordshire are very limited for this habitat creation because the type of soil and site requirements are very specific. Aim to create a diversity of topographical features and sward structures including areas of short sward with patches of bare soil.</p> <p>Some locations were regularly mentioned by people and organisations for this action to occur however this is not an exhaustive list: Muswell Hill and surrounding areas, North Leigh Common.</p>
P9	<p><b>Improve the population abundance of species that need specific additional potential measures within heathland and acid grassland habitats.</b></p> <p>Wider benefits: Education and knowledge, Interaction with nature, Sense of place, Pollination, Pest control.</p>	N/a	<p>See the draft 'Species Priorities List' to see the potential measures which could be taken to support species that use and benefit from habitats within this type of environment. Some of these measures are mapped.</p>

Mixed habitats including wood pasture, parkland, orchards, and open mosaic habitats

<p>P10</p>	<p><b>More existing habitats are well managed to support biodiversity and to improve their ecological condition. Including areas which have a matrix of habitat types including wood pasture, parkland, orchards, and open mosaic habitats.</b></p> <p>Wider benefits: Food production, Wood production, Recreation and leisure, Aesthetic value, Interaction with nature, Education and knowledge, Sense of place, Carbon storage, Air quality regulation, Cooling and shading, Pollination, Pest control.</p>	<p>PM17 (mapped)</p>	<p><b>Improve (or maintain a good condition of) existing wood pasture and parkland to support local species.</b></p> <p>Within wood pasture and parkland, <u>manage</u> the habitat and <u>trees</u> to maximise longevity of site-appropriate species and retain mature and large trees (including dead, dying, and decaying trees and wood). Where trees are coming to the maturity or end of life, ensure the emergence (or planting) of new, site-suitable trees within the existing habitat. This practice is designed diversify the ages of trees present in the habitat and to ensure the possibility of future generations of veteran and ancient trees. Preferably start allowing the growth of (or planting) new generations before the existing mature trees are lost. Trees should be suited to the location and future climates.</p> <p>Many locations were regularly mentioned by people and organisations for this action to occur however this is not an exhaustive list of existing parks and estates: Ashdown Park, Ditchley Park, Blenheim Park, Glympton Park, Kiddington Park, Heythrop Park, Middle Barton and Sandford St. Martin Park, Watlington Park, Kirtlington Park, Bletchingdon Park, Tusmore and Shelswell Parks, Coleshill Park and Buscot Park, Faringdon, Barcote and Pusey, Cornbury Park, Eynsham Hall, Shotover House.</p>
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	PM18	<p><b>Existing ancient and veteran trees are well managed to achieve good ecological condition and to support species that they support.</b></p> <p>Live, dead, and dying ancient and veteran trees are in good ecological condition <u>managed</u> to support the important assemblage of species which they support at all stages of their life. Prioritise actions to increase the longevity of existing mature and veteran trees and identify potential future planting locations of suitable species near existing trees to provide ecological continuity of veteran trees, ensuring supply of dead and decaying wood.</p> <p>Oxfordshire is home to some exemplar ancient and veteran trees and groups of trees including at Blenheim (which is believed to have the <a href="#">largest collection of ancient oaks in Europe</a>) and Ashdown Park.</p>
	PM19	<p><b>Create more veteran features in mature non-veteran trees.</b></p> <p>Create continuity in ancient and veteran trees by managing suitable trees using veteranizing techniques to promote longevity of existing ancient and veteran trees, creating veteran features in mature non-veteran trees (such as creating canopy deadwood by selective ringbarking on limbs) and planting or supporting existing trees to develop into veterans of the future.</p>
	PM20 (mapped)	<p><b>Improve (or maintain a good condition of) existing orchards for biodiversity.</b></p> <p><u>Manage orchard trees</u> to maintain health and longevity of the trees. Allow dead, decaying, dying wood, and fungi to be present in the orchard where this doesn't damage the longevity of the orchard. Retain cushion bracket fungus on prunus fruit trees. Do not remove or burn deadwood. Retain and encourage mature and over-mature standing trees, keep some standing deadwood and deadwood on living orchard trees. Control scrub within orchards (allowing for small pockets where possible) and manage invasive non-native species which cause damage to orchards. When restocking existing orchards, consider including varieties with a view to future-proof the orchards from changing weather patterns.</p>

		PM21	<p><b>Improve (or maintain a good condition of) existing ‘open mosaic habitat on previously developed land’ (OMHPDL) to conserve and enhance biodiversity on these open, dynamic areas.</b></p> <p>Conserve and enhance land where open habitats of mixed scrub, grassland, and wetlands have developed including in corners of agricultural land and on brownfield sites. <u>Manage</u> these sites to support species which may be present and maintain an open, dynamic nature to these areas.</p>
		PM22	<p><b>Improve habitat condition and biodiversity by introducing or maintaining flexible grazing regimes where appropriate (and/or cutting and collecting).</b></p> <p>Where grazing or cutting is suitable and possible, maintain flexible options to be able to respond to increased variation in weather patterns, floods, and drought. Consider using traditional and rare breeds which are hardy and well suited to conservation grazing. Where necessary, protect trees from long-term damage caused by grazing animals.</p>
P11	<p><b>More areas of mixed habitat are created in Oxfordshire including wood pasture, parkland, orchard, and open mosaic habitats to support biodiversity.</b></p> <p>Wider benefits: Food production, Wood production, Recreation and leisure, Aesthetic value, Education and knowledge, Sense of place, Carbon storage, Air quality regulation, Flood regulation, Erosion regulation, Water quality regulation, Cooling and shading, Pollination, Pest control.</p>	PM23 (mapped)	<p><b>Create new parkland and wood pasture.</b></p> <p>Plant (or facilitate the growth of) new trees to create new wood pasture and parkland, using appropriate tree species which support local species and are adapted for the location and future climates. It should be noted that oaks are particularly important within such habitat settings. Expanding existing areas of mature parkland and wood pasture can be particularly beneficial to the survival and spread of species within existing mature habitats which could be achieved through local seed sourcing.</p>
		PM24	<p><b>Create new areas of habitat which contain a matrix of habitat types including small woodland patches, scattered trees, scrub, and grassland.</b></p>

		<p><u>Create</u> new areas of habitat containing a mix of trees, scrub and grassland, which could be achieved through options like planting or by allowing natural regeneration. This is often suitable near woodland edges to create a transition habitat between woodland and grassland. Creating these areas can support both woodland and grassland species.</p>
	PM25	<p><b>Create new areas that contain, trees, parkland, or wood pasture to contain future ancient and veteran trees within suitable areas.</b></p> <p>Suitable areas could be fenced off to allow trees to grow up naturally. Trees or seed could also be planted and managed to establish new trees. If planting trees, use local species where possible, you could also consider sourcing some trees or seed from a provenance which can tolerate, resist, or enjoy various climate conditions where necessary. Diverse tree selection may better enable newly planted trees to be able to survive and become ancient and veterans in a warmer future climate although this should be based on the latest climate prediction.</p>
	PM26	<p><b>Create new orchards or restore orchards in areas where there used to be traditional orchards, using a diverse range of trees.</b></p> <p>Plant or grow fruiting <u>trees</u> as an <u>orchard</u>. Choose trees which are adapted to the site including local or heritage varieties and consider varieties which could tolerate future climates. Trees can vary by rootstock, fruit type, and variety. Aim to create a diverse habitat that differs from neighbours and has a <u>management</u> plan created for long-term care of orchard trees and includes management techniques to support local orchard species.</p>

<p>P12</p>	<p><b>Create more large, connected, functioning areas of ecosystems which contain a matrix of diverse habitat types within them to create rich, biodiverse natural spaces.</b></p> <p>Wider benefits: Food production (wild), Wood production, Water supply, Recreation and leisure, Education and knowledge, Interaction with nature, Sense of place, Flood protection, Water quality regulation, Carbon storage, Air quality regulation, Cooling and shading, Noise reduction, Pollination, Pest control.</p>	<p>PM27</p>	<p><b>Create new large areas which contain a mix of habitats suitable to the site to benefit wildlife.</b></p> <p>These large areas are encouraged to include a variety of suitable habitat types for the area, possibly including but not limited to: grazed grassland, scrub, trees, open water, wetland, rivers, and/or woodland. Consider allowing natural processes like natural colonisation of trees (guarded or unguarded) to create a complex mosaic of new habitats which are encouraged to be wild, diverse, and connected. Consider reducing intensive human management of habitats and consider utilising traditional breeds and species which are hardy and well suited to conservation grazing or creating dynamic habitats that support biodiversity.</p> <p>This action could be delivered across a range of locations and not all locations can be listed. Some were regularly mentioned by people and organisations including: Gibbets Close Hill, Witney. The Bernwood Otmoor Ray area where proposals are underway to create a strategic landscape-scale <u>project</u> to connect the Otmoor, Bernwood, and Ray Nature Recovery Area across county borders.</p>
<p>P13</p>	<p><b>Improve the connectivity of open habitat types.</b></p> <p>Wider benefits: Recreation and leisure, Aesthetic value, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Pollination, Pest control.</p>	<p>PM28</p>	<p><b>Use techniques which minimise or reduce the need for permanent physical fencing that prevent animals crossing through the landscape.</b></p> <p>Aim to Increase the size, heterogeneity and connectivity of existing habitats and factor this into long term site management objectives.</p>

P14	<p><b>Improve the population abundance of species that need specific additional potential measures within mixed habitats including wood pasture, parkland, orchards, and open mosaic habitats.</b></p> <p>Wider benefits: Education and knowledge, Interaction with nature, Sense of place, Pollination, Pest control.</p>	N/a	<p>See the draft 'Species Priorities List' to see the potential measures which could be taken to support species that use and benefit from habitats within these habitat types. Some of these measures are mapped.</p>
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## Woodlands

P15	<p><b>Existing woodlands are diverse and are managed to achieve good ecological condition. They act as a rich source of biodiversity to disperse wildlife across the landscape.</b></p> <p>Wider benefits: Food production (wild), Wood production, Recreation and leisure, Aesthetic value, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Air quality regulation, Cooling and shading, Noise reduction, Pollination, Pest control.</p>	PM29 (mapped)	<p><b>Improve and enhance existing woodlands to support and benefit biodiversity by taking actions which are suitable for the woodland type, age, and species.</b></p> <p>Aim to achieve healthy woodlands which have a diversity in tree age, woodland structure, woodland edges, and ground flora.</p> <p>Create and manage rides and glades within woodlands to increase light penetration to the ground in suitable locations and achieve wide, open areas with zones that achieve a variety of shade and ground cover. Avoid overshadowing the ground flora and allow periodic disturbance along rides to support ground flora to set seeds (can be achieved through time-limited, controlled grazing by cattle/horses). Position rides and glades to encourage greater continuity and connectivity of grassland and grassland edge habitats. Avoid compacting or waterlogging the soil to retain important fungal networks. Along woodland edges, create buffer areas of grassland margins with scrub transition areas where suitable for the area.</p>
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			<p>Consider using areas affected by significant diseases to create glades and open spaces within woodlands. Create, retain, and manage ponds and areas of water within woodlands. Position pond creation and small waters near to any existing water to encourage greater continuity and connectivity of water corridors across habitats. Consider rewetting woodlands by blocking drainage to increase their invertebrate populations and provide more food for insectivorous birds. See management <a href="#">toolkits</a>, <a href="#">advice</a>, and <a href="#">UK Forestry Standard</a>.</p> <p>This would be a suitable action to take for all woodlands. Diverse woodlands can be found across Oxfordshire with some examples in Wychwood Forest, Waterperry, Shabington Woods, Shotover, and Brasenose Wood but there are many more.</p>
		PM30	<p><b>Create management plans for existing woodland for biodiversity, health, and longevity</b></p> <p>Management plans would include strategies for managing older trees and planning for successions of younger trees to increasing diversity. Through management, aim to maintain and improve genetic diversity within woodland trees and shrubs to combat pests and diseases that threaten tree survival. Include any actions or techniques which can support local species and consider the management of unsustainable species populations where necessary to benefit biodiversity and woodland health and longevity.</p> <p>Many locations were regularly mentioned by people and organisations for this action to occur including all woodlands without active management plans so the following is not an exhaustive list: Dean Wood, Hammonds Wood, North Grove (Chilterns), Buckland Warren Woods, Badbury Forest, North Leigh Common, Dean Wood Local Wildlife Site, Stonesfield and Bridgefield Brake, Bernwood Forest Nature Reserve, Ditchley Park, Noke Wood, Cookes Copse, Long Wood, Stow Wood, Crays Pond, Sonning Common, Nettlebed. Sandford Brook at Cothill, Hurst Hill, Appleton, Tubney Wood. Bottom Wood, Whitecross Green Wood, Fulbrook and Minster Lovell.</p>

		PM31	<p><b>Manage populations of species which reach unsustainable levels so that existing woodlands are in good ecological health to support a diverse range of species.</b></p> <p>This includes managing grey squirrels, deer populations, rhododendron and other invasive and non-native species to minimise negative impacts on the health and diversity of woodlands. Collaborate across land ownership boundaries to control species at a scale that will help to support the natural regrowth of woodlands and regeneration of new young trees. Consider the use of fencing, tree protection, sustainable population control, and emerging new techniques using certified people or organisations.</p>
		PM32 (mapped)	<p><b>Increase diversity within existing ancient woodland to improve woodland condition and benefit local species.</b></p> <p>Aim to improve structural diversity where needed within the woodland with rides, glades, and edges where appropriate and create a varied age structure in selective locations where appropriate. Periodically thin 'high forest' type woodlands - woodlands with mostly tall trees and little to no little understory layer (a lower growing set of trees, shrubs and plants). Include woodland management techniques which can benefit local species.</p> <p>This was felt to be an important action for all existing ancient woodlands which currently cover 3.4% of Oxfordshire.</p>

		<p>PM33 (mapped)</p>	<p><b>Improve the biodiversity value of existing ancient woodlands which are 'plantations on ancient woodland sites' (PAWS).</b></p> <p>Create a management plan to steadily remove plantation trees from plantations on ancient woodland sites (PAWS) to restore the woodland ecosystem back towards natural woodland natives where possible. A sudden removal of all plantation trees could damage relict ancient woodland features like remaining veterans and ground flora. Selective felling of plantation trees around any remaining, relict features can support the survival of veteran trees, encourage natural regeneration, and/or prevent overshading within the woodlands depending on the species present.</p>
		<p>PM34</p>	<p><b>Create and/or improve areas of active, worked coppice in Oxfordshire.</b></p> <p>Various tree species can be coppiced on a rotation based on the location, presence of local species, and possible future climates. Coppices are important for nesting and foraging within woodlands and support unique and rare species.</p> <p><u>Manage</u> existing coppices to retain flowering trees and shrubs within worked coppice compartments to benefit woodland species. Reintroduce coppicing to suitable areas of previous historic derelict sites where coppicing was previously practiced.</p> <p>Create new areas of coppice by planting (or facilitating the growth of) a variety of new trees with a plan to manage these on a specified rotation e.g. long, short, or a certain number of years.</p> <p>Management of existing or new coppice should take into account local species. Some species particularly depend on young, dense, coppices of willow, aspen, and poplar with areas that are allowed to build up deadwood and become less 'tidy' to support those species. Plant or retain flowering trees and dense shrub layers within worked coppice compartments for invertebrates.</p>



			All remaining derelict coppice or existing coppice areas would be important locations to deliver this action and there are a few exemplar coppice habitats in Oxfordshire including on MOD sites near Bicester.
P16	<p><b>Create new areas of diverse woodland in Oxfordshire that are in good ecological condition and managed to support biodiversity.</b></p> <p>Wider benefits: Food production (wild), Wood production, Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Air quality regulation, Cooling and shading, Noise reduction, Pollination, Pest control</p>	PM35 (mapped)	<p><b>Create new woodland by planting trees (or enabling them to grow) in locations using tree species which are suited to the soil type and site conditions.</b></p> <p>Create new woodland that complements the landscape across a range of habitats and contains a variety of species. Design woodlands to include a variety of possible structures (rides, glades, open areas, and irregular edges). Create a management plan to maintain variety within the woodland, including variety of tree ages and planning for succession. Trees could be planted or allowed to grow naturally using protection from browsing animals over a number of years. If planting trees, consider tree species that suit the soil type for that area and which are likely to survive into the future.</p> <p>The creation of new woodland is particularly beneficial in areas that adjoin existing woodland, and especially adjoining ancient woodland to make existing woodlands larger, or to join up existing areas of woodland.</p>
		PM36	<p><b>Favour low intervention woodland creation techniques including natural regeneration over the planting of trees, especially near existing ancient woodland.</b></p> <p>Favour natural regeneration where possible as the preferred method for the creation of new woodland habitats or mosaic habitats that include trees and small woody areas. Direct seeding is another option for sites which are remote from existing seed sources. Ensure that enough young trees are protected during establishment to create suitable woodland to establish on the site. Where possible, favour effective degradable or reusable tree protection options over non-biodegradable single-use options.</p>

		PM37	<p><b>Create dense shrubby habitat within and around woodlands.</b></p> <p>Design new woodlands to integrate dense shrubby habitats within and around them. New woodlands should aim to be structurally diverse with rides and glades, and have shrub species planted or growing around the edges of their perimeters and in open areas within the woodland. Manage shrub layers to support local species.</p>
		PM38 (mapped)	<p><b>Create new areas of wet woodland along rivers and riparian land and corridors as appropriate.</b></p> <p>In suitable wet areas, plant (or allow the growth of) a variety of wet woodland trees along <u>corridors</u> or as areas of wet woodland. Plan to create and manage open areas within the woodland and consider planting willow carr. If water flows have previously been diverted away from the woodland, find opportunities to rewet the woodland and restore water flows. Wet woodland creation can offer benefits to help 'slow the flow' of water during high rainfall flood events and regulate and improve water quality across the landscape.</p> <p>Some locations were mentioned by people and organisations thought this is not an exhaustive list. Areas included; around flooded gravel pits, Kirtlington Park, Gallos Brook, Priory Mill, Chipping Norton, areas adjoining Radley Pits Local Wildlife Site, Burcot, Little Wittenham, and Shillingford.</p>

P17	<p><b>Improve the connectivity of habitats. Have more woodlands which are bigger, better, and more joined up. (Increase the size, heterogeneity and connectivity of existing woodlands and factor this into long term site management objectives)</b></p> <p>Wider benefits: Aesthetic value, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Air quality regulation, Cooling and shading, Noise reduction.</p>	PM39	<p><b>Create more opportunities within and between woodlands to allow the movement of animals to reduce permanent physical barriers unless necessary.</b></p> <p>Help animals to move through and between woodlands and wider habitats across the landscape by use techniques to minimise or reduce the need for permanent physical fencing. Necessary fencing is still important to protect young trees, sensitive locations, and areas of natural regeneration. Where fencing is required for woodland, look to use fencing which allows animals to move under, over, or through it safely as appropriate for the woodland.</p>
P18	<p><b>Improve the population abundance of woodland species that need specific additional potential measures</b></p> <p>Wider benefits: Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Pest control.</p>	N/a	<p>See the draft 'Species Priorities List' to see the potential measures which could be taken to support species that use and benefit from habitats within this type of environment. Some of these measures are mapped.</p>

Rivers, streams, standing water, wetland habitats and floodplains

P19	<p><b>Existing freshwater habitats in Oxfordshire are in improved ecological condition to support biodiversity through clean, healthy, and plentiful water (rivers, canals, lakes, ponds, ditches, and reedbeds).</b></p> <p>Improving the condition of rivers and freshwater habitats emerged as the top priority for people across Oxfordshire.</p> <p>Wider benefits: Fish production, Water supply, Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Cooling and shading.</p>	PM40 (mapped)	<p><b>Restore river diversity and manage rivers and their riparian (riverside) habitats to achieve good ecological condition that supports species.</b></p> <p>Undertake restoration work to create structurally diverse, physically accommodating rivers which support their characteristic local species. Techniques to improve river condition and biodiversity value will be site specific and may include raising channel beds of rivers to reconnect with their floodplain and to form a habitat matrix of wetlands, riparian woodlands and wet meadow wildflower grasslands, which can buffer and reduce the impact of pollution into rivers. This may be achieved through a variety of interventions which could range in intensity from use of machinery through to the use of species that can engineer habitats. Within rivers, improve connectivity especially for fish, by the removal of barriers to fish passage (and thereby improving instream habitat), or where this is not possible provide fish bypass channels or other fish pass solutions to allow fish to migrate and utilise upstream habitats.</p>
		PM41	<p><b>Manage operational canals to improve (or maintain good quality) habitats or wildlife corridors through Oxfordshire.</b></p> <p>Identify opportunities to support more species to live, forage, or move alongside canals. This could include creating or dedicating areas that are not disturbed, maintaining marginal vegetation, and supporting local species which may use the canals as corridors (e.g. birds and bats).</p>

	PM42	<p><b>Improve the condition (or maintain a good condition) of lakes in Oxfordshire.</b></p> <p>Practice good management across lakes in Oxfordshire to support local species. Lakes where this measure would contribute significantly towards the priority includes 'mesotrophic lakes' which are lakes with lower levels of nutrients than 'Eutrophic Standing Waters' and can therefore be particularly rich in plant and invertebrate life. There are only a few examples in Oxfordshire found mainly amongst the old gravel pits of the Lower Windrush Valley.</p>
	PM43 (mapped)	<p><b>Undertake sensitive management and restoration of ponds and pond complexes to improve pond biodiversity and water quality.</b></p> <p>Manage ponds through low intervention techniques which cause minimal damage to local species and where possible, incorporate grazing to manage vegetation. Pond <u>management</u> and <u>restoration</u> is very individual to the type, age, and structure of your existing pond. Try to emphasize existing positive features of your pond. Management techniques aim towards creating diversity in the pond structure, depths, edges, shape, vegetation growth, and areas of shade, often keeping the south side more open and sunny. Techniques also depend on any local species which rely on the pond. Creating habitat buffers around existing ponds of varied vegetation that offers cover for species and incorporating deadwood into and around ponds are helpful ways to improve biodiversity within suitable existing ponds. Around ponds with high conservation value, aim for a buffer from intensive land use of at least 50 metres.</p> <p>Ponds with particularly high conservation value can be viewed (and added) here: <a href="#"><u>Priority ponds - WaterNet - Freshwater Habitats Trust</u></a></p>

		PM44	<p><b>Improve (or maintain a good quality of) existing reedbeds to create a varied vegetation structure that supports reedbed species.</b></p> <p>Well-functioning reedbeds clean water before it enters rivers and streams and are a rare habitat supporting reedbed specialist species. Most reedbeds require cutting, grazing, or <u>management</u> of different parts of the reedbed over a cycle of e.g. 4 – 7 years to create a variety of ages and structures that support the health of the habitat and species. Normally no more than 5% of the area is recommended to be scrub or young trees to avoid losing the reedbed.</p>
P20	<p><b>More of Oxfordshire's chalk rivers are appropriately managed to achieve ecologically healthy examples of this special and globally rare river type.</b></p> <p>Wider benefits: Fish production, Water supply, Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Water quality regulation, Cooling and shading, Pollination, Pest control.</p>	PM45 (mapped)	<p><b>Improve, restore, or manage chalk streams to achieve good quality physical habitat and water quality.</b></p> <p>Assess each chalk river section and identify appropriate techniques for that river. Aim to support wildlife to live, forage, and move in and around the habitat. Create varied and connected habitats along the edge of the river to help improve water quality and to support wildlife. Create buffers of vegetation or land which is not intensively managed alongside chalk rivers (a suggested minimum buffer distance either side of the watercourse bank is 10 metres which may be more difficult to achieve in urban environments). See chalk stream information <a href="#">here</a>.</p> <p>In Oxfordshire there are a number of chalk streams and action should be taken across them all, some examples of chalk streams include Letcombe Brook, Holton Brook, Chalgrove Brook, Lewknor Brook, and Cuttle Brook.</p>

P21	<p><b>More ditches in Oxfordshire are wildlife-rich habitats managed sensitively to support their biodiversity.</b></p> <p>Wider benefits: Water supply, Flood protection, Erosion protection, Water quality regulation, Cooling and shading.</p>	PM46	<p><b>Create, improve, and manage the variety of ditches across Oxfordshire to benefit biodiversity in appropriate locations.</b></p> <p><u>Ditches</u> vary from dry to wet and creating and <u>maintaining</u> ditches which hold water throughout the year holds greater value for biodiversity. For existing ditch systems, adopt best practice <u>management</u> measures to maximise their ecological diversity. Create new ditch habitats in appropriate locations e.g. in conjunction with the restoration of floodplain grazing marsh, and buffer ditch habitats with low-intensity land use or buffer strips in order to benefit water quality and maximise opportunities for biodiversity.</p> <p>See management <u>guides</u> and <u>advice</u> which recommend restoring ditch profiles (including on <u>farms</u>) and rotationally (not annually) managing ditches with vegetation buffers which are managed sensitively.</p>
P22	<p><b>There are more fens in Oxfordshire and more fens are being managed appropriately to achieve good condition and support a wide range of (often rare) species.</b></p> <p>Wider benefits: Water supply, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Cooling and shading.</p>	PM47	<p><b>Ensure the continued supply of water and control over water levels into existing fens.</b></p>

	PM48	<p><b>Existing fens in Oxfordshire are managed to improve their condition and benefit to biodiversity (including ghost fens).</b></p> <p>Manage <u>fens</u> and alkaline spring fed calcareous fens to benefit biodiversity. On spring-fed fens, ensure an alkaline, calcareous, clean flow of water with high calcium content which is steady to maintain a consistent water supply. Lightly manage trees to achieve partial shade over the fen (avoid overshading). Graze, cut, and/or rake vegetation in fens and springheads to keep open short sunny pools. Avoid grazing and cutting during flowering periods for rare species. Prevent excessive tree and scrub growth from invading the fen. Retain deadwood in springs and shallow pools and plan to continually add deadwood of all diameters into tufa spring areas. Management in fens involve clearing scrub and managing the succession of trees to support the longevity of the fen. Many alkaline fens are overgrown with Common Reed (<i>Phragmites australis</i>) or other rank species-poor wetland vegetation which need management. See <u>advice</u> and <u>guidance</u> for detailed management techniques.</p> <p>Oxfordshire has a number of fens which are being worked on by local people and organisations to create exemplar habitats. This includes (but is not limited to) Cothill Fen, Lye Valley Fen, and Hinksey Heights Fen. You can see more about Oxfordshire's Fen Project <u>here</u>.</p>
	PM49	<p><b>Retain and create 'fen carr', a wet woodland fen habitat that tends to be made up from 'sallow' willow species and alder.</b></p> <p>In suitable locations create or improve existing fen carr habitats. Within the fen carr, maintain open structures through grazing or other suitable techniques to ensure the existence of open areas within the wet woodland.</p>



		PM50	<p><b>Create or improve existing fens and ghost fens to ensure the presence and flow of clean water and create open sunny fen pools.</b></p> <p>Prevent excessive tree and scrub invasion taking over the <u>fen</u> pools. Scattered bushes and trees such as willows provide a valuable resource for invertebrates and will add considerably to the diversity of species on a fenland site. Graze, cut, and/or rake pond marginal vegetation to ensure light, low nutrient, shallow pools and wet runnels. See detailed guidance <a href="#">here</a>.</p>
P23	<p><b>Create more, new (or restored) high quality freshwater habitats in Oxfordshire including ponds, lakes, reedbeds, and marsh.</b></p> <p>Wider benefits: Fish production, Water supply, Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Flood protection, Water quality regulation, Carbon storage, Cooling and shading, Pest control.</p>	PM51 (mapped)	<p><b>Create wetland habitats which contain a matrix of various habitat types which are suitable for the site (e.g. wet grassland, ponds, ditches, hedgerows, trees, or wet woodland).</b></p> <p>Rehabilitate degraded or lost floodplain wetland habitats by restoring rivers to improve hydrological connectivity with floodplains, managing water levels where appropriate, and creating new features such as ponds, ditches, wet woodland, trees, hedges and more habitats suitable as part of a wetland matrix. Connect existing floodplain wetlands by the creation of new wetlands to act as stepping stones for wildlife and increase the overall habitat available for key wetland species.</p>

	<p>PM52 (mapped)</p>	<p><b>Create new, varied ponds in suitable locations across all habitat types to increase biodiversity and amount of clean water habitats.</b></p> <p>Create ponds which are varied in structure, sun exposure, locations, and shape. Within each pond, create a variety of depths and types of pond edges including a gradual, shallow bank to allow animals into and out of the pond. Allow plants to grow naturally at pond edges with piles of stone, deadwood, and/or areas of longer vegetation near to ponds. When creating multiple ponds, create them at different points in time so that landscapes have older ponds, younger ponds, and ponds which are allowed to dry/die out. Prevent ponds becoming overgrown by tall, dominant reeds and sedges. Maintain these ponds to allow a variety of sun exposure with areas of no shade (especially on the southern side of the pond) and include deadwood within ponds. See further guidance <a href="#">here</a>.</p> <p>FHT recommend creating 10 new priority ponds per every 100 hectares of habitat creation. Across Oxfordshire ponds offer great value to biodiversity including exemplar habitats at gravel pits sties and sites like Otmoor.</p>
	<p>PM53</p>	<p><b>Create more reedbed habitat at suitable locations to provide habitat for reedbed specialists (often as part of larger wetland mosaics)</b></p> <p><u>Create</u> new <u>reedbeds</u> in suitable locations. Looking at areas where reeds already grow is a good indicator of a suitable location. Reedbeds are wetland areas where common reed is dominant, reedbeds can filter potentially polluted water from settlements before it is discharged to rivers. This habitat types is typically found in river floodplains and can exist as reed swamp (flooded all year) or reed fen (flooded periodically). Reeds are often used to supply thatch. Often created within floodplain grazing marsh to complement the wetland habitat mosaic overall.</p>

		PM54	<p><b>Create fen, marsh and swamp wetland habitat areas in suitable locations in Oxfordshire.</b></p> <p>Create an area with a variety of wetland vegetation types and habitat types that are suitable to the area and the source, supply, and flow of freshwater. Aim to achieve a diversity of edges, structures, and include areas of water where suitable for the site. More information on the creation and management of fen, marsh, and swamp habitats can be found <a href="#">here</a>.</p>
P24	<p><b>Oxfordshire’s floodplains, wet grasslands and wetland habitats are biodiverse, rich habitats that support species and occupy more of our functional floodplains, linked by wildlife corridors along rivers and streams, providing natural flood management services and improved water quality.</b></p> <p>Wider benefits: Food production, Recreation and leisure, Aesthetic value, Education and knowledge, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Pollination.</p>	PM55 (mapped)	<p><b>Create new areas of lowland meadow by creating and restoring floodplain meadows.</b></p> <p>Actions should be taken to allow water to easily come both onto, and off of <a href="#">lowland meadow</a> to help reconnect floodplain meadows with rivers. In suitable locations, meadows could be restored through a range of techniques including by spreading green or dry hay, or brushed seed, into the floodplain soils. This can be done by procuring hay from local existing floodplain meadows. See further <a href="#">guidance</a> and <a href="#">information</a> on meadows.</p>

		<p>PM56 (mapped)</p>	<p><b>Manage existing floodplain lowland meadows including MG4 grassland through grazing, cutting, or a combination to increase and support species diversity.</b></p> <p>Maintain or introduce appropriate grazing regimes on floodplain <u>lowland meadows</u> (a type of species-rich grassland). <u>Manage</u> using grazing, cutting, and/or mowing regimes which are suitable to the grassland type, species present, and any hay-making. Consider mob grazing where appropriate and aim to minimise over-grazing or under-grazing through flexible management, e.g. adjusting stocking densities and timing of grazing regimes according to growing conditions/seasonal variations. Consider utilising traditional and rare breeds which are hardy and well suited to conservation grazing. See further <u>advice</u> and <u>guidance</u> on managing floodplain meadows.</p> <p>There will be a need for increased flexibility in both the date and extent of management options in response to long-term seasonal variability in growing conditions and climates. Wet grasslands will need an adequate supply, temporal variation, and quality of water to adapt to changes in climate. See <u>handbooks</u>, <u>guidance</u>, and <u>advice</u> for detailed management from organisations like <u>Magnificent Meadows</u>, <u>Plantlife</u>, and <u>Buglife</u>.</p> <p>Oxfordshire contains a significant amount of England’s lowland meadows and a great percentage of the nation’s remaining MG4 grassland which is very rare.</p>
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		PM57 (mapped)	<p><b>Create areas of new good quality grazing marsh and improve (or maintain a good condition) of existing floodplain grazing marsh to achieve high biodiversity value.</b></p> <p><u>Coastal and floodplain grazing marsh</u> habitats benefit from management which compliments their periodic cover by shallow standing water. These habitats can often be found within, around, or near to a mix of other wetland habitat types. Found close to water, these grasslands often have ditches running through them which require sensitive, rotational management to support species. Within the <u>management</u> plan for grazing marsh, aim to achieve a varied vegetational <u>structure</u> and a diversity of ground cover ranging from bare ground to patchy scrub to provide a broad range of niches that support a range of species including <u>invertebrates</u>. These sites require light grazing (not overgrazing) to maintain plant diversity and cattle are a particularly good option. Avoid draining these habitats and instead aim to maintain water levels so that they are close to the field level throughout the year with natural and steady variation above and below that level throughout the year.</p>
P25	<p><b>Improve the condition of 'riparian land' (the land running along the sides of our rivers and streams) to benefit wildlife, freshwater habitats, and connectivity through Oxfordshire.</b></p> <p>Wider benefits: Fish production, Recreation and leisure, Flood protection, Erosion protection, Water quality regulation, Cooling and shading, Pollination, Pest control.</p>	PM58	<p><b>Create and manage land alongside riverbanks which is managed to increase biodiversity, improve water quality, and act as a corridor to enable wildlife to move along rivers, banks, and watercourses.</b></p> <p>Increase habitats and biodiversity along riverbanks by creating vegetative buffers and (where suitable) planting (or allowing the growth of) new <u>trees</u> or suitable habitats that are well suited to soils alongside the river in locations where this can be managed if necessary.</p>

P26	<p><b>There is less damage to local species and habitats due to invasive species or unsustainably high populations of species. Reduce the spread of, and damage from, invasive or problematic species in rivers and freshwater habitats.</b></p> <p>Wider benefits: Fish production, Education and knowledge, Erosion protection, Pest control</p>	PM59	<p><b>Slow or stop the spread of invasive and non-native species that affect freshwater species.</b></p> <p>Seek to support or develop initiatives to control the spread and eradicate invasive non-native species throughout freshwater habitats including American <u>Mink</u>, American Signal Crayfish, New Zealand pygmyweed, and Himalayan balsalm at the time of writing. Problematic species are expected to change with future climate variation and actions should adapt to this.</p>
P27	<p><b>Improve the population abundance of freshwater species that rely on rivers, streams, standing water, and wetland habitats and need specific additional potential measures.</b></p> <p>Wider benefits: Fish production, Education and knowledge, Interaction with nature, Sense of place, Pest control</p>	N/a	<p>See the draft 'Species Priorities List' to see the potential measures which could be taken to support species that use and benefit from habitats within this type of environment. Some of these measures are mapped.</p>

## Deadwood

<p>P28</p>	<p><b>There is more deadwood retained across all habitat types in Oxfordshire to support a wide range of species.</b></p> <p>Wider benefits: Education and knowledge, Interaction with nature, Sense of place, Flood protection, Erosion protection, Carbon storage, Pollination, Pest control.</p>	<p>PM60</p>	<p><b>Across all habitat types which have trees, retain dead, decaying, and/or dying wood in the environment where it is safe to do so (including deadwood in water).</b></p> <p>Aim to retain and add new deadwood in a range of sizes and ages into all habitat types with deadwood exposed to a range of conditions (submerged in water, wet, dry, damp, heavily shaded, partial shade, and sunny open areas).</p> <p>Retain deadwood in a variety of structures; standing deadwood (upright trees, trunks, or stumps which are dead or dying), fallen deadwood (wood on the floor), and deadwood branches on alive trees. Hollows within standing trees support a wide range of species. Avoid fungicides around these trees to allow and encourage fungal growth on this deadwood. Manage trees and branches using techniques that can enable you to regularly add new deadwood to the environment. Where necessary, reduce dead and dying tree height in stages to make the tree safe &amp; prolong the presence of dead and dying wood in this location. Manage deadwood in accordance with any species priorities for the site.</p> <p>Where safe to do so leave dead and dying ash trees in situ. Where ash trees have to be removed, retain standing deadwood stumps. Implement measures to introduce veteran tree characteristics to a range of tree ages and species.</p> <p>Particular locations: Sydlings Copse, Milham Ford</p>
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Hedgerows and hedgerow trees			
P29	<p><b>Existing hedgerows and hedgerow trees are in good ecological condition and are sympathetically managed to support biodiversity.</b></p> <p>Wider benefits: Food production, Aesthetic value, Interaction with nature, Sense of place, Carbon storage, Air quality regulation, Cooling and shading, Flood protection, Erosion protection, Water quality regulation, Pollination, Pest control.</p>	PM61	<p><b>Manage existing hedgerows and hedgerow trees to improve their condition and longevity to benefit biodiversity.</b></p> <p>Allow hedgerows to grow to a thick and tall condition or particular traditional profiles. Instead of cutting all hedges annually, consider moving to a two- or three-year management regime for suitable hedgerows, or longer where possible. Where suitable, manage tree-less hedgerows to allow new hedgerow trees to emerge at suitable intervals. Lay or coppice suitable hedgerows on a long rotation to regenerate them when they show signs of becoming gappy. Avoid hedge cutting or trimming during bird nesting periods. Retain dead, dying, and decaying wood where safe and practicable in hedges and hedgerow trees.</p>
P30	<p><b>There are more hedgerows created across Oxfordshire to support biodiversity.</b></p> <p>Wider benefits: Food production, Aesthetic value, Interaction with nature, Sense of place, Carbon storage, Air quality regulation, Cooling and shading, Flood protection, Erosion protection, Water quality regulation, Pollination, Pest control.</p>	PM62 (mapped)	<p><b>Plant, or allow the growth of, new and diverse hedgerows.</b></p> <p>Establish a diverse range of hedgerow species, particularly native species and those adapted to the particular location or range of climatic conditions. Plan to grow and <u>manage</u> hedgerow trees at suitable intervals along the hedgerow to increase the connectivity of habitats for species. Consider planting native fruiting hedgerow species that provide nectar in spring and fruit in summer and autumn for example, hawthorn, blackthorn, and grey willow would support a wide range of rare species and establishing Wild Pear (<i>Pyrus pyraeaster</i>) could help to re-establish this rare species in the county.</p>



		PM63	<p><b>Create hedges that improve connectivity between habitats in Oxfordshire.</b></p> <p>When establishing new hedges, aim to connect new hedgerows to existing habitats, especially any existing hedgerows or patches of semi-natural habitat to promote the movement of species through the landscape and offer a corridor.</p>
<b>Boundaries across Oxfordshire</b>			
P31	<p><b>Improve boundaries across Oxfordshire so that fences, walls, and other boundaries complement local habitats and do not excessively fragment them or prevent species moving through the county.</b></p> <p>Wider benefits: Recreation and leisure, Aesthetic value, Interaction with nature.</p>	PM64	<p><b>Create or improve boundaries using natural products that support biodiversity.</b></p> <p>Where possible, improve the value of boundaries to biodiversity across Oxfordshire. Consider creating or replacing existing boundaries with hedges (including laid hedges), untreated wood fencing, and/or walls (e.g. dry-stone walls) with spaces for species to cross the boundary. Where possible use local businesses and sustainably sourced local produce to create or restore boundaries.</p>
		PM65	<p><b>Facilitate wildlife to move safely across crossing points along road and rail networks and infrastructure.</b></p> <p>This could involve creating new infrastructure with creative solutions that enable animals to cross safely. Work can also be taken to improve animal crossing opportunities on existing roads and railways.</p> <p>The locations where these crossings are needed may change over time as animals move and infrastructure changes. Some key, established locations have been mapped where it is known that the road infrastructure separates habitats in a detrimental manner and where improving the safety of animals crossing the areas could offer the greatest benefit to biodiversity along some major roads in Oxfordshire. This approach would also be suitable to other road, rail, and infrastructure networks.</p>

Wider environment – agricultural and rural landholdings

P32	<p><b>Farm businesses, rural landholdings and tenant farmers are supported to create and improve wildlife-rich habitat that supports biodiversity and businesses helping species to spread through Oxfordshire’s fields, edges, and corridors.</b></p> <p>Wider benefits: Food production, Wood production, Water supply, Recreation and leisure, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Cooling and shading, Pollination, Pest control.</p>	PM66	<p><b>Create and manage graded margins up to hedgerows to support birds and other farmland species.</b></p> <p>Within fields which have hedges, provide margins which are graded in height (shortest near the field, longest grass at the hedgerow). These graded margins next to a thick hedgerow offer important nesting sites for birds including who seek long grass at hedgerow bases.</p>
		PM67	<p><b>Create and manage wide arable field margins as wildflower grassland.</b></p> <p><u>Methods</u> vary and could include variable mowing regimes to create wide margins (e.g. 3 – 18 metres) which offer cover for small mammals and refuge over winter for invertebrates. Remove arisings as needed to avoid enriching the soils and to avoid losing wildflowers to vigorous grasses. Manage arable fields and their margins with populations of arable flowers present for those species and avoid spraying these areas. Alongside increasing biodiversity in those places, field margins can help species to move through the landscape.</p>
		PM68	<p><b>Create and manage field margins to improve and increase biodiversity around fields.</b></p> <p>Maximise the diversity of field margins to provide a range of habitats within margins. Aim to vary <u>management</u> of margins to increase diversity. For example, annual cutting of the strip nearest the crop but with less frequent cutting nearer the field boundary. Variety could also be introduced by managing blocks, strips or whole margins at different intervals. In planted margins, tailor the seed mix diversity to include a variety of flowering plants that could provide continued options for pollen and nectar throughout an extended season. Include species and cultivars in planted margins that are able to tolerate and flower under hotter and drier summers.</p>

		PM69	<p><b>Create and improve areas that support rare arable plants on farmland.</b></p> <p>Support arable plant species on all soil types by disturbing or cultivating some areas of suitable soil (typically each year in autumn) and allow arable plant seeds to grow in the following years. Minimise or stop the use of herbicides within this area.</p>
		PM70	<p><b>Support farmland birds over winter.</b></p> <p>Implement measures to assist farmland birds survive across the hungry gap (mid-February to Mid-April): overwinter stubble, seed-rich winter cover crops using wild bird seed mixtures, unsprayed and unharvested arable headlands, and/or supplementary feeding.</p>
		PM71	<p><b>Take action to improve farmland bird nesting success.</b></p> <p>Offer and keep nesting and roosting sites for birds including; bird boxes, trees with hollows, standing deadwood, suitable buildings and barns (including those derelict).</p>
		PM72	<p><b>Retain, improve, or create habitat to increase the opportunity for wildlife to move through the landscape (e.g. wildlife corridors).</b></p> <p>Improve the connectivity of habitats or of any permanent areas of uncultivated land that support species to move through the landscape with minimal physical barriers. Aim to join up areas up within farms and between <u>neighbouring farms</u>.</p>

P33	<p><b>Increase biodiversity within farmland soils.</b></p> <p>Wider benefits: Food production, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Pest control.</p>	PM73	<p><b>Across Oxfordshire’s farmland, increase the biodiversity in soils though choosing cultivation practices which can regenerate species which produce healthy soils.</b></p> <p>Take actions which are suitable to the farm type and location to practice techniques that can improve the abundance and health of species which produce good quality soils (e.g. cover crops, leys, grazing techniques, and crop rotations). Measure the health and abundance of soil species and aim to improve the biodiversity within soils. Improving soil biodiversity will allow these species to improve the structure and quality of the soil enabling it to produce food, build up carbon content, and a range of other wider environmental benefits.</p>
P34	<p><b>Increase the number, diversity and health of trees on farmland</b></p> <p>Wider benefits: Wood production, Food production, Aesthetic value, Interaction with nature, Sense of place, Flood protection, Erosion protection, Water quality regulation, Carbon storage, Cooling and shading, Pollination, Pest control.</p>	PM74	<p><b>Plant (or allow the growth of) diverse trees of various ages and types on farmland.</b></p> <p>Plant trees, or allow trees to grow up, across different years (successional planting/successional growth) to broaden the age diversity of trees. This could include agroforestry, woodland, scrub growth, shelterbelts, silvopasture, individual trees and/or orchards.</p>
		PM75	<p><b>Retain and/or plant in-field trees with suitable buffer zones to ensure continuity of open grown trees (live, dead, or dying) that support species across the landscape.</b></p>
P35	<p><b>Increase biodiversity on farmland by creating and implementing pest control that reduces chemical controls on plants, insects, and/or fungi.</b></p> <p>Wider benefits: Food production, Interaction with nature, Pollination, Pest Control.</p>	PM76	<p><b>Create a tailored integrated pest management plan to reduce the use of artificial fertilisers and pesticides.</b></p> <p>When thinking about how to manage crop pests, plants, and diseases within farmland, implement measures that can support and work with biodiversity to work with nature to produce food (for example, <a href="#"><u>NFU integrated pest management plans</u></a>)</p>

P36	<p><b>Improve the population abundance of species that need specific additional potential measures within agricultural land.</b></p> <p>Wider benefits: Education and knowledge, Interaction with nature, Sense of place, Pollination, Pest Control</p>	N/a	<p>See the draft 'Species Priorities List' to see the potential measures which could be taken to support species that use and benefit from habitats within this type of environment. Some of these measures are mapped.</p>
<p>Wider environment - towns, cities, and green spaces</p>			
P37	<p><b>Oxfordshire's towns and cities have more biodiversity as part of daily life (at home, at work, and in parks and gardens).</b></p> <p>Wider benefits: Recreation, Aesthetic value, Interaction with nature, Sense of place, Flood regulation, Air quality regulation, Carbon storage, Cooling and shading, Noise reduction, Pollination, Pest control</p>	PM77	<p><b>Create and/or improve more habitats near people in Oxfordshire which benefit biodiversity.</b></p> <p>Create new habitats and improve existing habitat areas to create a robust ecological network that passes through urban areas and places where people live which support wildlife to move through Oxfordshire becoming a part of people's daily life including in towns and cities. There are a range of actions which could be suitable, and actions should be tailored to the type of landscape, location, and local species present (e.g. birds, bats, bees). Some actions can involve innovative solutions to bring greater biodiversity into towns, villages, and cities.</p> <p>See more specific actions on the LNRS webpage [LINK] and see the wider biodiversity information on the Local Habitat Map [LINK].</p>

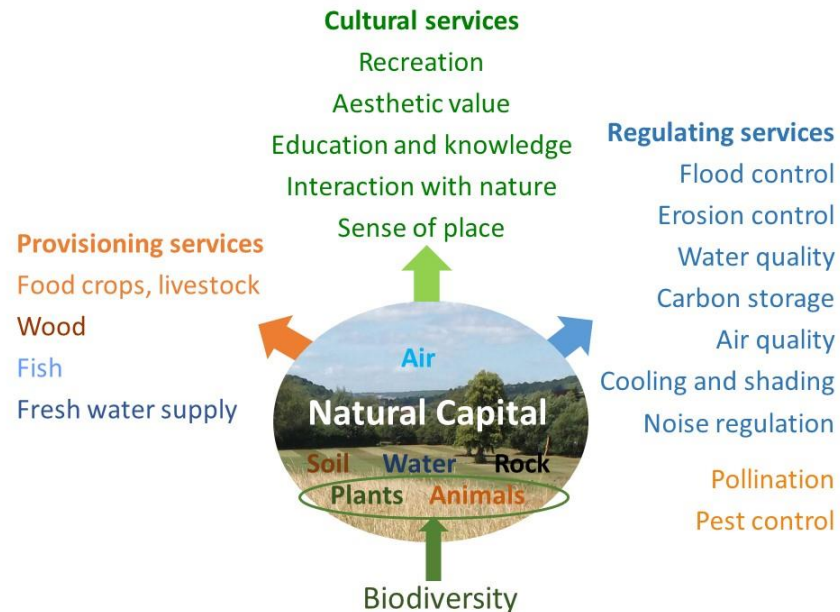
	PM78	<p><b>Increase tree canopy cover in Oxfordshire by planting trees and woodlands and managing existing trees and woodlands.</b></p> <p>Plant trees and/or woodlands as networks that enable wildlife to cross the county including both rural and urban environments. Connect urban greenspaces to the wider countryside by creating canopy corridors and benefit species who can use these corridors to join up populations.</p> <p>The LNRS has kept this as a countywide action and has not specifically mapped tree planting locations across Oxfordshire because this is possible and important across all towns and cities and places where people live. However it should be noted that some of Oxfordshire’s neighbourhoods (sometimes called <u>LSOAs</u>) have particularly low access to green space and/or <u>tree cover</u> and taking recovery actions in those <u>locations</u> could have great benefit for people, health, and nature.</p>
	PM79	<p><b>Create and improve wildlife-rich corridors of suitable habitat through or near towns and cities in Oxfordshire.</b></p> <p>Create new <u>corridors</u> or improve existing <u>corridors</u> which offer room for nature and wildlife to move through towns, cities, gardens, parks, and villages which include habitat for foraging and for resting/nesting.</p>

**You have reached the end of the LNRS’s draft ‘Statement of Biodiversity Priorities’**

## Appendices

### Appendix 1 – Wider benefits from nature recovery

The benefits that nature provides to people are often known as ‘ecosystem services’. In developing the LNRS we considered how nature recovery priorities could contribute towards delivering 18 ecosystem services. Healthy ecosystems, including plants, animals, soil and water (our ‘natural capital’) deliver a range of services (Figure A1). These include the provision of food, water, timber and fish, as well as cultural services such as nature-rich green spaces for recreation, beauty, education and interaction with nature. Nature also provides a range of regulating services including the control of floods, erosion, air and water quality, noise and climate, as well as pollination and natural pest control. All these services are described in Table A1.



**Figure A1. Healthy ecosystems can contribute to 18 ecosystem services.**

Source: Alison Smith (2021) 'Natural Capital in Oxfordshire Short [report](#)', page 3. Environmental Change Institute, University of Oxford.

**Table A1: The 18 ecosystem services that were considered when identifying wider benefits for people from the LNRS.**

Source: Alison Smith (2021) 'Natural Capital in Oxfordshire Short [report](#)', page 4. Environmental Change Institute, University of Oxford.

<b>Provisioning</b>	<b>Food production</b>	Arable crops, horticulture, livestock, orchards, allotments, urban food, wild food (e.g. gathering berries or mushrooms).
	<b>Wood production</b>	Timber, wood production for paper, woody biofuel crops, coppice wood or wood waste used for biofuel.
	<b>Fish production</b>	Aquaculture, commercial fishing, recreational fishing (recreational fishing is also a cultural service, but the habitat conditions match those for fish production).
	<b>Water supply</b>	Impact of soil and vegetation on rainwater runoff and infiltration, and thus on groundwater recharge or surface water flow.
<b>Regulating</b>	<b>Flood protection</b>	Reduction of surface runoff, peak flow, flood extent and flood depth through canopy interception, evapotranspiration, soil infiltration and physical slowing of water flow.
	<b>Erosion protection</b>	The ability of vegetation to stabilise soil against erosion and mass wastage by protecting the soil from the erosive power of rainfall and overland flow, trapping sediment, and binding soil particles together with roots.
	<b>Water quality regulation</b>	Direct uptake of pollutants by terrestrial or aquatic vegetation; interception of overland flow and trapping / filtration of pollutants and sediment by vegetation before it reaches watercourses; breakdown of pollutants into harmless forms e.g. by denitrifying bacteria that convert nitrates into nitrogen gas. Also infiltration into the ground, allowing pollutants to be filtered out by the soil and preventing pollution of watercourses – though pollutants could enter groundwater supplies.
	<b>Carbon storage</b>	Carbon stored in vegetation and soil. In the context of land use change (with complete loss of habitats and often major soil disturbance), this is more relevant than carbon sequestered annually. The 'time to reach target condition' reflects the time taken for a new habitat to reach a typical carbon sequestration rate for a mature habitat.
	<b>Air quality regulation</b>	Removal of air pollutants by deposition, absorption and/or breakdown by vegetation. Fine particles (PM <sub>2.5</sub> ) are the most damaging type of pollution, but vegetation can also remove ozone and nitrogen oxides (by absorption into pores).
	<b>Cooling and shading</b>	Shade, shelter and cooling effect of vegetation and water, especially urban trees close to buildings, green roofs and green walls, which can reduce heating and cooling costs, or trees in urban parks which can provide shade on hot days.
	<b>Noise reduction</b>	Attenuation of noise by vegetation.
	<b>Pollination</b>	Pollination of crops (and wild plants, supporting other ES) by wild insects (mainly bees and hoverflies). Excludes pollination by managed honeybees.
<b>Pest control</b>	Predation of crop or tree pests by invertebrates (e.g. beetles, spiders, wasps), birds and bats.	



<b>Cultural</b>	<b>Recreation and leisure</b>	Provision of green and blue spaces that can be used for any leisure activity, e.g. walking, cycling, running, picnicking, camping, boating, playing or just relaxing.
	<b>Aesthetic value</b>	Provision of attractive views, beautiful surroundings, and pleasing, calming or inspiring sights, sounds and smells of nature.
	<b>Education and knowledge</b>	Opportunities for formal education (e.g. school trips), scientific research, local knowledge and informal learning (e.g. from information boards or experiences).
	<b>Interaction with nature</b>	Provision of opportunities for formal or informal nature-related activities, e.g. bird watching, botany, random encounters with wildlife, or feeling 'connected to nature'. There is some overlap with biodiversity, but access by people can have negative impacts on some wildlife habitats. Excludes recreational fishing; hunting / shooting (not covered); the intrinsic value of nature (covered by the biodiversity metric); existence value (from just knowing that nature exists).
	<b>Sense of place</b>	The aspects of a place that make it special and distinctive – this could include locally characteristic species, habitats, landscapes or features; places related to historic and cultural events, or places important to people for spiritual or emotional reasons.

Within this drafted set of LNRS priorities and measures you will see 'wider benefits' associated with each priority. These are examples of the main benefits that each group of actions could provide alongside achieving the biodiversity priorities. This shows how nature recovery can play a key role in other priorities for the county, including climate resilience, health and well-being, air and water quality, and wider socio-economic benefits. Detailed examples are provided in the sections below.

It is important to understand that the actual benefits delivered will depend on the type of nature recovery action, the type and age of habitat, the location, public accessibility, and a range of other factors. This means that nature recovery actions can be optimised to deliver wider benefits and minimise trade-offs between goals. For example, in urban areas, trees or hedgerows can be positioned to act as air pollution barriers between busy roads and houses or schools. To help protect water quality, buffer strips of tussocky grass, trees and shrubs can be created alongside watercourses to intercept polluted run-off from farmland. Trees can be planted on steep slopes and erodible soils to help reduce soil erosion. Actions such as creating or improving parks, street trees, wildflower meadows or community orchards can be targeted at urban areas that currently don't have much green space (see [Oxfordshire's greenspace-deprived neighbourhoods](#)).

There can also be trade-offs for some services. For example, planting woodland on farmland will produce benefits for carbon storage and flood protection, but also means it can no longer be used for food production. We have taken account of this when mapping the best locations for each measure. For example, we did not map the most productive farmland as being suitable for

planting trees. There are also limits to what nature can do. For example, while nature recovery can help to absorb carbon dioxide and reduce air and water pollution, this must not distract from the urgent need to reduce emissions and pollution at source, which will have a far greater impact. Indeed, habitats used as a 'buffer' to soak up noise or pollution may have less value for wildlife.

Below are some more detailed examples of how measures in the LNRS can deliver wider benefits for people.

### **Climate change mitigation**

It is [estimated](#) that Oxfordshire's soils and vegetation currently store about 85 million tonnes of carbon dioxide. That is equivalent to over 20 times the amount we produce every year by burning fossil fuels (four million tonnes). Oxfordshire's habitats also soak up about 316,000 tonnes of CO<sub>2</sub> every year – about 8% of our annual emissions. So while the most urgent priority is to reduce emissions from fossil fuels and other sources, it is also vital to protect and enhance the great amounts of carbon stored in Oxfordshire's habitats. The LNRS can support this priority by prioritising areas to keep existing habitats in good condition and by recommending the creation of new areas of woodland, scrub, grassland, and wetland in places where they offer the greatest benefits for biodiversity too. On farmland, measures such as PM73 (increasing biodiversity in farmland soils) can also help to store a lot more carbon in the soil, and in urban areas measure PM78 (increase tree canopy cover) can also store large amounts of carbon in urban trees.

### **Climate change adaptation**

The LNRS measures can play a key role in helping the county [adapt to climate change](#). One of the main benefits can come from natural flood management, such as by planting trees in upper catchments to intercept and soak up rainwater, reducing flooding downstream (PM35, PM39). Also, rivers can be reconnected to their floodplains (PM40) to allow floodwater to gradually seep into the ground or slowly back into the river, reducing flood peaks in settlements downstream. In urban areas, creating more nature-rich green space (PM77) and tree canopy cover (PM78) can help to cool urban areas and provide shade in heatwaves, as well as soaking up heavy rain and reducing urban flooding. On farmland, measures such as PM73 (increasing biodiversity in farmland soils) can improve the infiltration in the soil, so that heavy rain is absorbed rather than running off the surface, eroding the soil and polluting nearby watercourses. Many of the actions in PM73 also add more organic matter to the soil, which helps it to store more moisture, meaning the soils are more resilient to droughts. Planting and maintaining trees on farmland (PM74 and 75) is very important for providing shade and shelter for livestock in very hot or stormy weather. Hedgerows (PM62 and PM63) also play a valuable role in reducing soil erosion and flooding during extreme weather events. All these farmland measures for reducing the impact of floods, droughts and heatwaves can reduce the economic cost of crop and livestock yield losses for farmers.

## **Pollination and natural pest control**

There has been a dramatic decline in insect populations in the UK over the last few decades, including beneficial insects such as pollinating bees and hoverflies, and pest predators such as beetles, spiders and wasps. This has had a knock-on effect on other species that depend on insects for food, including birds, bats, reptiles and amphibians (frogs, toads and newts) – and these are also natural pest predators. Supporting pollinators and natural pest predators can increase crop yield and reduce the need for farmers to use expensive and dangerous agro-chemicals such as pesticides and herbicides.

Many of the LNRS measures can help to support our struggling pollinators and pest predators by providing habitat and food resources. Measures that create and maintain scrub, wildflowers and dead wood are particularly important, because insects need nectar from flowers as well as structurally diverse ('messy') habitats to use for nesting and over-wintering sites. Habitats including tussocky grass, dead hollow stems, leaf litter, different ages of scrub, dead wood, old trees with hollows, flaking bark and crevices, and patches of bare ground are all really valuable. The Oxfordshire LNRS consultation revealed strong support for more of these naturally diverse mosaic habitats. Examples of key measures include PM03 (creating grasslands with a bumpy ground structure and different sward heights), PM05 and PM06 (creating and maintaining flower-rich grasslands), PM07 and PM08 (creating and maintaining varied scrub patches on grasslands), PM17 to PM27 (creating and maintaining mosaic habitats including wood pasture and parkland with veteran trees), PM37 (creating dense shrubby habitat in woodlands), PM60 (creating dead wood habitat), PM61 to PM64 (creating and maintaining hedgerows and walls), PM66 to PM69 (creating flower-rich field margins) and PM76 (integrated pest management to reduce use of agrochemicals).

## Human health and wellbeing

There is now strong evidence that nature-rich green spaces can improve human physical and mental [health and well-being](#) and can have [wider socio-economic benefits](#). For example, interaction with nature can improve a range of health conditions including heart and lung health, high blood pressure, diabetes, immune function, depression and anxiety. Nature-rich green spaces in and around urban areas can make them a better place to live, work and invest, helping to attract visitors and businesses to the area and improving local economies. Urban trees (PM78) and hedgerows (PM61 to 63) can also help to trap air pollution and act as a noise barrier in urban areas.

## Water quality

Improving water quality and improving the health of rivers and freshwater habitats emerged as most people's top priority from earlier workshops and surveys which were held in 2024 to inform the draft LNRS. The main route for tackling poor water quality is by reducing discharges of untreated sewage however this particular action is beyond the control of the LNRS. Reducing untreated sewage discharges is an action that needs to be enforced by the relevant organisations within industry and by national government which is why it is out of scope of the LNRS. However, some of the LNRS 'potential measures' in the table above can help to reduce another source of water pollution – runoff from agricultural fields. Key measures include creating riparian buffers of trees, shrubs and tall, tussocky grassland on the edge of watercourses (PM40), chalk streams (PM45) and ponds (PM43), creating wet woodland in riparian areas (PM38), and creating reedbeds (PM44 and PM53) and wetland mosaics (PM51 and PM54). Measures to reduce soil erosion can also help to stop polluted soil being washed into watercourses: this could include ensuring that new woodlands (PM35), woodland/scrub/grassland mosaics (PM24), tussocky grasslands (PM03) and hedgerows (PM61 to 63) are created on steep slopes, especially where there are soils that are vulnerable to erosion. Finally, there are a number of habitat measures around the freshwater environment which will improve the structure, condition, and diversity of rivers, ponds and wetland habitats although these alone will not directly improve water quality.

## Appendix 2 - The local, regional, and national plans, objectives, and/or strategies which were reviewed as part of the process of choosing potential priorities and potential measures for Oxfordshire's draft Local Nature Recovery Strategy.

During the development of the Local Nature Recovery Strategy 'priorities' and 'potential measures' you will see that, after we listed priorities and potential measures from workshops and the survey, we then reviewed these against local plans and strategies to add in, or add detail to priorities and measures.

When reviewing strategies or documents, those reviewing them were asked to look for whether any potential priorities, potential measures, particular locations, or particular targets were mentioned which needed to be considered when we finalised our list of priorities, potential measures, and targets for this draft LNRS. The strategies reviewed included:

### National

- National Environmental Objectives
- Environmental Improvement Plan Objectives
- River Catchment management plans
- Water framework directive

### Regional, local, and county projects

- Chilterns Nature Recovery Plan (currently being written)
- Cotswolds National Landscape Management Plan
- Cotswolds Nature Recovery Plan
- National Landscape Target 8
- North Wessex Downs Nature Recovery Plan
- Conservation Target Areas

## County Council

- [Oxfordshire County Council](#) - Oxfordshire Environmental Principles
- Oxfordshire County Council - Minerals and Waste Local Plan
- OCC's position statement Oxfordshire's trees and woodland, today and tomorrow
- Oxfordshire Net Zero Route Map and Action Plan 2023-2050

## District and City Council Local Plans and Green Infrastructure Strategies

- South and Vale District Council Joint Local Plan Preferred Options
- Oxford Local Plan 2036
- Oxford Local Plan 2040 (submission draft)
- Cherwell Green and Blue Infrastructure Strategy
- Salt Cross Area Action Plan - yet to be adopted
- South and Vale Green Infrastructure Strategy
- West Oxfordshire Local Plan 2031 – adopted
- West Oxfordshire Local Plan 2041. Focused Consultation: Ideas and Objectives. Aug 2023
- West Oxfordshire District Council Nature Recovery Plan 2024 – 2030
- Oxford Urban Forest Strategy A Master Plan to 2050 SEPTEMBER 2021

Whilst there was limited resource to review the neighbourhood plans at this stage, Oxfordshire's LNRS has run specific activities and events to engage with the 300+ parish and town councils within Oxfordshire through the Oxfordshire Association of Local Councils. Parish and town councils were encouraged to participate in our surveys and workshops as well as other in-person events so that we could incorporate their priorities and potential measures.

In addition to written strategy documents, many organisations provided the LNRS with further information and data about locations where key activities are being undertaken or could be undertaken including information from Forestry Commission, Freshwater Habitats Trust, BBOWT, and many more. This has been used within our mapping process to create the draft Local Habitat Map.

### Appendix 3 – project partner representatives who oversaw the priority setting for Oxfordshire.

The priorities and potential measures decision-making was overseen by a group of representatives from each and all of:

- Oxfordshire County Council
- The District and City Councils, biodiversity and planning representatives
- Natural England
- Forestry Commission
- Environment Agency
- Cotswolds National Landscape (representing protected landscapes in Oxfordshire)
- BBOWT - Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
- Oxfordshire's Local Nature Partnership
- Wild Oxfordshire
- Thames Valley Environmental Records Centre (TVERC)
- Director of the Durrell Institute of Conservation and Ecology (DICE)
- University of Oxford, Environmental Change Institute, Leverhulme Centre for Nature Recovery