



MAYORAL COMBINED AUTHORITY
AND NORTH SOMERSET NATURE
RECOVERY TOOLKIT

Mapped measures attribution

FINAL DRAFT

Contents

Explanation	3
Context.....	3
Purpose of this document.....	3
Attributions of mapped measures	4
Theme I: Build connected nature networks that are resilient to climate change	4
Theme II: Protect and enhance what we have	8
Theme III: Working with nature to deliver wider benefits to society.....	11
Theme IV: Nature-friendly, sustainable farming and living	13
Theme V: Connecting people to nature.....	13

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Explanation

Context

The 'mapped measures' for nature recovery are the actions that, if taken, would help to deliver the agreed priorities for nature recovery in the Mayoral Combined Authority and North Somerset. We have created a series of maps that show where these measures would be most appropriate and impactful.

When combined, the mapped measures make up the 'focus areas for nature recovery'. The mapped measures also show where an uplift in the value of Biodiversity Net Gain units could be received for different habitats. More information coming soon in the guide for planners and ecologists.

In many locations, there will be more than one mapped measure. This indicates that any of these mapped measures would be particularly beneficial in that location. For example, creation of woodland, wood pasture and hedgerows would all help to connect existing wooded habitats.

For much of the Mayoral Combined Authority and North Somerset, there will be no measures mapped (these are the parts of the region outside of the focus areas for nature recovery). If you are in an area without a mapped measure, please refer to the LNRT Application for guidance on the most impactful actions where you are.

Measures are not mapped for nationally-designated Sites of Special Scientific Interest (SSSIs). This is because these sites have their own bespoke management plans.

It should also be noted that if a measure is not mapped in a given location, it does not necessarily mean that it would not be appropriate there.

Purpose of this document

There are a number of 'layers' showing where different measures within the Mayoral Combined Authority and North Somerset mapped, which can be found [on the Open Data Portal](#). We have also created a series of online maps that display these layers, and can be used to easily see where different measures are mapped.

Some measures are mapped to the same location. For instance, all of the measures related to woodland management are mapped to existing woodlands. Therefore, where this is the case we have created a single layer for all of these measures. In the case of woodland management, the locations where all of the measures related to woodland management are mapped are within the layer 'woodland management'.

This document sets out which layer each of the mapped measures (i.e. those that are categorised as 'Core BNG') is attributed to.

Attributions of mapped measures

Theme I: Build connected nature networks that are resilient to climate change

Code	Biodiversity priority	Measures	Mapping layer
1	<p>There is more land where nature is allowed to 'take the lead' and create messy, mixed habitats</p> <p>(There is a greater amount of land where extensive grazing creates diverse, dynamic and shifting habitat mosaic, including successional habitats and scrub)</p>	<p>On areas that are currently biodiversity-poor, use a suitable mix of free-roaming herbivores with different grazing habits to create an extensively grazed, dynamic mosaic of habitats including species-rich grassland, scrub and trees. This could include introducing more hardy, native breeds of cattle, and ponies alongside suitable breeds of pigs if appropriate.</p> <p>In some instances, land may benefit from being left to naturally generate for a time before grazing is introduced.</p> <p>For the biggest impact, this should be done in a large enough area for natural processes to create habitat variety, including variety in the height and density of grassland and scrub.</p> <p>Manage existing areas of scrub that are in good condition and are not on previously species-rich grasslands, to avoid them losing their scrub or thicket-like characteristics. This can be achieved by, for example, coppicing on a suitable rotation and using appropriate extensive grazing regimes. Management should aim to achieve a mix of young and mature scrub.</p>	<p>Mosaic habitat creation</p> <p>Scrub management</p>
2	<p>There are more and better-connected flower-rich 'calcareous' grasslands that support lots of insects and pollinators</p> <p>(There are more and better-connected species-rich lowland calcareous grasslands on limestone soils that support specialist</p>	<p>Create species-rich calcareous grassland on improved grassland, or where arable farming is financially unviable, and put in place appropriate ongoing management of extensive grazing with hardy, native breeds of cattle. If seeding is needed for establishment, ideally use seed sources of local provenance for the best results.</p> <p>It is recommended to check your soil type for the suitability of calcareous grassland creation/restoration.</p>	<p>Calcareous grassland creation</p>

Code	Biodiversity priority	Measures	Mapping layer
	pollinator and insect populations, including the small blue, marsh fritillary, chalkhill blue and grayling butterflies)	<p>Restore infertile soils, 'semi-improved' grassland or species-poor unimproved grassland to species-rich calcareous grassland with greater species diversity. Existing grassland can be diversified by harrowing and over seeding. Ideally, use seed sources of local provenance for the best results, and ensure appropriate ongoing management of extensive grazing with hardy, native breeds of cattle</p> <p>It is recommended to check your soil type for the suitability of calcareous grassland creation/restoration.</p>	Calcareous grassland restoration
		<p>Restore 'semi-improved' grassland to species-rich calcareous grassland with greater species diversity. Existing grassland can be diversified by harrowing and over seeding. Ideally, use seed sources of local provenance for the best results, and ensure appropriate ongoing management of extensive grazing with hardy, native breeds of cattle</p> <p>It is recommended to check your soil type for the suitability of calcareous grassland creation/restoration.</p>	Calcareous grassland restoration
	There are more and better-connected flower-rich 'neutral' grasslands, including hay meadows, that support lots of insects and pollinators.	<p>Create lowland meadows (species-rich neutral grassland) on improved grassland, or where arable farming is financially unviable, and put in place appropriate ongoing management of haymaking or, ideally, extensive grazing with hardy, native breeds of cattle. If seeding is needed for establishment, ideally use seed sources of local provenance for the best results.</p>	Lowland meadow creation
3	(There are more and better-connected species-rich neutral grasslands, including traditional hay meadows, that help support resilient, diverse pollinator and insect populations)	<p>Restore infertile soils, 'semi-improved' grassland or species-poor unimproved grassland to lowland meadows (species-rich neutral grassland) with greater species diversity. Existing grassland can be diversified by harrowing and over seeding. Ideally, use seed sources or 'green hay' of local provenance for the best results, and ensure appropriate ongoing management of haymaking or, ideally, extensive grazing with hardy, native breeds of cattle.</p>	Lowland meadow restoration

Code	Biodiversity priority	Measures	Mapping layer
		<p>Restore 'semi-improved' grassland to lowland meadows (species-rich neutral grassland) with greater species diversity.</p> <p>Existing grassland can be diversified by harrowing and over seeding. Ideally, use seed sources or 'green hay' of local provenance for the best results, and ensure appropriate ongoing management of haymaking or, ideally, extensive grazing with hardy, native breeds of cattle.</p>	Lowland meadow restoration
4	There is more, better and better-connected woodlands, wood pasture and parkland	<p>Create semi-natural broadleaved woodland, following the principles set out in the Forest of Avon Plan, and ensure the woodland has a suitable management plan in place to deliver the best outcomes for biodiversity. Where possible, allow woodland to naturally colonise rather than planting trees; if planting, use an appropriate mix of trees for the site, considering factors such as soil type and management objectives.</p> <p>Note that creation of woodland more than 2 hectares in size or in a sensitive location may require screening by the Forestry Commission.</p> <p>Woodland creation should be avoided on existing biodiverse habitat, such as species-rich grassland.</p> <p>Following best practice guidance, gradually restore plantations on ancient woodland sites to native woodland. Consent and an approved felling licence may be required from the Forestry Commission.</p> <p>Restore former wood pasture, or create new wood pasture, which supports extensive grazing alongside trees and scrubby areas. Grazing management should aim for a mosaic of habitats, including enabling young trees to grow, some scrub to develop, and areas of more open grassland.</p> <p>Allow natural colonisation of scrub and vegetation adjacent to existing semi-natural woodlands, which provides important 'edge habitat'.</p> <p>Ensure any landfilling of quarries is linked to a restoration plan suitable for woodland or mosaic habitat creation.</p>	<p>Woodland creation</p> <p>Restoration of Planted Ancient Woodland Sites (PAWS)</p> <p>Wood pasture restoration & creation</p> <p>Woodland edge habitat creation</p> <p>Quarries woodland restoration</p>

Code	Biodiversity priority	Measures	Mapping layer
5	There are more traditional orchards that are managed with wildlife in mind	Restore and establish traditional orchards, including community orchards, with a focus on maintaining locally distinctive varieties.	Orchard creation
		Protect existing traditional orchards and continue to manage them well for wildlife, including leaving standing deadwood and managing the the grassland understory for species diversity.	Traditional orchard management
6	There is more and better wetland habitat, including lowland fen, wet woodland, reedbeds, wet meadows, rhynes, scrapes and ponds, particularly in low-lying areas near to the coast	Where feasible, create wetland habitat (such as fen, wetland mosaic, or reedbed) with appropriate management in place to create and maintain a diverse structure. This may require changing water levels and interventions such as blocking up ditches. In this case, it is recommended that you consult with the relevant Internal Drainage Board for advice. The possibilities for wetland habitat creation will depend on the nature of your site; it is recommended that you consult with relevant organisations such as the RSPB, WWT, Avon Wildlife Trust, or Natural England, as well as the relevant Internal Drainage Board, for advice.	Wetlands and rhynes measures
		Manage existing wetland habitats, including fen, wetland mosaic and reedbed, to maintain or improve their value to wildlife. The best management techniques will depend on the type of wetland habitat present and the nature of the site, but could include extensive grazing; it is recommended that you consult with relevant organisations such as the RSPB, WWT, Avon Wildlife Trust or Natural England for advice.	Wetlands and rhynes measures
		Restore or create (farmland) ponds for wildlife, including great-crested newt. New ponds should be created in a site that will provide the pond with an unpolluted water source, such as a site surrounded by rough grassland or woodland.	Pond creation
		Ensure good management of existing (farmland) ponds for wildlife, including great-crested newt and toads. This should include reducing pollution reaching a pond where possible.	Pond management

Code	Biodiversity priority	Measures	Mapping layer
	There is more and better habitat alongside rivers and streams, maximising their role as corridors for wildlife and also improving the health of rivers	Create and manage riparian buffer strips (of 5-50m or more, depending on the size of the watercourse and the nature of surrounding land, with larger buffers providing greater benefits) of vegetation including trees alongside rivers and streams. This will improve river ecology, create natural corridors, reduce pollution reaching rivers, and provide natural flood management. Any existing priority habitats (e.g. species-rich grassland) should be maintained within any buffer strips. Depending on size, an EIA may be required from the Forestry Commission.	River buffers and floodplain
8	(The role of rivers and streams as ecological corridors through the landscape is enhanced, with diverse riparian habitat that benefits a range of species, stabilises banks, captures nutrients, regulates water temperature and provides vital shade during warm weather)	Manage riparian vegetation to ensure a mosaic of light levels along the river, aiming for a 60/40 ratio of light to shade, and a dense understory to enhance the slow of runoff and increase infiltration rates. Consent and an approved felling licence may be required from the Forestry Commission if you are felling trees.	River buffers and floodplain
		Coppice bankside trees to increase their longevity and health.	River buffers and floodplain
		Continue or restore willow pollarding alongside rivers, rhynes and ditches, helping to increase their longevity and health.	Wetlands and rhynes measures

Theme II: Protect and enhance what we have

Code	Biodiversity priority	Measures	Mapping layer
11	More of our existing woodland is well-managed and is better for wildlife (There is more woodland that is managed and in good ecological condition, including minimising the impact of ash dieback and	Manage existing wood pasture and parkland to maximise its value to wildlife and promote survival of mature and veteran trees. Grazing management should aim for a mosaic of habitats, including enabling young trees to grow, some scrub to develop, and areas of more open grassland. Carry out specialist tree surgery as needed to extend the lives of veteran and ancient trees and maximise their value to wildlife, including halo-thinning where appropriate.	Wood pasture management Hedgerow and tree management

Code	Biodiversity priority	Measures	Mapping layer
	reducing grazing pressure on sensitive woodlands from deer)	<p>Improve the management of existing areas of woodland to support a wider range of wildlife, flora and fungi, following the principles set out in the Forest of Avon Plan. Depending on the woodland, this could include reintroducing coppicing; opening up rides and glades to develop ecotones and scrubby areas; or carefully targeted light grazing. It is recommended that expert advice is sought on the best management, and particular care should be taken when adjusting management in ancient woodlands. Consent and an approved felling licence may be required from the Forestry Commission.</p>	Woodland management
		<p>Take measures to reduce deer grazing in woodlands, such as putting up deer fencing, to reduce their negative impact on woodland ecology and ground flora and fungi due to overgrazing.</p>	Woodland management
		<p>Leave standing and fallen deadwood in situ to provide habitat for a variety of species including fungi, lichens, invertebrates, mosses, bats and birds.</p>	Woodland management
		<p>Only fell trees affected by ash dieback when there is a material safety risk, a clear future safety risk, or as part of normal silvicultural operations, and leave deadwood in place where possible for the benefit of wildlife, including fungi associated with ash.</p> <p>If felling trees, consent and an approved felling licence may be required from the Forestry Commission.</p>	Woodland management
		<p>Where there is a diverse mix of tree species present, allow natural regeneration to replace trees lost through ash dieback. Where appropriate, use new open woodland areas caused by ash dieback to create new wood pastures or glades.</p>	Woodland management
		<p>Where natural regeneration is not possible and open wooded areas are not appropriate, replace trees lost through ash dieback with a suitable mix of broadleaved species.</p>	

Code	Biodiversity priority	Measures	Mapping layer
		<p>Ensure woodland management includes measures to make woodlands resilient in the face of climate change. Measures will be site-specific, but could include fire and fuel breaks and/or fire belts in woodland to reduce the risk of wildfires.</p>	<p>Productive woodland management</p>
		<p>Keep or put in place the appropriate extensive grazing regime for existing species-rich calcareous grasslands, avoiding overgrazing or undergrazing that can lead to grassland habitat being lost. The use of traditional and rare native breeds can help to achieve the correct grazing regime.</p>	<p>Calcareous grassland management</p>
		<p>Prevent scrub from overrunning species-rich grasslands, while maintaining a minority area of scrub that is managed to create a varied age, composition and physical structure including glades and scalloped edges. If scrub has already overrun a previously species-rich grassland, scrub removal, seeding and reinstating appropriate grazing can restore species-rich grassland. Note this does not apply to existing traditionally-managed lowland meadows on which a hay cut is taken.</p>	<p>Calcareous grassland management; Lowland meadow management</p>
12	<p>Our species-rich grasslands and meadows are protected and well-managed for wildlife (Existing species-rich grasslands and meadows, including lowland calcareous grasslands, are protected and well-managed)</p>	<p>Where there is an absence of scrub and successional habitat in or adjacent to grasslands, encourage a minority amount to improve structural diversity and benefit wildlife. Scrub can also act as a transitional habitat between grassland and woodland. Note this does not apply to existing traditionally-managed lowland meadows on which a hay cut is taken.</p>	<p>Calcareous grassland management; Lowland meadow management</p>
		<p>Keep or put in place the appropriate extensive grazing regime for existing species-rich lowland meadows that are currently grazed, avoiding overgrazing or undergrazing that can lead to grassland habitat being lost. The use of traditional and rare native breeds can help to achieve the correct grazing regime.</p>	<p>Lowland meadow management</p>
		<p>Continue traditional hay management for existing species-rich lowland meadows where it is already in place.</p>	<p>Lowland meadow management</p>

Code	Biodiversity priority	Measures	Mapping layer
	There is more and better managed inter-tidal and saltmarsh habitat along the Severn Estuary, supporting populations of wading birds and wildfowl.	Protect mudflat habitats on the tidal Bristol Avon from coastal squeeze by providing them with space to expand landwards where feasible. These are important habitats for feeding wading birds and waterfowl.	Coal batch species-rich grassland management
	(Saltmarsh habitat along the Severn Estuary is well managed for wildlife and is protected from disturbance, supporting the internationally important populations of birds there)	Restoration and creation of intertidal saltmarsh habitat and mudflats near the coast, using techniques such as managed realignment or regulated tidal exchange, where in alignment with the relevant Shoreline Management Plan (SMP) and supported by the Environment Agency.	Saltmarsh creation
		Create additional habitat to act as high-tide roosts, such as wetland habitat, lagoons and wet grassland, close to the coast. These can provide places above mean high-tide levels where waterbirds can rest and recover.	High-tide roosts

Theme III: Working with nature to deliver wider benefits to society

Code	Biodiversity priority	Measures	Mapping layer
16	More rivers are allowed to flood onto land next to the river, creating wetland habitat and reducing flooding in populated areas (More rivers are reconnected to their floodplains and floodplain wetlands are created to allow natural erosion and silt deposition within the floodplain, especially where this would provide benefits to flood management)	Reconnect rivers to their floodplain, allowing floodwater to spill naturally onto adjacent land, and restore wetland habitat (including wetland mosaic, wet woodland and floodplain grazing marsh) within the floodplain. This can both benefit wildlife and provide natural flood management. Careful planning will be needed, and planning permission and bespoke consent may be required. Restore or improve management of existing floodplain grazing marsh or floodplain meadows, including permitting seasonal flooding. Ideally, sites would be managed using an extensive grazing regime to maintain species and structural diversity.	Floodplain reconnection and larger river restoration Floodplain reconnection and larger river restoration

Code	Biodiversity priority	Measures	Mapping layer
		<p>If floodplain reconnection is not possible (including outside of the floodplain), create woodland or mosaic habitat to benefit wildlife, reduce pollutants entering the river, and provide natural flood management.</p> <p>Ensure to manage any riparian vegetation to ensure a mosaic of light levels along the river, aiming for a 60/40 ratio of light to shade.</p>	River floodplain corridor woodlands and mosaic habitat
17	<p>'Nature-based solutions' are used to store water in the landscape, helping to reduce the risk of flooding and reduce the impacts of drought</p> <p>(Nature-based solutions are used to slow the flow of water and increase water storage in the landscape, thereby reducing the risk of flooding, and mitigating the impacts of drought and water scarcity)</p>	<p>Cross-slope (following a contour) planting of trees, woodland strips and hedgerows to intercept flows of water, providing natural flood management and capturing pollutant run-off. Woodland strips should be up to 10m wide, or 30m wide for steeper slopes</p> <p>Create offline and/or online ponds or scrapes in the floodplain. Offline ponds/scrapes are not connected to the watercourse, and can capture overland runoff. Online ponds/scrapes are connected to the watercourse through a stream channel, storing floodwater temporarily and releasing it into the watercourse in a controlled manner.</p> <p>Planning permission and/or consent from the Environment Agency or the Lead Local Flood Authority may be required.</p>	<p>Cross-slope planting</p> <p>Floodplain reconnection and larger river restoration</p>
18	<p>Management of areas of lowland peat in North Somerset improves its value to wildlife, stores carbon, and makes it less vulnerable to climate change</p> <p>(Management of lowland peat in the Gordano Valley and on Tickenham and Nailsea Moors is improved to create more wetland habitat and benefit wildlife, sequester carbon, and improve its resilience to climate change)</p>	<p>Raise water levels and create lowland fen habitat on peaty soils, with appropriate management in place to create and maintain a diverse structure. This should include extensive grazing with cattle and other herbivores where appropriate.</p> <p>Manage existing wet (carr) woodlands for the benefit of wildlife, including maintaining water levels, creating/maintaining open areas and edge habitat, and retaining dead wood.</p>	<p>Management of lowland peat</p> <p>Management of lowland peat</p>

Code	Biodiversity priority	Measures	Mapping layer
19	A growing population of beavers are restoring natural processes to rivers and waterways.	Provide a natural space of 20 metres or more for beavers alongside the river/stream edge, planting native species such as willow and aspen. This will reduce the likelihood of beavers foraging elsewhere on your land.	River buffers for beavers

Theme IV: Nature-friendly, sustainable farming and living

Code	Biodiversity priority	Measures	Mapping layer
20	There are more thick and tall hedgerows that allow wildlife to travel through the landscape (The extent and quality of our hedgerow network for wildlife is improved, helping to connect wildlife-rich sites.)	Manage hedgerows in a thick and tall condition for wildlife, following best practice set out by Hedgelink and only cutting every three years on rotation. Create/restore hedgerows where they have previously existed, or where they would fit in with the existing field system.	Hedgerow and tree management Hedgerow creation and field trees
21	There are more trees throughout the countryside, including field trees, hedgerow trees and fruit trees	Establish field/hedge trees within hedgerows where they are not already present.	Hedgerow creation and field trees

Theme V: Connecting people to nature

Code	Biodiversity priority	Measures	Mapping layer
26	There is more nature-rich space in towns and cities, especially in areas that do not have	Increase the area of parks and public spaces managed for nature, including establishing more wildflower meadows or areas of unmown grass.	Parks and Green Spaces

Code	Biodiversity priority	Measures	Mapping layer
	good access to nature-rich spaces and/or that are more deprived	<p>Create new multifunctional parks and green spaces to ensure that residents of new (and existing) housing have sufficient access to larger green spaces (meeting Natural England Access to Green Space Standards). This should be prioritised in areas with the least local access and/or where significant housing development is expected.</p> <p>Create pocket parks and green spaces in unused spaces, prioritising areas with least access to local green space, and the highest vulnerability to the urban heat island effect and air pollution.</p> <p>Create greenways along rivers in cities to improve people's access to rivers and provide nature-rich corridors.</p>	<p>Parks and Green Spaces</p> <p>Parks and Green Spaces</p> <p>Urban river greenways</p>
27	<p>There are more trees in towns and cities, helping wildlife, benefitting residents' wellbeing, and helping us adapt to climate change</p> <p>(There is greater tree canopy cover in towns and cities, benefitting urban wildlife, helping adapt to climate change, and improving people's wellbeing)</p>	<p>Plant new street trees, ideally species that will benefit wildlife, prioritising areas with low tree cover and sites that will most benefit from shade for urban cooling.</p> <p>Create community orchards, ideally with local varieties of fruits, to provide local food and benefit wildlife.</p>	<p>Parks and Green Spaces</p> <p>Parks and Green Spaces</p>