

Report of the Greater Manchester Local Nature Recovery Strategy Pilot

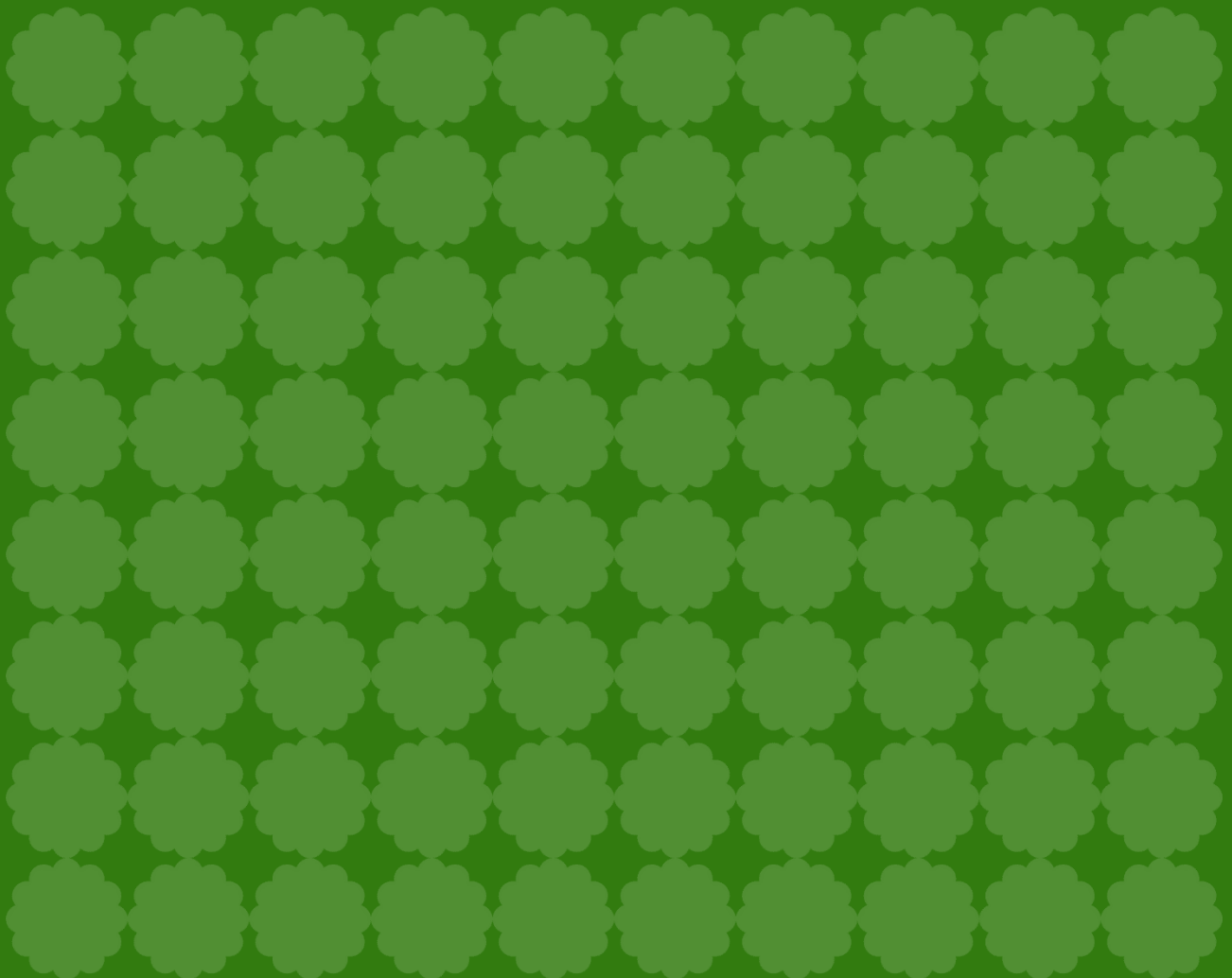


Table of Contents

The Greater Manchester Local Nature Recovery Strategy Pilot	5
Background and purpose of the pilot.....	5
The pilot process.....	5
The status of this report and the prototype strategy	7
This report and the planning system	7
The future for Local Nature Recovery Strategies	8
The Greater Manchester Prototype Local Nature Recovery Strategy.....	9
Executive Summary	10
Introduction	10
Why we need a Local Nature Recovery Strategy?	10
The basis for nature's recovery	12
Space for nature's recovery	13
Achieving nature recovery.....	16
How did we develop the Outcomes and Measures?	17
Implementation.....	18
1. Introduction	20
Greater Manchester's Natural Environment	20
Links to other strategies and plans.....	21
Who can use this strategy and how?.....	22
2. Why we need a Local Nature Recovery Strategy.....	24
The Biodiversity Emergency.....	24
Wider benefits of nature recovery	25
The good news for nature recovery in Greater Manchester	27
3. The basis for nature's recovery – Greater Manchester's existing biodiversity	29
Principles for nature recovery.....	29
Mapping Greater Manchester's existing sites for Nature.....	31

The condition of Greater Manchester's existing sites for nature.....	33
Local Wildlife Sites	38
Pressure on Greater Manchester's existing sites for Nature	38
4. Space for nature's recovery – Greater Manchester's wider natural environment.....	41
Greater Manchester's Landscapes.....	41
Mersey Valley.....	42
Lancashire Coal Measures.....	47
Southern Pennines.....	52
Dark Peak	58
Manchester Pennine Fringe	63
Manchester Conurbation	69
Greater Manchester's Ecological Networks.....	75
Urban areas	75
Trees and Woodlands	76
Rivers, streams and canals	81
Parks and Gardens	85
Peat.....	88
5. Achieving nature recovery – what we want to achieve and how we will achieve it.....	92
Developing the priorities, outcomes and measures for nature recovery.....	92
How did we develop the Outcomes and Measures?	93
Outcomes, Priorities and Measures for Nature Recovery	95
Opportunity Map: Combined opportunities	122
Opportunity Map: Rivers and Canals, Standing Water and Wetlands	123
Opportunity Map: Grasslands and Heathlands.....	124
Opportunity Map: Trees and Woodlands.....	125
Opportunity Map: Uplands.....	126
Opportunity Map: Urban	127
6. Implementation.....	128
APPENDICES	130

Appendix 1. Steering Group Membership	130
Appendix 2. National Character Areas Habitats	131

The Greater Manchester Local Nature Recovery Strategy Pilot

Background and purpose of the pilot

In August 2020, the government [announced](#) that five local authorities would test how the recovery of England's landscapes and wildlife can be driven locally. To do this, "Local Nature Recovery Strategy" (LNRS) pilot studies were set up in each of the five areas to help map the most valuable sites and habitats for wildlife in their area and identify where nature can be restored.

Greater Manchester was one of these pilots. The Greater Manchester LNRS pilot ran from autumn 2020 to summer 2021. It brought together stakeholders across the city-region to set out local priorities for restoring and linking up habitats to tackle the biodiversity emergency and agree the best places to do that and, at the same time, deliver wider benefits for people and the environment.

This report sets out the output of the pilot in the form of a prototype Greater Manchester LNRS, developed as part of the pilot process.

The pilot process

To test the creation of an LNRS, all pilot areas followed a five-step process. These were implemented as follows in the Greater Manchester pilot:

1. **Mapping Greater Manchester's habitats** – mapping existing areas, places and sites that are already good for nature and which form the basis for nature recovery.
2. **Understanding the potential for improvement** – looking at the different parts of Greater Manchester's natural environment, its geography and ecology, and the potential for improvement.

3. **Setting out what we want to achieve** – carrying out a series of engagement workshops and meetings with a range of residents, experts and organisations to identify **outcomes** we want to achieve for nature's recovery.
4. **Setting out how we will achieve it** – carrying out a series of engagement workshops and meetings to identify the **measures** to deliver these outcomes.
5. **Prioritising and mapping** – being clear on the priorities we want to achieve through management, improvement, creation or expansion of habitats and where the best potential locations for these to take place are.

Ensuring the pilot was collaborative and locally led underpinned this process. The pilot was delivered with the support of a wide range of experts and stakeholders across the city-region. The Greater Manchester Combined Authority (GMCA), as lead organisation, worked closely with colleagues at Natural England (NE) and the Greater Manchester Ecology Unit (GMEU), supported by a Steering Group made up of a wide range of stakeholders (see Appendix 1).

GMCA convened a series of nine virtual and interactive workshops open to residents and local experts in which around 150 people contributed to developing the Outcomes and Measures (Steps 3 and 4 above). A further 26 sector/geography-based workshops and two workshops with young people were held. Additionally, a Greater Manchester wide natural environment consultation was held that received over 1000 responses. In total, this amounted to over 180 hours of engagement activity.

Once the Outcomes and Measures (Steps 3 and 4 above) were agreed, opportunity maps were created (Step 5). Opportunity areas were identified using a combination of data held by GMEU and data provided by many of GMCA's partners, predominantly those from the LNRS Steering Group (see Appendix 1). Through a combination of data and on-the-ground knowledge, opportunity areas for each of the measures was identified and blended into a series of opportunity maps.

Nature does not stop at administrative boundaries. To ensure this was reflected in the pilot, partners from neighbouring authorities were involved in the process of developing this strategy.

The status of this report and the prototype strategy

The pilot report and the prototype strategy produced as part of the pilot does not have a formal status like documents such as the Greater Manchester 5 Year Environment Plan. However, this report is being published now to inspire and help people across Greater Manchester to take action to support nature's recovery.

This pilot report can be used right now by anyone who lives or works within Greater Manchester to understand the part they can play in restoring nature. It can also be used by those organisations seeking to restore nature and deliver wider environmental benefits in Greater Manchester. We hope it will act to bring together the broad range of groups – from land managers and businesses to local communities – that can work in partnership to deliver priorities for nature recovery in Greater Manchester.

The Greater Manchester Combined Authority would welcome views on this report.

This report and the planning system

Given the above, this report also does not have a status within the planning system. However, it can help local planning authorities deliver on existing commitments in the National Planning Policy Framework relating to habitat conservation and restoration. It is another piece of evidence that can help local planning authorities to continue in their role in reconciling and balancing competing pressures for land in their areas.

This report builds on previous work carried out across Greater Manchester, including in the development of the Places for Everyone joint plan and local plans. It sets out in greater detail the opportunities for recovering nature across Greater Manchester and for maximising the potential for new development, (including allocations in both plans), to play their part in contributing to nature recovery. In particular, these plans will introduce a requirement for Biodiversity Net Gain from new developments and the pilot report supports this policy by identifying opportunities and mechanisms for delivery.

The pilot report identifies opportunities for nature recovery, rather than imposing constraints on other activities. To do this, the pilot report identifies the priority actions and opportunities for recovering nature in Greater Manchester and the locations most suited to those. This does not mean that those actions have to be delivered in those locations or that nothing else can take place there, be that development or other types of nature recovery activities. As far as development is concerned, local planning authorities will continue their role in reconciling and balancing competing pressures for land in their areas.

The future for Local Nature Recovery Strategies

The government's [Environment Bill](#), once enacted, will require all areas in England to establish an LNRS. These will underpin ambitions for a Nature Recovery Network to benefit people and wildlife by increasing, improving and joining-up wildlife-rich places. The Greater Manchester pilot will provide the basis for doing this once these are rolled out across the country. How this is carried out will be dependent on the level of local government at which the government requires an LNRS to be developed (i.e. Combined Authority or local authority level). It is likely that developing an LNRS will entail a formal public consultation and approval by the Defra Secretary of State.

It is not yet clear what role LNRSs will play within any reforms to the planning system. [The Planning for the Future White Paper](#), published in August 2020, proposed a major overhaul of the existing planning system. The consultation document made clear the intention for the planning system to play an active role in environmental enhancement and specifically refers to LNRSs in this context. Since the consultation closed, the Department for Levelling Up, Housing and Communities (DLUHC) has been considering responses and developing their proposals for planning reform. Government departments are working together on the environmental aspects of planning reform. However, at this point, there are no further details of how LNRSs will integrate with any reforms to the planning system.

The Greater Manchester Prototype Local Nature Recovery Strategy



Executive Summary

Introduction

The natural environment of Greater Manchester is the foundation for all aspects of our daily lives. It encompasses living things in all their diversity and supports the basics we need to live, providing us with air, water and food. Nature's systems link and underpin human life and economic activity by cycling water, pollinating crops and regulating the climate.

The natural environment has an innate value that means we have a strong responsibility to protect it. Its value to us is also clearer than ever: it is fundamental to our health and wellbeing, is the foundation of a productive economy and provides us with attractive neighbourhoods and access to green spaces we can enjoy.

Despite this, the natural environment faces urgent and significant challenges in Greater Manchester, the UK and across the world. By tackling the biodiversity emergency, we will help nature recover and, at the same time, secure the health and economic benefits from an enhanced natural environment, for wildlife, for people and for our economy.

This strategy sets out what we need to do to tackle the biodiversity emergency in Greater Manchester, whilst securing the wider benefits that enhancing the natural environment will bring.

It is a key part of our wider strategy to make Greater Manchester one of the best places in the world to grow up, get on in life and grow old and how we can deliver on the ambition in our 5 Year Environment Plan (2019–2024).

Why we need a Local Nature Recovery Strategy?

The problem

This strategy addresses the biodiversity emergency we are facing across the UK. Over recent decades, there have been significant changes in species numbers and distribution in the UK. This has been mirrored in Greater Manchester, with many bird

species declining and significant changes in numbers of mammal and invertebrate species.

Habitats have been lost, destroyed, fragmented and become less diverse and the situation is getting worse. For nature to recover, species need habitats that are larger, better connected and more complex. This strategy starts with how we can stop and reverse these declines and help nature to recover.

The opportunity

Alongside delivering benefits for nature and its innate value, the measures within this strategy can also support the wider benefits of enhancing our natural environment.

In Greater Manchester, we have produced Natural Capital Accounts for the city-region as a whole and for each local authority. Natural Capital accounting is a method of valuing services and impacts natural assets provide to the city-region.

Half of Greater Manchester's area is urban, so this approach is particularly useful to understand the value of green infrastructure – the green and blue features that can be created and enhanced to support wider environmental benefits, rather than recovery of nature being their main driver or purpose. In Greater Manchester the approach fostered by this strategy is to deliver outcomes for nature that also can provide wider environmental benefits, using a Natural Capital Approach.

The solution

Despite the biodiversity emergency we are facing, there are reasons for optimism. Greater Manchester has a strong track record on nature recovery since the decline of heavy industry in the city-region. We have a committed network of organisations and partnerships with the right skills and experience to deliver a more urgent, expanded and accelerated programme of nature conservation, restoration and recovery.

There are many examples of the work going on in Greater Manchester to recover nature. This Local Nature Recovery Strategy grows out of these and the many other previous achievements to improve the natural environment, and aims to support, accelerate and expand the work of the city region's partners, businesses and residents.

The basis for nature's recovery

Principles for nature recovery

Greater Manchester's Local Nature Recovery Strategy is based on the principles of the Lawton Report, Making Space for Nature, which set out recommendations to achieve a healthy natural environment that allows plants and animals to thrive.

This can be summarised as making spaces for nature which are more, bigger, better, more and joined, through:

1. Improving the quality of current wildlife sites through better management.
2. Increasing the size of current wildlife sites.
3. Enhancing connections between wildlife sites, either through physical corridors or 'stepping stones'.
4. Creating new wildlife sites.
5. Reducing the pressures on wildlife by improving the wider environment.

Greater Manchester's existing sites for nature

The starting point for this strategy is to identify and map the places that are good for biodiversity now. These are comprised of a set of national and local categories of sites and habitats across Greater Manchester, which encompass a range of sites from expansive upland moorland of the South Pennines to the Rochdale Canal.

When these sites are mapped, it becomes clear that these sites are fragmented and that there is an absence of nature corridors, beyond the upland moors and the canal

and river corridors. There are very few areas of particularly important habitats, such as grasslands and lowland heath.

Data on the quality of these sites, which include Sites of Special Scientific Interest, Sites of Biological Importance, show a mixed picture. Some sites have been lost altogether. Where improvements have been seen, these have not been universal across all habitat types. This highlights the urgent need for action to conserve existing sites and to improve and expand them before it is too late.

Pressure on Greater Manchester's existing sites for Nature

These sites are also under threat from a range of pressures including:

- Site neglect or inappropriate management.
- Historic under-funding of nature conservation.
- Development and human activity
- Invasive non-native species
- Pests and diseases
- Climate Change

Space for nature's recovery

Identifying spaces for nature's recover

Greater Manchester's natural environment is highly diverse and has an innate value, as well as providing a range of wider benefits. We need to place the sites that are good for nature in the wider geography of Greater Manchester to understand where the potential to expand and connect them lies, and to identify gaps where stepping stones are needed. Overall, we also need to provide a wider environment to support nature's recovery and deliver other environmental and social benefits.

To understand this, the natural environment can be looked at in two ways – through our different **landscapes** and through ecological **networks** that cut across these.

Greater Manchester's Landscapes

Greater Manchester's landscapes are described through its six National Character Areas. These are areas that overlay all of England, 159 in total, which follow natural boundaries according to landscape, biodiversity, geodiversity and economic activity. In Greater Manchester, these are:

- Mersey Valley – the lowland area across western Salford, western Trafford and south-eastern Wigan along the River Mersey. This contains important lowland peatland, which has been significantly degraded by extraction and intensive agriculture over the last century. Recovery could provide wider benefits including for carbon storage and water quality.
- Lancashire Coal Measures – covering most of Wigan and parts of Salford and Bolton, this area is important for its flashes – wetlands formed following coal mining. Further recovery could provide benefits for water management and recreation.
- Southern Pennines – the upland areas to the north of the city region which contain important areas of moorland, with peatland and other upland habitats providing a mosaic of areas for a range of species. Recovery could provide benefits for carbon storage, flood risk reduction, wildfire risk reduction and for water quality.
- Dark Peak – the upland areas to the east of the city-region also contain important areas of moorland, with peatland and other upland habitats providing a range of areas for different species. Recovery could provide benefits for carbon storage, flood risk reduction, wildfire risk reduction and for water quality.
- Manchester Pennine Fringe – this area, between the main urban parts of Greater Manchester and the uplands has steep river valleys and grasslands of varying quality. Recovery could provide key connections for species and carbon storage, improved water quality and flood risk reduction with increased tree cover in the right places.

- Manchester Conurbation – the main urban area at the centre of the city-region contains residential, commercial and industrial development with a network of important green infrastructure, particularly parks and gardens and river valleys and canals. Recovery here can provide significant benefits for adapting these areas to climate change by using nature-based solutions and areas for recreation for the benefit of people's mental and physical health.

Greater Manchester's Ecological Networks

As well as looking at the jigsaw of different types of habitats across the city-region, it is important to also consider the key ecological networks that cut across these, particularly:

- Urban green infrastructure – half of the areas classified as urban use made up of green spaces and waterbodies. Networks of green spaces, gardens, waterbodies and nature-based solutions (street trees, Sustainable Drainage Systems and green walls/roofs) can provide vital stepping stones for wildlife and wider benefits, particularly for recreation and adapting our towns and cities to the impacts of climate change.
- Trees and woodlands – 15.7% of Greater Manchester is covered by the tree canopy of 11.3 million trees. There are some important ancient and clough woodlands, but generally woodlands are fragmented. Although they are crucial for carbon storage, adapting to climate change and can manage air quality, they are also under threat by lack of management, diseases and climate change.
- Rivers, streams and canals – Greater Manchester's 4 river catchments, 2400km of river valleys and 150km of canals form vital corridors for wildlife. Many of our watercourses are modified and failing their objectives to be of a good status. Well-managed, they can help reduce flood risk, provide routes for walking and cycling and offer leisure opportunities. But they are threatened by physical modifications, pollution and the impacts of climate change.

- Parks and gardens – these cover over half the urban area of the city-region. Parks are vital places for recreation, with most owned by local authorities. Gardens are mostly privately owned but can offer a vital stepping stone to wildlife and help manage water. Gardens are under pressure from development, with many being paved over or lost to extensions, causing loss of habitats and increasing surface water run-off. Parks have come under increasing pressure from local authority budget cuts.
- Peat – there are extensive upland and lowland peat extents in Greater Manchester, providing a range of habitats and wider benefits for water quality, carbon storage and flood risk management. These are not providing the range of benefits they could due to past extraction, intensive agriculture and other pressures.

Achieving nature recovery

Developing priorities, outcomes and measures

This strategy follows the Lawton principles, of making spaces for nature which are ‘more’, bigger, better, and joined. Building on existing areas, places and sites that are already good for nature and an understanding of the space for nature’s recovery.

Using the information on where nature already exists and what areas and networks we need to use as a foundation for nature recovery, we can begin to identify the key habitats, species and locations to improve, expand and connect to support nature recovery.

Based on that, the LNRS identifies the following:

- **Outcomes** describe **what we want** – the end vision for what nature in recovery looks like.
- **Measures** describe **what we need to do** to achieve the outcomes – how we get there.

The Outcomes are prioritised into “high” and “medium”. All of the Outcomes are important, however, if there is an option for delivering a high priority vs. a medium priority, the High priority Outcome should receive preference.

How did we develop the Outcomes and Measures?

To develop and prioritise the Outcomes and Measures for nature’s recovery, GMCA convened a series of 9 virtual and interactive workshops open to residents and local experts in which 148 people contributed to developing the Outcomes and Measures. We held a further 26 sector/geography-based workshops and two workshops with young people. Furthermore, a Greater Manchester wide consultation on nature recovery led to over 1000 responses with residents offering their views on the priorities for nature.

GMCA worked closely throughout with colleagues at Natural England and the Greater Manchester Ecology Unit, supported and guided by a Steering Group made up of a wide range of stakeholders.

The Outcomes and Measures

A set of Outcomes and Measures for nature’s recovery in Greater Manchester are set out in detail in this strategy, identifying the practical actions that will be needed to achieve the Outcomes for nature recovery in Greater Manchester.

These are provided in a table sorted by theme follows:

- GM wide – outcomes and measures
- Woodland
- Uplands
- Urban Green Infrastructure
- Waterways
- Wetlands

Grouping by key habitat themes in this way allows for clearer comparison across measures which are often related and even duplicated across outcomes. Where this

is the case, it is because that measure or action delivers multiple outcomes or benefits.

Each outcome has a priority rating (high or medium), measures, reference to its relevant map, and which specific layer of map information it relates to (this is useful if using the online map and searching for a location or geographic coverage of a particular outcome or measures). Measures which are not geographically specific are also given but do not have a map reference.

The Opportunity Maps, as well as the underlying data layers, are available online at [Green City Region | MappingGM](#) to enable more detailed searches. The maps provided are categorised according to habitat types, together with an overarching map showing all the measures. Representing the maps in this way provides a view of similar and related measures within one map.

Opportunity maps are provided in this strategy covering:

- Grasslands and Heathlands
- Rivers and Canals, Standing Water and Wetlands
- Trees and Woodlands
- Uplands
- Urban
- Opportunities: Combined (all habitats and areas)

As described above, they portray opportunities for nature recovery, rather than imposing constraints on other activities. This does not mean that those actions have to be delivered in those locations or that nothing else can take place there, be that development or other types of nature recovery activities. These maps have been created with the best data available during the pilot.

Implementation

This document is a strategy, rather than an implementation plan. This strategy should be used by those across Greater Manchester to inform and drive priorities

and actions to support nature's recovery and the delivery of wider environmental benefits.

The strategy will be of most interest for those in Greater Manchester responsible for managing land. For land managers, this strategy can help them understand how their land fits in with the wider nature recovery network in Greater Manchester. For the measures proposed within this strategy to be implemented, land managers should examine their feasibility and plan them in detail with expert input (including ecological, wider environmental and economic advice), deliver them in line with any legal requirements and secure the landowner's permission. They should also consider the wider environmental and social benefits these measures could bring with them, using a Natural Capital approach¹. They should also engage with local communities who may be impacted by or benefit from any changes.

This should culminate in a robust, costed, long-term land management plan for the land, with broad support from interested stakeholders and local communities. It is the sum of implementing these land management plans in a coordinated way, informed by this strategy, that will deliver nature recovery in Greater Manchester. Monitoring and measuring the contribution of these to nature's recovery will be vital in understanding our progress in tackling the biodiversity emergency.

Beyond those managing Greater Manchester's land, this strategy should inform and inspire all of us to act to support nature's recovery, however small that action might be. So much positive work is already underway across the city-region, of which this strategy has showcased just a small proportion. This can inspire all of us to help play our part in making Greater Manchester a better place for nature.

¹ [Environmental Tools in Greater Manchester's. Nature Greater Manchester.](#)

1. Introduction

Greater Manchester's Natural Environment

The natural environment of Greater Manchester is the foundation for all aspects of our daily lives. It encompasses living things in all their diversity – wildlife, rivers and streams, ponds and lakes, urban green space and open countryside, woodland and farmed land. It supports the basics we need to live, providing us with air, water and food. Nature's systems link and underpin human life and economic activity by cycling water, pollinating crops and regulating the climate.

The natural environment has an innate value that means we have a strong responsibility to protect it. Its value to us is also clearer than ever: it is fundamental to our health and wellbeing, is the foundation of a productive economy and provides us with attractive neighbourhoods and access to green spaces we can enjoy. Its importance to us has become increasingly apparent over recent years as we have better understood and valued the benefits of the natural environment.

Despite this, the natural environment faces urgent and significant challenges in Greater Manchester, the UK and across the world. The global biodiversity emergency, along with the climate emergency, have been widely acknowledged as the greatest threats we face. Furthermore, the need for a more resilient natural environment has been evidenced by the Covid-19 pandemic.

By tackling the biodiversity emergency, we will help nature recover and, at the same time, secure the health and economic benefits from an enhanced natural environment, for wildlife, for people and for our economy. This strategy sets out what we need to do to tackle the biodiversity emergency in Greater Manchester, whilst securing the wider benefits that enhancing the natural environment will bring.

“Like education and health, however, Nature is more than an economic good: many value its very existence and recognise its intrinsic worth too.”

Professor Sir Partha Dasgupta, [The Economics of Biodiversity: The Dasgupta Review](#)

Links to other strategies and plans

Greater Manchester is taking the initiative and setting out bold plans to give people, communities and businesses the confidence and aspiration to create a city-region which is fit for the future. This strategy is part of a set of bold plans for our city-region, taking the urgent action needed to meet our ambition. [The Greater Manchester Strategy Our People, Our Place](#), sets a clear vision for Greater Manchester to be one of the best places in the world to grow up, get on in life and grow old.

To deliver on this vision, the Greater Manchester Combined Authority (GMCA) published a [5 Year Environment Plan \(2019–2024\)](#). This was developed with input from thousands of individuals, organisations and businesses from across the city-region and nationally. It sets out how we will tackle the main environmental threats and challenges facing our city-region:

- Reducing carbon emissions to tackle climate change
- Improving air quality
- Producing and consuming goods in a more sustainable way
- Improving our natural environment
- Making our city region more resilient and better adapted to climate change.

Other strategies and plans that relate to this Local Nature Recovery Strategy include the following:

- [The Greater Manchester Local Industrial Strategy](#) highlights the need to improve productivity, with more efficient use of resources an important part of this. It also sets out the opportunities for our people, communities and economy of acting first to reduce our carbon dioxide (CO₂) emissions promoting a Clean Growth Mission approach, and the need for innovative finance to support investment in our natural environment.
- [The Places for Everyone joint plan](#) sets out plans for how nine of the ten boroughs (excludes Stockport) of the city-region should develop up to 2037, the type and location of new development, how supporting key infrastructure should be brought forward and how the natural environment will be enhanced in doing

so. For Stockport, the [One Stockport Local Plan \(2021-2038\)](#) sets out plans to ensure the whole of the borough has the right homes, the right infrastructure and the right facilities to enable it to thrive.

- [The Greater Manchester Infrastructure Framework 2040](#) highlights the challenge of protecting and enhancing the natural environment as part of wider infrastructure development.

This strategy is also underpinned by other plans and strategies, including:

- [The Greater Manchester Tree and Woodland strategy](#) sets out clear objectives on how we can maximise the benefits of our trees and woods in relation to tackling carbon, air pollution and flooding.
- [The Greater Manchester Natural Capital Investment Plan](#) sets out options to mobilise existing and new funding sources to deliver varied and sustained investment in the natural environment. This is intended to support the delivery of projects with wide-reaching benefits for health, air quality, jobs and regeneration alongside habitat and wildlife conservation, carbon sequestration and climate resilience (see Natural Capital Accounts below). It can be used to understand how the LNRS can be implemented and funded.
- Land management plans have both informed and will be informed by the LNRS. The [Peak District National Park Management Plan](#) has informed this strategy and future reviews of this and other land management plans will use the LNRS as a starting point for understanding opportunities and priorities for nature recovery.

Who can use this strategy and how?

This strategy and its underpinning evidence can be used to inform policymaking and project planning and delivery across Greater Manchester.

Land managers can use this strategy to understand how their land and natural assets fit into the wider nature recovery network in Greater Manchester. It can focus and inform the actions they can take to deliver nature recovery and wider environmental benefits on their land. However, it is not intended to be prescriptive; instead, it should help guide existing or planned nature recovery activities. It should

also be used in planning for current agri-environment schemes or future support, such as the planned new schemes that will reward environmental land management.

Environmental organisations and interested individuals with an interest in specific habitats or species can use this strategy to identify opportunities for action to enhance, expand and conserve nature.

Planners and developers can use this strategy to inform the risks and opportunities that development may have on a specific area and to help mitigate habitat loss or enhance habitat. The strategy will provide an overview of how certain habitats fit into the wider network or mosaic of the city-region.

Local businesses, organisations, schools, groups, communities, and individuals can use this strategy to understand how they can contribute, in their local area, to tackling the biodiversity emergency. There are a range of opportunities to help people get involved, including on the [Nature Greater Manchester website](#) or from local authorities.

2. Why we need a Local Nature Recovery Strategy

The Biodiversity Emergency

This strategy addresses the biodiversity emergency we are facing across the UK.

There have been significant changes in species numbers and distribution in the UK over recent decades², including:

- A decline of 13% in the average abundance of land and freshwater based species since 1970, and a 6% drop in the past decade.
- Rapid changes in the abundance of species – with half of species increasing or decreasing strongly, by up to a third over 10 years.
- Declines in key indicator species – including a 16% decline in the average abundance in butterflies over the past 25 years and 44% in breeding birds over the past 45 years.
- Mammals like hedgehogs are facing serious declines, with surveys in 2011 showing declines of between 25-40% over the previous decade.

In Greater Manchester, many bird species have seen declines. Between the 1980s and 2011, these include:

A 40% decline in red poll, 33% decline in skylarks, 32% decline in tree sparrows and 26% decline in snipe and grey partridge. However, despite an overall decline across the North West, curlews and swifts are holding stable in Greater Manchester.

(Source, Greater Manchester Ecology Unit)

Compared to birds, the population trends for mammals are relatively poorly known. Data collected between 1995 and 2019 for Greater Manchester show significant

² [The UK's State of Nature 2019 report](#)

declines in rabbits (64% decline) and red fox (44%) and increases in roe deer³ (86%). North West data for brown hare show a decline of around 35%.

Hiding behind some of these declines are likely declines in the numbers of smaller insects or invertebrates.

These dramatic changes have been caused by habitats being lost, destroyed, fragmented and becoming less diverse. There are numerous existing plans and strategies aimed at tackling nature improvement; however, many of these are failing to progress against objectives. For example, even after 12 years of the Water Framework Directive, 90% of Greater Manchester's waterbodies are still failing to achieve their ecological objectives.

For nature to recover, species need habitats that are larger, better connected and more complex. Such varied habitats support species at different stages of their lifecycles. This strategy starts with how we can stop and reverse these declines and help nature to recover.

Wider benefits of nature recovery

Alongside delivering benefits for nature and its innate value, the measures within this strategy can also support the wider benefits of enhancing our natural environment. In Greater Manchester, we have produced Natural Capital Accounts for the city-region as a whole and for each local authority. Natural Capital accounting is a method of valuing services and impacts natural assets provide to the city-region.

£1bn is the 'conservative' estimate of the value that Greater Manchester receives from its natural capital each year from the services valued. This includes £869m from its green spaces providing 'services' for recreation, amenity and mental health⁴.

³ Responsible and coordinated management of species, such as the increase in roe deer, is good practice for nature recovery.

⁴ The Natural Capital Approach in Greater Manchester. Greater Manchester.

Half of Greater Manchester's area is urban⁵, so this approach is particularly useful to understand the value of green infrastructure – the green and blue features that can be created and enhanced to support wider environmental benefits, rather than recovery of nature being their main driver or purpose.

The following table provides some examples of the wider benefits that can be gained from nature recovery across Greater Manchester's key habitats:

Key Habitat	Wider environmental benefits
Trees and woodlands	Carbon capture and storage Reduced risk of flooding Reduced risk of soil erosion Urban heat cooling
Grasslands	Increased habitat for pollinators Reduced risk of flooding Improved access and quality for recreation
Parks and gardens	Reduced risk of flooding Recreation Physical and mental health
Rivers and wetlands	Reduced risk of flooding Improved water quality Improved access and quality for recreation
Peatlands	Carbon capture and storage Reduced risk of wildfires Reduced risk of flooding Improved water quality

⁵ [The Ignition Project: A Baseline for Nature-Based Solutions.](#)

In Greater Manchester the approach fostered by this strategy is to deliver outcomes for nature that also can provide wider environmental benefits, using a Natural Capital Approach⁶.

The good news for nature recovery in Greater Manchester

Despite the biodiversity emergency we are facing, there are reasons for optimism. Greater Manchester has a strong track record on nature recovery since the decline of heavy industry in the city-region. We have a committed network of organisations and partnerships with the right skills and experience to deliver a more urgent, expanded and accelerated programme of nature conservation, restoration and recovery.

Between 1985 and 2010, the Mersey Basin Campaign pioneered a new model of partnership, setting up a network of over 20 Action Partnerships focusing on local stretches of the river. It brought together volunteers, schools, businesses, local authorities, regulators and politicians to clean up the polluted and neglected rivers. Environmental improvements, to water and air quality resulted in improvements in biodiversity, with breeding salmon recorded in 2006 in the River Mersey catchment and recolonisation by otters since 2011.

A significant number of Greater Manchester's Sites of Biological Interest are recovering post-industrial sites, for example, the Flashes across Wigan restored through decades of activity of Wigan Greenheart. The Lancashire Wildlife Trust, supported by committed volunteers, is carrying out ambitious work to recover the lowland wetlands on Chat Moss.

"We are working desperately to protect these hugely valuable fragments and restore them to living, breathing mosslands once more."

Mike Longden, Lancashire peatland initiative project officer

⁶ [Natural Capital User Guide. Greater Manchester Combined Authority.](#)

In the urban areas, the charity Groundwork delivers schemes to manage, protect and enhance green spaces and rivers, for the benefit of nature but also to improve access, skills and provide jobs for local people.

Springing out of the city-region's pioneering community forest initiatives in the 1990s, City of Trees is now leading a ground-breaking initiative planting trees and restoring woodlands across the area, with a target of planting a tree for every resident within five years – totalling 3 million trees.

The ten local authorities are custodians of country parks, local nature reserves and river valley initiatives. Parks and ranger staff provide valuable links with residents and volunteer groups, while local authority regeneration schemes are breathing new life, nature and jobs into formerly unmanaged areas, as we see in Oldham's Northern Roots urban farm and eco-park.

These are just a handful of examples of the work going on in Greater Manchester. This Local Nature Recovery Strategy grows out of these and the many other previous achievements to improve the natural environment, and aims to support, accelerate and expand the work of the city region's partners, businesses and residents.

3. The basis for nature's recovery – Greater Manchester's existing biodiversity

Principles for nature recovery

Greater Manchester's Local Nature Recovery Strategy is based on the principles of the Lawton Report, Making Space for Nature⁷, which set out recommendations to achieve a healthy natural environment that allows plants and animals to thrive.

This can be summarised as making spaces for nature which are more, bigger, better, more and joined.

Bigger, better, more and joined

The Lawton report recommends focussing on areas that are already good for nature, usually the existing system of designated nature conservation sites, as the start of efforts to reverse the decline in biodiversity. From there, it recommends the following objectives:

1. Improving the quality of current wildlife sites through better habitat management.
2. Increasing the size of current wildlife sites (buffer zones).
3. Enhancing connections between wildlife sites, either through physical corridors or 'stepping stones'.
4. Creating new wildlife sites.

As a significantly urban area, the wider benefits of action to improve the natural environment are crucial. In some areas, the main driver may not be nature, but nature can benefit. So we have added a further objective:

5. Reduce the pressures on wildlife by improving the wider natural environment.

⁷ Making Space for Nature: A review of England's Wildlife Sites and Ecological Network.



Figure 1 – The Components of Ecological Networks and Nature Improvement

Source: [Making Space for Nature, UK Government \(2010\)](#)

Mapping Greater Manchester's existing sites for Nature

The basis for this strategy is to identify and map the places that are good for biodiversity now. The following national and local categories of sites and habitats across Greater Manchester were used to do this:

- National designations for nature conservation (Special Areas of Conservation, Special Protection Areas, Sites of Special Scientific Interest (SSSI))
- Local wildlife site designations (Local Nature Reserves and Sites of Biological Importance)
- Rivers and Canals
- Broadleaved Woodlands
- Coniferous Woodlands
- Wetlands
- Grasslands
- Uplands including heathlands, blanket bog and upland grasslands
- Open Water

These are shown on the map below and are the foundation for nature recovery in Greater Manchester. The existing sites map, as well as the underlying data layers, will be available online at <https://mappinggm.org.uk/> to enable more detailed searches and views.

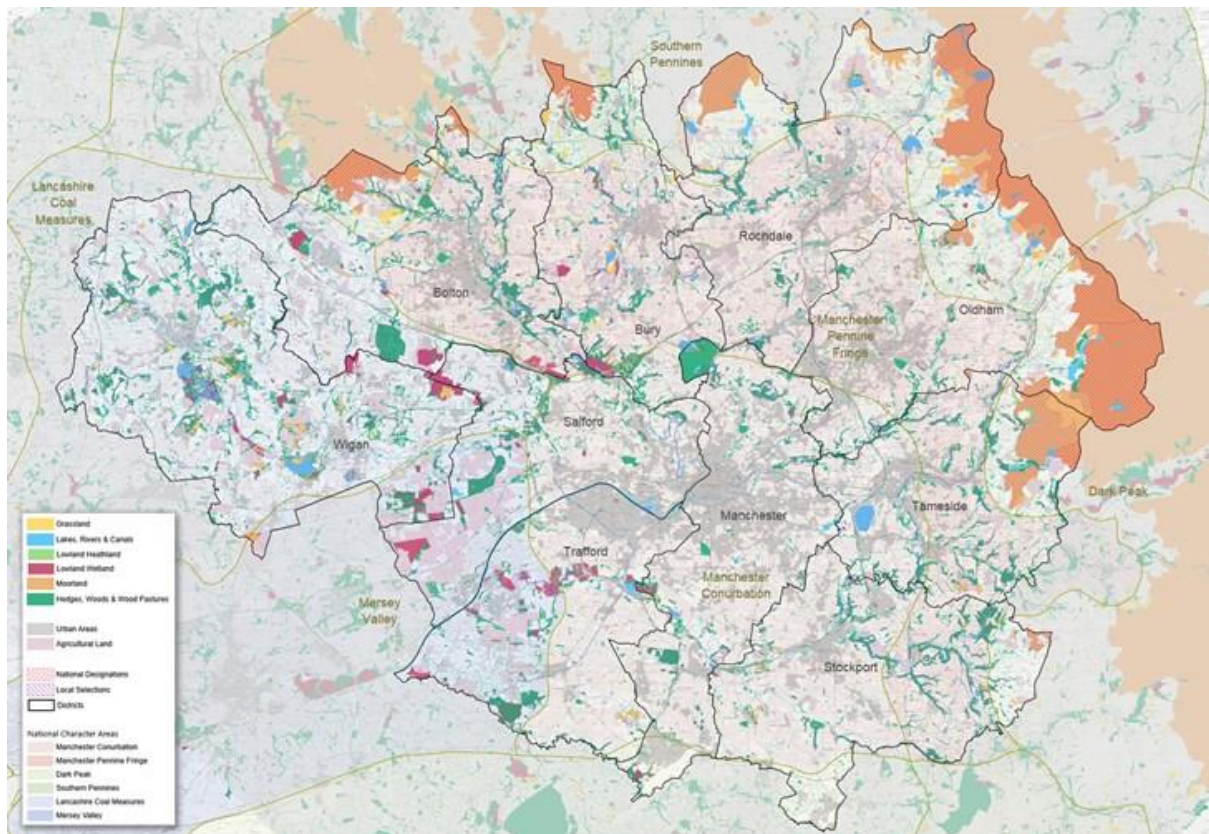


Figure 2 – Greater Manchester’s Existing Sites for Nature

The map shows Greater Manchester’s European Designations of Special Protected Areas (SPAs) and Special Areas for Conservation (SACs) include a range of sites from expansive upland moorland of the South Pennines to the Rochdale Canal. There are also a number of nationally significant sites, Sites of Special Scientific Interest (SSSIs) which include habitats of grasslands and heath, wetlands of lowland raised bogs, and flashes and lakes.

The existing sites that are good for nature across Greater Manchester include 26 SSSIs for habitat and species and 534 Local Wildlife Sites. It does not include smaller sites, gardens, allotments and individual trees.

The condition of Greater Manchester's existing sites for nature

This map shows that the best sites for nature are very fragmented and that there is an absence of nature corridors, beyond the upland moors and the canal and river corridors. There are very few areas of grasslands and lowland heath. This highlights the urgent need for action to conserve existing sites and to improve and expand them before it is too late. These sites are set out in more detail below.

Sites of Special Scientific Interest (SSSIs)

SSSIs are the most important building blocks of site-based nature conservation and are protected in law. They are the basis of Special Protection Areas and Special Areas of Conservation, and local Sites of Biological Interest.

How is the condition of SSSIs monitored?

SSSIs sites are nationally designated sites based on notified features, which may be geological, habitat or species, or a combination of all/some.

The condition of SSSIs is assessed to help guide management of the site. This is done in a variety of ways ranging from a full condition assessment by specialists with interim site condition checks on habitats, or new issues on site may be carried out. Many SSSIs are under agri-environment schemes so are regularly checked as part of those.

If the condition of the SSSI is *Favourable*, or *Unfavourable, Recovering* then no change in management may be needed. *Unfavourable, Recovering* means there is active management or a plan in place to manage the site into its best/favourable condition, but that it is not there yet.

If the condition is *Unfavourable No-Change*, or *Unfavourable Declining* then changes to bring the site into at least *Unfavourable, Recovering* condition should be sought.

It can be a complicated and slow process to return a site to *Favourable* condition, particularly if the habitat has been improved, but a specific species associated with the site has declined or is no longer on the site. For example, the Rochdale Canal is designated for a particular aquatic plant – *Luronium natans*, which is one of the few

locations it is found in across England. The canal itself is in good condition – water quality is improving – but in the places where *Luronium natans* exists, bankside trees and woodland planting have shaded out the sites, thereby impacting its population and distribution within the canal. So, whilst the wider habitat of the canal is being managed well and in good condition it cannot be favourable as a SSSI if the notified feature, *Luronium natans* in this case, is declining. This is an example of how wider factors and decision making should be considered when recovering nature, *Luronium natans* near water are not inherently bad, only in this case their impact was detrimental to the health of the canal.

The proportion of *Favourable* sites is much lower in Greater Manchester than for the North West, with only 5% of SSSIs in *Favourable* condition and 75% *Unfavourable, Recovering*. However, compared to their condition in 2002, most sites have improved from being in a state of *Unfavourable, No Change* to being managed for recovery, and are now classified as *Unfavourable, Recovering*.

North West data⁸ show that less than half of the SSSIs are in *Favourable* condition (43%) and less than half are *Unfavourable, Recovering* (45%). This means that 88% of North West SSSIs are in good condition or on the way to achieving this. 8% are *Unfavourable, No Change* and just 4% are *Unfavourable Declining*.

⁸ SSSI Condition Summary, North West. Natural England.

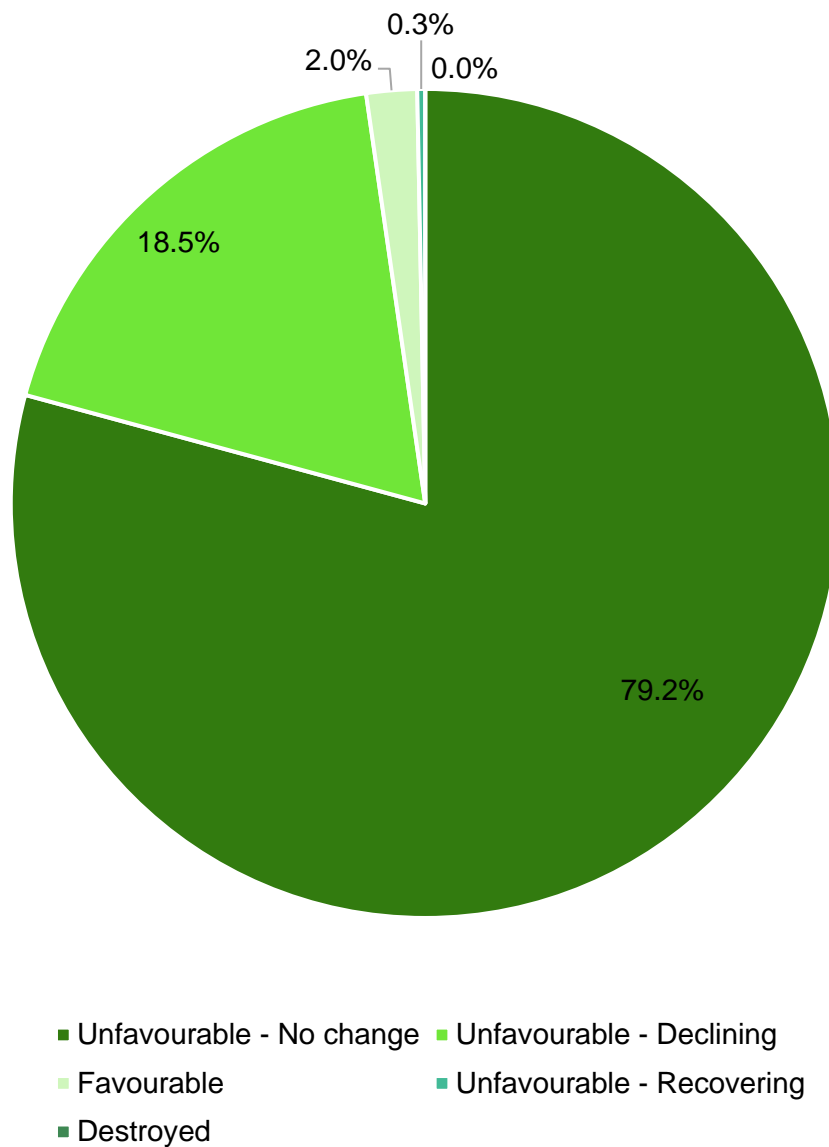


Figure 3. SSSI Condition, Previous Assessments, undertaken 1998-2002.

This shows the condition of Greater Manchester's SSSI's for all habitat types in assessments done in 1998-2002. 79% were *Unfavourable, No Change*, and 18.5% were *Unfavourable, Declining*, 2% were *Favourable*, 0.3% were *Unfavourable – Recovering* and 0% were *Destroyed*.

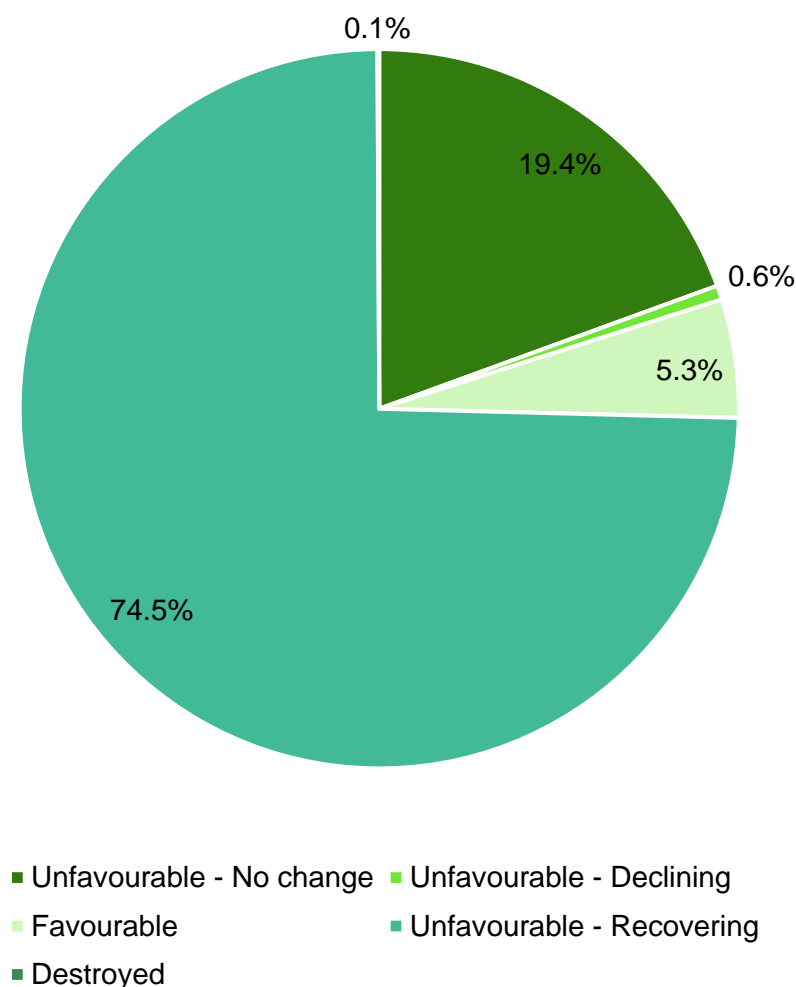


Figure 4. SSSI Condition, Most Recent Assessments, undertaken 2008-2020.

This shows the most recent assessments, carried out between 2008-2020. The proportion of sites that are *Unfavourable, No Change* sites has decreased to 19%, and 74.5% of sites are now *Unfavourable, Recovering*. The proportion of *Favourable* sites has increased from 2% to 5%. The proportion of sites that are *Unfavourable – Declining* has also decreased to 0.6%.

Unfortunately, this improvement has not been universal across all habitat types. Table 1 below, shows that grasslands, woodlands and bogs have improved from largely *Unfavourable, No Change*, to either *Favourable* or *Unfavourable, Recovering*.

But standing open water and canals have regressed from largely *Favourable* to *Unfavourable, Recovering*.

Habitat	Destroyed (% change)	Unfavourable – Declining (% change)	Unfavourable – No change (% change)	Favourable (% change)	Unfavourable – Recovering (% change)
Upland Grasslands	0%	-16%	-79%	20%	75%
Lowland Grasslands	0%	-17%	-83%	0%	100%
Lowland wetlands	2%	-9%	-68%	8%	67%
Uplands*	0%	-19%	-57%	0%	76%
Upland woodland**	n/a	n/a	0%	n/a	n/a
Lowland woodland	0%	0%	-90%	86%	4%
Rivers, canals and lakes	0%	0%	0%	-65%	65%

Table 1. Percentage change in condition of SSSIs by habitat, comparing previous assessment (1998-2002) to most recent assessment (2008-2020).

A negative value shows that that condition has decreased between the previous assessment and the most recent.

* Uplands is mainly comprised of upland wetland/bog habitats, with some upland shrub heath habitat.

** Only one upland woodland site, which remained in ‘Unfavourable – no change’ condition.

This evidence demonstrated that continuing to restore and recover the city-region’s SSSIs is a vital and urgent first step to in addressing the biodiversity emergency.

Local Wildlife Sites

Local Wildlife Sites, known as Sites of Biological Importance (SBIs), are locally selected sites of substantive nature conservation importance within Greater Manchester. SBIs establish and highlight to planners, landowners and site managers where areas of high biodiversity occur so that appropriate decisions on planning and conservation can be made. The criteria for selecting Local Wildlife Sites relate to their size, diversity, naturalness, rarity, fragility, how typical they are for the area, their recorded history and connectivity with the landscape. They are also important for providing an appreciation of nature and as a learning environment, making them important spaces for the public, school groups and 'friends of' groups. These spaces are particularly valuable within urban areas.

In England during 2017, 353 Local Wildlife Sites, around 1%, were lost or damaged and 16 of those were lost altogether. Over the five years between 2013 and 2017, 843 sites were lost or partially lost and/or damaged, of which 87 were entirely lost.

The situation for Greater Manchester was no different. 2021 figures show 534 Local Wildlife Sites for Greater Manchester. But in 2017 four sites were lost completely and between 2013 and 2017 11 sites were lost. However, we have to look behind these figures; some of these sites can be lost due to degradation or development, but Greater Manchester has also gained new sites for nature, particularly since the decline of heavy industry in the mid-1980s. Old mills and industrial sites have 'greened up'. This can occur through natural rewilding, and through intervention, for example, the Three Sisters former coal spoil site in Wigan which is now a Country Park.

Pressure on Greater Manchester's existing sites for Nature

Existing sites for nature are under threat from a range of pressures including:

- **Site neglect or inappropriate management:** Neglect of sites can result in sites becoming overgrown or reverting to scrub. Inappropriate management can result from a lack of advice and support being available to land managers.

- **Historic under-funding of nature conservation:** Most local wildlife partnerships report not having sufficient resources to ensure the identification, management and protection of Local Wildlife Sites in their area; partnerships lack resources for survey and monitoring (which is vital to protecting sites), for advice provision to landowners, and for practical land management and assistance. Cuts to local authority ranger services and parks departments have reduced the number of people able to manage the pressure on habitats from visitors, and to support and enable local voluntary groups.
- **Development and human activity:** This includes the direct and indirect impact of sites being lost to developments to meet the need for homes and commercial buildings, agriculture and extraction. Sites can be lost or impacted through the indirect impacts of developments including road building, increased traffic with its associated noise and air pollution and verge cutting. Development also puts pressure on the water environment (water sources, surface water run-off and wastewater disposal). Whilst the benefits of spending time in nature for our physical and mental health are well understood, unmanaged increased numbers of people visiting for recreation and leisure can cause disturbance and harm to important habitats.
- **Invasive non-native species:** Plants such as Japanese knotweed and giant hogweed grow in large dense stands and stop native plants and scrub growing. Non-native mammal species, such as mink and grey squirrel have all but eliminated water vole from rivers and streams and red squirrels from many areas.
- **Pests and diseases:** The threat of disease, particularly for our plant species, is growing, both from movement and natural means. Of major concern in Greater Manchester is ash dieback. This very serious disease is caused by a fungus that is affecting ash trees with increasing intensity, particularly in the last two years, putting 20% of Greater Manchester's trees at risk.
- **Climate Change:** Increasing extremes of temperature, wind and rainfall puts pressure on wildlife sites and individual plants and animals in the short and longer term including new pests and diseases, changes in range of species, increased competition between species, disruption to lifecycles due to unexpected weather (too hot/cold/dry/wet), destruction or disruption to habitats

and ecosystems which may not be able to adapt fast enough to a changing climate.

4. Space for nature's recovery – Greater Manchester's wider natural environment

Greater Manchester's natural environment is highly diverse and has an innate value, as well as providing a range of wider benefits. We need to place the sites that are good for nature in the wider geography of Greater Manchester to understand where the potential to expand and connect them lies, and to identify gaps where stepping stones are needed. Overall, we also need to provide a wider environment to support nature's recovery and deliver other environmental and social benefits.

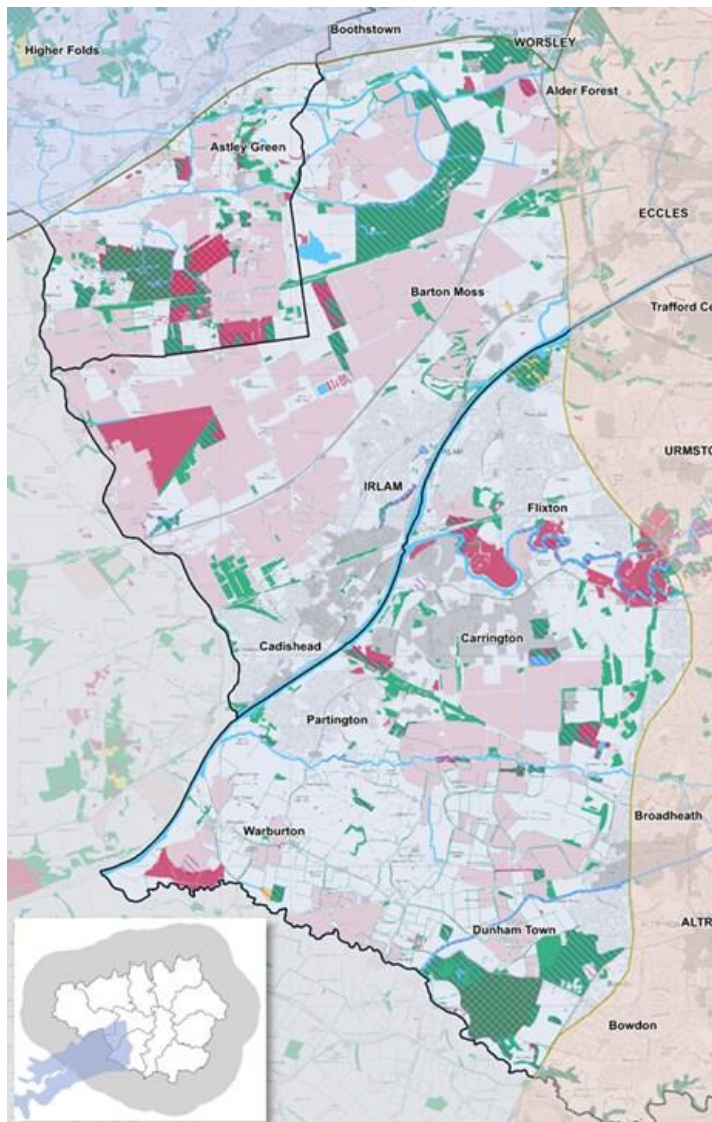
To understand this, the natural environment can be looked at in two ways – through our different **landscapes** and through ecological **networks** that cut across these. This section starts by describing Greater Manchester's landscapes, then goes on to look at its ecological networks.

Greater Manchester's Landscapes

Greater Manchester's landscapes are described through its six National Character Areas. National Character Areas are areas that overlay all of England, 159 in total, which follow natural boundaries according to landscape, biodiversity, geodiversity and economic activity.

Each National Character Area is detailed below, with a map, description of the landscape, its habitats and species, key sites for nature, the wider benefits it provides, the pressures it faces and examples of successful nature recovery. A summary of the priority outcomes relating to each area is provided.

Mersey Valley



This lowland area forms parts of western Salford, western Trafford and parts of south-eastern Wigan. The M62 and both Manchester to Liverpool railway lines cut across the area. Beyond Greater Manchester this area stretches west along key wetland habitats of the River Mersey to its estuary. The Manchester Ship Canal/River Mersey continue south-westwards to the wide Mersey estuary with intertidal mudflats/sand flats and salt marsh.

The area contains important lowland peatland across the Chat Moss area of Salford and Wigan. The peat here supports

remaining internationally important lowland raised bog habitat including species such as common lizard, brown hare, adder, slow worm, large heath butterfly, black darter dragonfly and sundew plants. The high agricultural quality of this land has resulted in much of it being converted to farmland following drainage. Peat extraction has impacted significant areas of lowland raised bog which are now degraded.

Restoration and management are underway on a number of sites, with attempts being made to reintroduce bog-building sphagnum moss species and to manage water levels to aid their recovery.

Habitats and species

- **Mossland (lowland raised bog)** – there are remnant pockets of lowland raised bog, including the Manchester Mosses Special Area of Conservation (SAC), centring on a once extensive area of mossland.
- **Lowland farmland** – significant areas of former mossland have been reclaimed and converted to agriculture, mainly arable and improved grassland.
- **Rivers and streams** – the River Mersey, its major tributary the River Bollin, and several brooks cross the area from east to west.
- **Trees and woodland** – these are mainly associated with urban areas with some along watercourses as well as isolated woodland blocks, including ancient pasture and ancient wood pasture at Dunham Massey.
- **Urban areas** – significant areas of the former mossland have been reclaimed for development. The area is bisected in two by development along the River Mersey and Manchester Ship Canal, including the towns of Irlam, Partington, Caddishead and Carrington, which contain parks, green spaces and gardens.
- **Parkland** – country parks (particularly Dunham Massey) offer opportunities for people to enjoy the local natural environment.

Key sites for nature

The Mersey Valley is home to the Manchester Mosses Special Area of Conservation for its remnant pockets of lowland raised bog.

Astley and Bedford Mosses SSSI is one of the largest remaining fragments of Chat Moss, and despite being subject to some agriculture-related drainage and peat cutting, is still higher than the surrounding countryside with remaining areas of deep peat. It provides a range of habitats including modified mire communities, heathland, woodland and acidic grassland, all developed over the cut peat surface and subject to variations of wetness depending on the topography and drainage. It hosts cottongrass, deer grass and patches of mosses, along with tussocks of purple moor grass. It has areas of dense birch woodland and grasslands. The site is important for birds, in particular wintering raptors such as hen harrier, short-eared owl and merlin, and it supports breeding species such as curlew and long-eared owl. The condition of the majority of this SSSI is *Unfavourable, Recovering* with one unit classified as *Favourable*. Encroachment of purple moor grass and birches needs to be managed

to stop the site from 'scrubbing up' or becoming covered in trees, and drainage needs to be reduced to retain the wet moss characteristics and species.

Brookheys Covert SSSI in Trafford is an unusual mixture of woodland and wetland habitats for Greater Manchester. It comprises well-established common (or English) oak, hazel, ash woodland with a large number of small pools. Beneath the main tree canopy is a diversity of species including hazel, holly, hawthorn, field roses, elder and honeysuckle. And underfoot is an array of woodland plants and flowers including bracken, bluebells and wood anemones. Pools, created by Marl-digging (historical digging of lime-rich subsoil for fertiliser), provide habitats for watery plants such as water and marsh horsetail, marsh marigold, pondweeds and water violet. Brookheys Covert is also a Nature Reserve and important for educational purposes. It is in *Favourable* condition – volunteers have helped to nearly eradicate invasive Himalayan balsam.

Dunham Park SSSI in Trafford, owned by the National Trust, and in *Favourable* condition, has been park-woodland since medieval times. The main tree species are common/English oak and beech with ash, common lime, elm, birch and some alder. A large number of the oak and beech trees are ancient, with some dating back to the 17th Century. It is one of few remaining sites in the UK and the only North West site with such a large number of ancient trees. All these trees provide a rich habitat for invertebrates including over 350 species of flies, and Dunham Park has national importance for its mature timber fauna – including the 181 species of dead wood beetle, including the very rare *Drophephylla grandiloqua*, that live there. The herd of fallow deer there support a rare forest dung beetle.

Local Wildlife Sites/Sites of Biological Importance include:

- Hope Carr Nature Reserve
- Carrington Moss
- Jack Lane Wellacre
- Davyhulme Millenium Park
- Rossmill Woodland
- Jack Lane Nature Reserve.

How nature helps

Lowland peat provides significant opportunities for:

- carbon sequestration and carbon storage to tackle climate change
- water management
- engaging people in the heritage of the landscape
- recreation and exercise in nature.

Pressures on habitats and species

As for other areas of the city-region, there are modern pressures on this landscape and its habitats from town, industry and transport development to meet the need for housing and industrial/employment sites.

But this area has been ravaged over time; Chat Moss spanning from Salford, Trafford and Wigan out to Cheshire and Warrington is a prime example of a lowland raised bog that has been largely lost to development, agriculture and peat extraction, starting in the 19th century with the growth of the city and the Liverpool Manchester railway. Only around 2% of the peat bog is in a near-natural state; many sites are in poor condition and bear the damage from peat extraction.

This has a knock-on effect on important species. Since 1998, corn bunting has declined over the ten-year period 2010-2019 from nine pairs to three. The loss has been even more dramatic over the 22-year period with 21 territories assessed in 1998.

Helping nature to recover

The work of the Lancashire Wildlife Trust and its volunteers and supporters aims to restore Astley Moss, SSSI, reintroducing sphagnum moss and blocking drains to rewet and restore this important site for birds, mammals and plants. At Caddishead and Little Woollen Moss, where peat extraction has caused significant damage, steps are progressing to restore the habitats through rewetting and recolonising moss and cotton grass. These sites provide multiple benefits to bird and mammal species which are returning, storing carbon in the peat and provide public access to nature.

Part of the Mersey Rivers Trust, BEACON (Bollin Environmental Action and Conservation) is a group of people working towards controlling and eradicating

invasive non-native species (INNS) and improving water quality within the Bollin catchment, which includes all the tributaries, meres, brooks and streams connected to the River Bollin. Volunteers have been trained in spraying giant hogweed and pulling up Himalayan balsam across the catchment area; over 40 volunteers are trained as River Guardians, they take water samples and carry out invertebrate kick sampling to identify pollution. Now trout has returned and migrating salmon are seen.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

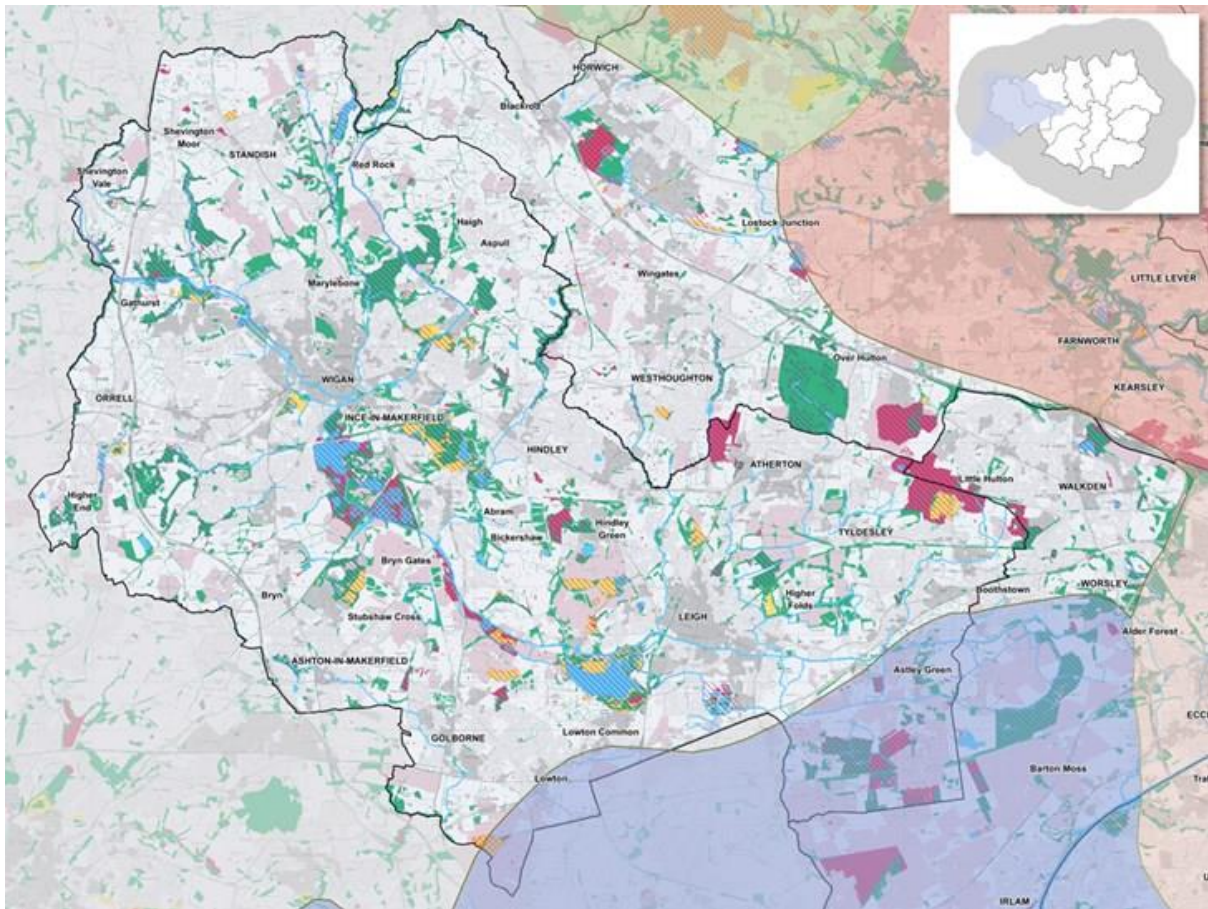
The priority Outcomes that we want for nature across all of Greater Manchester are:

- Structurally diverse species-rich grasslands supporting pollinators and other invertebrates
- Species rich hedgerows, diverse in structure for active wildlife corridors across all lowland habitats
- Increased number of wetlands including reedbed, fens and ponds providing a suitable habitat for a diverse range of species

A sample of the priority Outcomes that relate to the lowland peat, wetlands and grasslands of the Mersey Valley include:

- Naturally functioning and resilient water environments and river catchments, helping us adapt to the impacts of climate change and reduce the risk of flooding
- Rivers and streams rich with native and diverse plant and animal species such as otter, kingfisher, trout and salmon
- Functioning and species diverse lowland raised bog habitats storing carbon, reduce flood risk and improved water quality.
- Increased diversity and abundance of species of invertebrates across the lowland and wetland mosaic of habitats
- Pasture and arable farmland providing improved and better-connected habitats for farmland birds, including the tree sparrow, yellowhammer and corn bunting.

Lancashire Coal Measures



Situated in the north-west of Greater Manchester, Lancashire Coal Measures includes the town and surroundings of Wigan and neighbouring parts of Salford and Bolton. It is an area profoundly influenced by its geology and industrial past. Rocks from the Carboniferous Coal Measures underlie most of the area forming gentle hills and valleys.

The area is noted for its industrial heritage and individual flashes – wetlands formed as a result of ground subsidence associated with deep mining for coal. Former mines and spoil heaps have left a legacy of polluted sites but in recent decades conditions have improved and an area that was once heavily polluted has become important for people and wildlife.

Today, many of the former industrial areas have been reclaimed, resulting in a network of lowland wetland habitats and open water-bodies and ponds. This mosaic of reedbed, open water, wet meadows, lowland fen and carr scrub supports an array

of wetland specialist species such as bittern, willow tit, water vole and an array of invertebrates including 15 species of dragonfly. Surrounding this is a matrix of farmland that provides habitat for farmland birds and brown hare.

Habitats and species

- **Wetlands** – widespread ground subsidence, caused by coal mining activities, has resulted in the formation of subsidence flashes. These have created many areas of open water and wetlands, while scattered ponds and fragmented pockets of semi-natural habitat remain elsewhere with large populations of great crested newts.
- **Trees and Woodlands** – cover 10% of the area, and include ancient woodland. Community woodlands have been established on many post-industrial sites, and bring multiple benefits. This area is a national hotspot for willow tits.
- **Farmland pasture, lowland meadows and arable** – with associated farmland birds and brown hare.
- **Post-industrial landscape** – brownfield sites with willow scrub and willow tits.
- **Lowland raised bog habitats** – joining with the mosslands of the Salford and Wigan lowlands (see Mersey Valley).

Key Sites for Nature

Abram Flashes is the leading site for assemblages of breeding birds associated with wet grassland in the Greater Manchester and Merseyside areas. The breeding waterfowl community includes mute swan, mallard, tufted duck, pochard, garganey, shoveler, gadwall and ruddy duck. Yellow wagtails and waders such as lapwing, snipe and redshank breed in the wet grassland, itself a nationally declining habitat. Reed bunting, reed warbler and sedge warbler are found in the swamp and fen. Hey Brook provides suitable conditions for species such as kingfisher and grey wagtail. The site is also locally important for wintering waterfowl which use the whole Wigan Flashes complex, and lower water levels, particularly in autumn, can provide valuable feeding and roosting habitat for migrant waders such as greenshank, ruff and dunlin.

Within the Hey Brook area, Bryn Marsh and Ince Moss is the leading example of swamp and tall fen vegetation in Greater Manchester and Merseyside as well as important populations of dragonflies and breeding birds.

Nearer Bolton, Red Moss is important for its peat forming vegetation and hydrology, including sphagnum moss and cotton grass, while Highfield Moss is noted for being a last remaining example of a raised mire, home to a rare flower – the marsh gentian.

Local Wildlife Sites/Sites of Biological Importance include several country parks and local nature reserves, some of which form a 9km wetlands habitat alongside the Leeds Liverpool Canal. These local sites include:

- Haigh Hall and Country Park
- Low Hall Park Nature Reserve
- Wigan Flashes (this includes Abram Flashes and Bryn Marsh and Ince Moss)
- Pennington Flash
- Bickershaw Country Park.

How nature helps

Lowland peat and the flashes provide opportunities for:

- carbon sequestration and carbon storage to tackle climate change
- water management
- engaging people in the heritage of the landscape
- recreation and exercise in nature, particularly access to open space, nature reserves and parks.

Pressures on habitats and species

Nature in this area has historically been under pressure from dense population and industry, although its industrial past has shaped current habitats. Today it faces pressure from housing and industrial development.

Helping nature to recover

The Great Manchester Wetlands Partnership has been working since 2011 bringing together experts from over 20 organisations. It works together at a landscape scale

for nature by restoring habitats, reintroducing lost species and engaging local communities with the wonderful wetland world on their doorstep.

Abram Flashes, SSSI in Wigan is being restored and is categorised as *Unfavourable, Recovering*, meaning it is being managed for nature recovery. Scrub is being cleared, ditches blocked and work carried out to provide clear areas of water. Invasive species such as Himalayan balsam are being tackled. Across other areas of the site, restoration is still needed to restore the wetlands and avoid over-grazing, and to tackle Himalayan balsam.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes that we want for nature across all of Greater Manchester are:

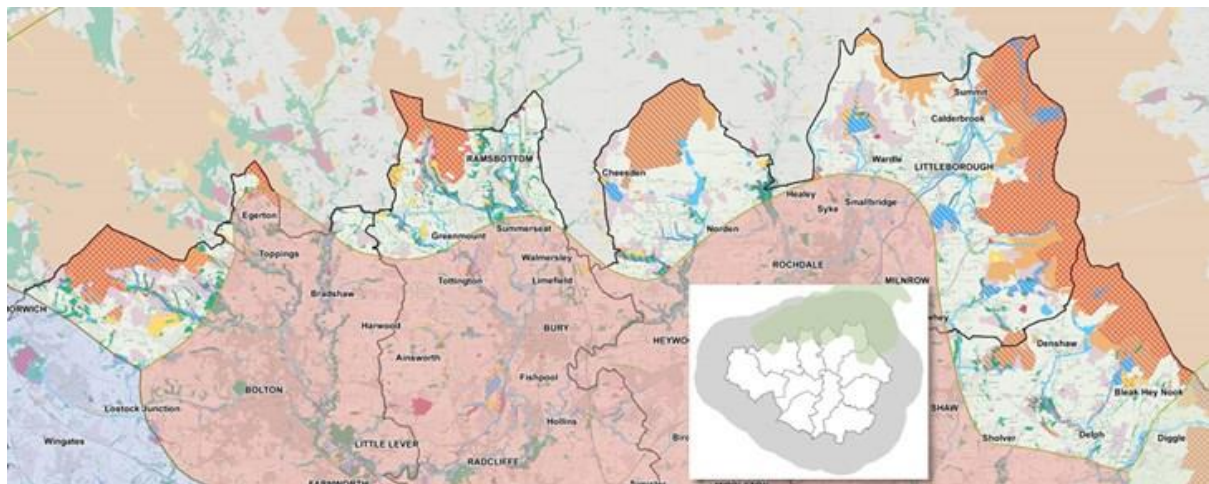
- Structurally diverse species-rich grasslands supporting pollinators and other invertebrates
- Species rich hedgerows, diverse in structure for active wildlife corridors across all lowland habitats
- Increased number of wetlands including reedbed, fens and ponds providing a suitable habitat for a diverse range of species

A sample of the priority Outcomes that relate to the lowland peat, wetlands and grasslands of the Lancashire Coal Measures include:

- Functioning and species diverse lowland raised bog habitats storing carbon, reduce flood risk and improved water quality.
- Increased diversity and abundance of species of invertebrates across the lowland and wetland mosaic of habitats
- Increased number and diversity of key species of birds across lowland wetlands, grassland and farmland
- Pasture and arable farmland providing improved and better-connected habitats for farmland birds, including the tree sparrow, yellowhammer and corn bunting
- Healthy, diverse waterbodies and riparian habitats that provide active wildlife corridors, connecting otherwise fragmented habitats

- The built environment, roads, railway lines, walking/cycling paths are richer in wildlife and plant species and provide connection to fragmented habitats.

Southern Pennines



This upland area takes in north-eastern Oldham, north-eastern and northern Rochdale and the northernmost parts of Bury and Bolton. The area is bordered by the towns of these three districts in its southern flank. Beyond that, this area extends to the similarly upland parts of the Dark Peak in the east.

The predominantly peat soils of this moorland area contain blanket bog, upland heathland and acid grassland. Cloughs, although small, have specialised flora, often containing a mix of dwarf shrubs with lichens and mosses. They can also contain a variety of native tree species such as oak, birch and rowan. Waterbodies provide crucial ecological links in this area. Partially restored sections of the Rochdale Canal contain important habitats for plants growing in and by the water, including extensive colonies of the internationally scarce floating water plantain species, stands of water violet and a diversity of pondweeds.

The upland areas provide a mosaic of habitats that support a range of bird species, particularly merlin, golden plover, dunlin, twite, snipe, curlew, wheatear, whinchat, redshank, common sandpiper, ring ouzel and lapwing. Cloughs provide habitat for woodland birds including tree pipits, redstarts and pied flycatchers.

Streams and rivers provide crucial ecological links while reservoirs support wintering and breeding habitats for birds. Stone structures close to waterbodies also provide good sites for bat populations (e.g., Daubenton's bat).

- **Blanket bog** – there is a large expanse of blanket bog (areas of deeper peat), although only small pockets of this have been restored. Much of this habitat has been degraded by overgrazing, burning and industrial pollution.
- **Upland heathland** – on shallower peat, heather dominated upland heathland covers significant areas but has been similarly degraded by agricultural land improvements.
- **Cloughs** – these are small valleys carved out by streams which make their way from the higher moorlands to the lowland areas. They can contain:
 - Flushes, where water seeps away, and where diverse plants and animals can be supported.
 - Woodland, supporting tree species, wildflowers and a range of wildlife (e.g. birds, bats and mammals).
- **Waterbodies** – streams and rivers (particularly the Irwell and Roch) provide a key ecological link to the lowlands. Reservoirs are also a feature of the area, as is the Rochdale canal.

Key sites protected for nature

South Pennine Moors SSSI, Special Area of Conservation and Special Protection Area (for birds) is a larger area extending from the east of Rochdale and Oldham further into the moorland of West Yorkshire. The moors are made up of extensive blanket bog, with peat that has locked away carbon that is over 9,000 years old. They also feature upland dry heath with heather, and clough woodlands containing dwarf shrub, lichens and mosses edged by old sessile oak woods.

West Pennine Moors SSSI extends north from Horwich and Bolton and Ramsbottom into Lancashire, and supports an extensive mosaic of upland and upland-fringe habitats. Its nationally important features include blanket bogs, wet and dry heathlands and acid and lime-rich flushes. The moorland fringes in the Greater Manchester area of this SSSI include rush pastures and mire grasslands, acid grasslands and neutral hay meadows and pastures combined with wet and dry broadleaf woodlands and scrub. The grasslands and meadows are species-rich, benefitting from years of careful management with low or no nutrient inputs, a hay

cut and grazing, or simply low intensity grazing. These grasslands support populations of nationally rare lady's-mantles.

Gale Clough and Shooterslee Wood, as part of West Pennine Moors SSSI, is semi-natural broad-leaved woodland and is the best example of a clough woodland on acid soils in the city-region. The upper reaches of the ravine support birch-oak woodland, and lower down is wetter woodland with alder and ash sheltering a scrub layer beneath of hazel, cherry, goat-rose and willows. Flushes give rush habitat growing from a moss carpet featuring a diversity of flowering plants. This is bordered by scrub heathland and acid grassland dominated by heather, bilberry and wavy-hair grass. Part of the site is *Favourable*, while part is *Unfavourable*, *No Change* due to the presence of large of beech trees.

Rochdale Canal SSSI and SAC features in this area (see below, Manchester Conurbation for more information).

Local Wildlife Sites/Sites of Biological Importance include:

- Hollingworth Lake, an important leisure and recreation area near to Rochdale
- Watergrove Reservoir
- Heally Dell
- Naden Valley
- Redisher Wood Local Nature Reserve
- Castleshaw Reservoirs.

How nature helps

Uplands provide significant opportunities for:

- carbon sequestration in peat and soils to tackle climate change
- water storage and management including reducing flood risk downstream in the urban areas.
- leisure and recreation in open spaces and around waterbodies.

Pressures on habitats and species

The Southern Pennine habitats and species are subject to some pressure from development nearer to the urban areas in the south, and increased tourism and

recreational demand. Farmsteads continue to be sold off separately from the land, including the division of adjacent fields into equestrian facilities and paddocks. Grazing pressures are still present, farm size remains small and livestock numbers remain high, although they have dropped significantly since 2000. In places, drystone walls are collapsing through lack of maintenance and some intensification of grassland management has occurred. The semi-natural areas experience pressure from shooting, grazing, recreational access and development.

The Southern Pennines area is at risk of the impacts of climate change including:

- more frequent extreme weather events with heavy rain causing erosion, flooding and changes to water courses, causing or reactivating landslides.
- droughts making peatland habitats vulnerable to erosion or damage from wildfire.
- climate change could affect species migration and biodiversity, with ranges and climatic envelopes of its characteristic birds (listed above).
- plant diseases may spread more readily affecting moorland dwarf shrubs and trees.

Helping nature to recover

The peat on the South Pennine and West Pennine Moors (and the Dark Peak) have been described as possibly the most degraded upland landscape in Europe, possibly the world⁹.

As well as projects to restore blanket bog (see Moors for the Future, Dark Peak section below), measures to stop human impact on the important peat in our uplands is underway. Operation Dragster is a police-backed scheme supported by local neighbourhood forums to deter and prevent illegal off-road activities from causing significant damage to the peat and disturbance to ground-nesting birds.

The Woodland Trust has acquired the 685 ha Smithills Estate, near Bolton, which is home to areas of valuable habitat, particularly moorland – which is part of the West Pennine Moors SSSI – along with clough woodland and important grassland. It is

⁹ [Conservation Work. Moors For The Future Partnership.](#)

now working to ensure the land is managed appropriately and is creating a variety of habitats that will encourage wildlife to thrive and turn around the decline it has seen in recent years.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes that we want for nature across all of Greater Manchester are:

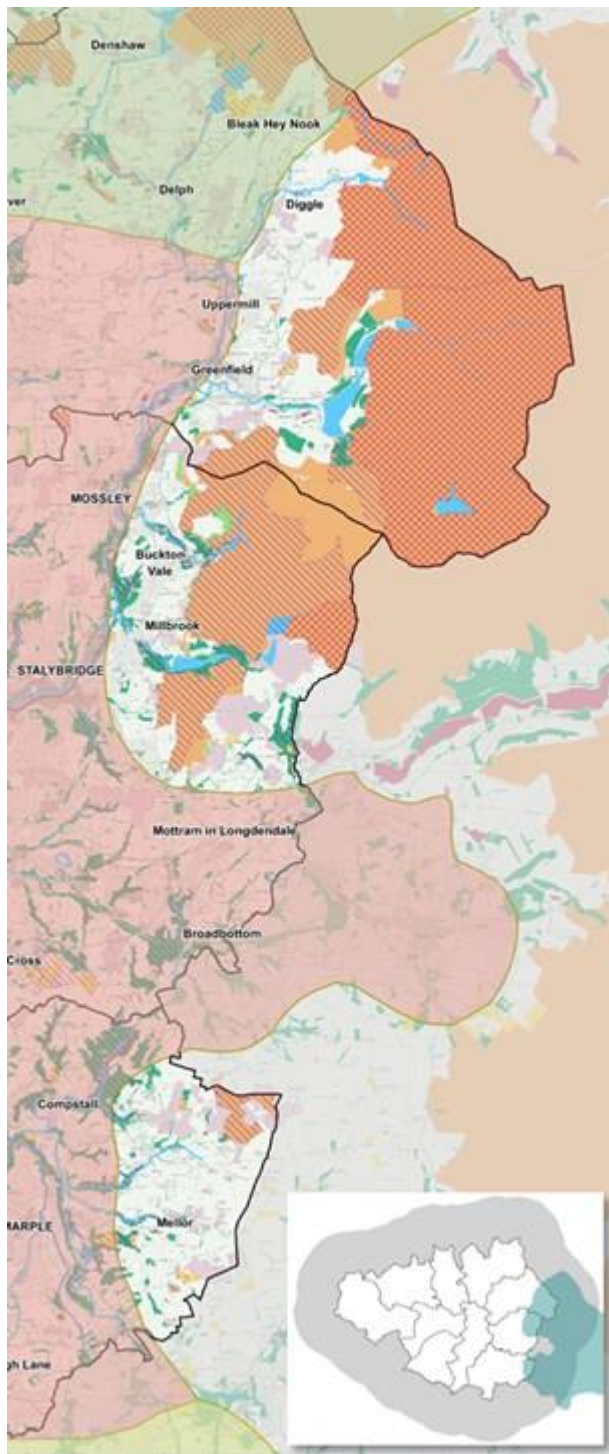
- Structurally diverse species-rich grasslands supporting pollinators and other invertebrates
- Species rich hedgerows, diverse in structure for active wildlife corridors across all lowland habitats
- Increased number of wetlands including reedbed, fens and ponds providing a suitable habitat for a diverse range of species

A sample of the priority Outcomes that relate to the lowland peat, wetlands and grasslands of the Southern Pennine uplands include:

- Increased diversity of species and abundance of invertebrates in upland habitats, including bees and hoverflies
- A dynamic mosaic of active blanket bog, heath, upland springs and flushes and associated habitats storing carbon, supporting improvement in water quality, reduced flood risk and reduced risk of wildfires
- More connected habitats and mosaics of habitats across the uplands to facilitate the movement of species
- Excluding on areas of blanket bog and core peat areas, increased woodland and tree cover including scrub, including in the cloughs, along streams and rivers and between areas of ancient woodland, reducing fragmentation and providing habitats for woodland birds, invertebrates and flora, and to reduce flood risk, improve water quality and store carbon
- Healthy, diverse waterbodies and riparian habitats that provide active wildlife corridors, connecting otherwise fragmented habitats

- The built environment, roads, railway lines, walking/cycling paths are richer in wildlife and plant species and provide connection to fragmented habitats.

Dark Peak



This upland area covers south-east Oldham, north-east Tameside and east Stockport. The towns of Stalybridge, Mossley, Greenfield and Diggle mark the western limit of this large area of moorlands, which extend beyond Greater Manchester across a large part of the higher and wilder parts of the Peak District National Park.

The predominantly peat soils of this moorland-dominated area contain the key habitats of blanket bog, upland heathland and acid grassland which naturally only support a limited diversity of species.

Cloughs (valleys), although small, have specialised plants – often with carpets of sphagnum bog moss and sedges. They can also contain a variety of native tree species such as oak, aspen, rowan, bird cherry and birch, as well as shrub species including hazel and bilberry, alongside woodland wildflowers. The upland areas provide a key habitat for birds including golden plover and dunlin.

Blanket bog sees redshank and teal breed in small numbers while upland heath supports merlin, short eared owl, red grouse, curlew and twite. Acid grassland provides important habitats for upland birds such as curlew, lapwing, ring ouzel and

snipe and for mammals such as brown hare. Cloughs provide habitat for woodland birds including tree pipits, redstarts and pied flycatchers.

Habitats and species

- **Blanket bog** – there is a large expanse of blanket bog (areas of deeper peat), although only small pockets of this have been restored, such as that at Dovestone. Much of this habitat has been degraded by overgrazing, burning and industrial pollution. It is recovering now but remains at risk of overgrazing, drainage and moorland fires.
- **Upland heathland** – on shallower peat, heather dominated upland heathland covers significant areas but has been similarly degraded by agricultural land improvements.
- **Cloughs** – these are small valleys carved out by streams which make their way from the higher moorlands to the lowland areas. They can contain:
 - Flushes, where water seeps away, and where diverse plants and animals can be supported.
 - Woodland, supporting tree species, wildflowers and a range of wildlife (e.g. birds, bats and mammals).
- **Acid grassland** – this is relatively common; although it is usually species poor, with purple moor-grass, it is a valuable habitat for upland birds including curlew and lapwing.

Key Sites for Nature

Nearly half of the entire Dark Peak area is designated as a Special Protection Area and Special Area of Conservation and covered by SSSIs. However, Greater Manchester's footprint in this landscape area is around the edges of these protected areas. The only two SSSIs in its area is the Huddersfield Narrow Canal with its array of rare plant and aquatic life and the Ludworth Intake.

The Huddersfield Narrow Canal is an important example of a flowing water body with high levels of minerals and nutrients. Its main habitats present of standing and running water support tall herb fen and water-side plants, with a high diversity of aquatic plants, and stands of bulrush, bur reed, sweet flag, royal fern, perfoliate pond weed and (the nationally rare) grass wrack pond weed and floating water plantain. It also has the best occurrence of the fresh water sponge in the natural area. Sadly, the condition is *Unfavourable, No Change* indicating that there is no evidence of management for recovery.

Local Wildlife Sites/Sites of Biological Importance include:

- Dovestone Reservoir, RSPB reserve
- Alphin Pike and Buckden Moor
- Stalybridge Country Park.

How nature helps

Uplands provide significant opportunities for:

- carbon sequestration in peat and soils to tackle climate change
- water storage and management including reducing flood risk further downstream
- leisure and recreation in open spaces and around waterbodies.

Pressures on habitats and species

The Dark Peak habitats and species are subject to some pressure from development nearer to the urban areas, and increased tourism and recreational demand, while maintaining a sense of remoteness and tranquillity. River habitats including River Tame and Etherow have both been heavily impacted by past industrial legacy and urban expansion.

The Dark Peak area is at risk of the impacts of climate change including:

- more frequent extreme weather events with heavy rain causing erosion, flooding and changes to water courses, causing or reactivating landslides.
- droughts making peatland habitats vulnerable to erosion or damage from wildfire.
- climate change could affect species migration and biodiversity, with ranges and climatic envelopes of its characteristic birds (listed above).

- plant diseases may spread more readily affecting moorland dwarf shrubs and trees.

Helping nature to recover

At the RSPB Reserve at Dovestone Reservoir, conservation work has been carried out in partnership with the landowner (United Utilities), aiming to make the bog wetter again, blocking the gullies with stone and heather bales and revegetating the bare peat by planting sphagnum mosses with the help of local volunteers. This not only prevents peat being washed out into our drinking water but helps lock in carbon to tackle climate change. Vitally, it benefits breeding waders such as curlews, golden plovers, red grouse and dunlins whose numbers are now increasing at Dovestone in the restored areas.

While much of the conservation work is carried out on the higher moorlands, work is being carried out to make the moorland edges more diverse, with patches of trees, bilberry and heather, attractive to ring ouzels and other wildlife. Woodland management, planting wildflowers and creating wildlife ponds means that there is more wildlife for visitors to see around the main Dovestone trail too.

Moors for the Future work on Saddleworth Moor between 2012 and 2017 brought a severely degraded moorland landscape back to life by blocking gullies and re-vegetating bare peat to benefit wildlife and reduce flood risk in urban areas. Over 2,000 dams were installed, 8,500 bags of heather brash were spread to stabilise the peat and help establish growing conditions for moorland plants, lime spreading helped improve growing conditions for plug plants of heather, bilberry and cross leaved heath for plant diversity and 250,000 plugs of sphagnum were planted.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes that we want for nature across all of Greater Manchester are:

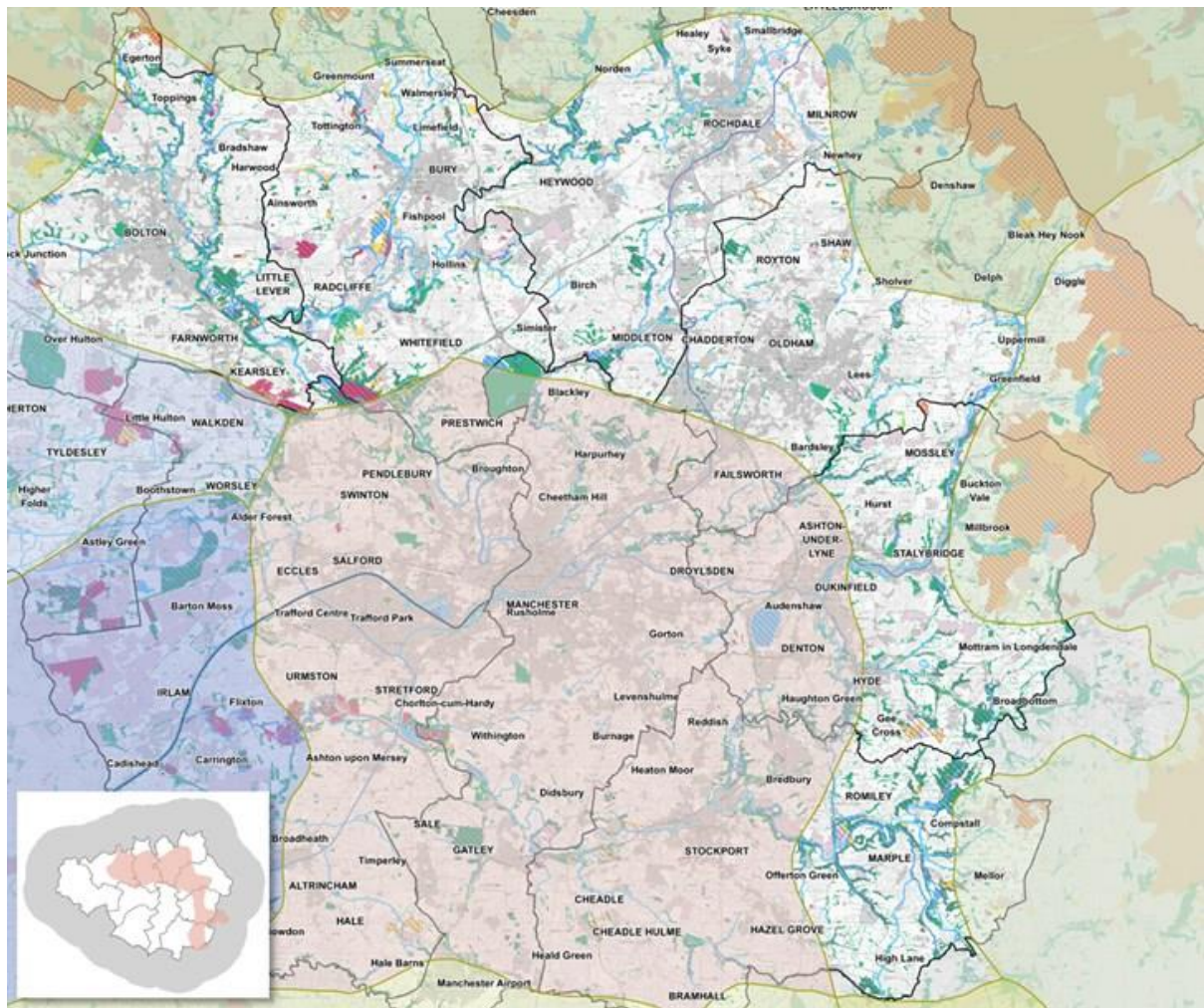
- Structurally diverse species-rich grasslands supporting pollinators and other invertebrates

- Species rich hedgerows, diverse in structure for active wildlife corridors across all lowland habitats
- Increased number of wetlands including reedbed, fens and ponds providing a suitable habitat for a diverse range of species.

A sample of the priority Outcomes that relate to the lowland peat, wetlands and grasslands of the Dark Peak uplands include:

- Increased diversity of species and abundance of invertebrates in upland habitats, including bees and hoverflies
- A dynamic mosaic of active blanket bog, heath, upland springs and flushes and associated habitats storing carbon, supporting improvement in water quality, reduced flood risk and reduced risk of wildfires
- More connected habitats and mosaics of habitats across the uplands to facilitate the movement of species
- Increased woodland and tree cover including scrub, including in the cloughs, along streams and rivers and between areas of ancient woodland, reducing fragmentation and providing habitats for woodland birds, invertebrates and flora, and to reduce flood risk, improve water quality and store carbon
- Healthy, diverse waterbodies and riparian habitats that provide active wildlife corridors, connecting otherwise fragmented habitats.

Manchester Pennine Fringe



This transitional area from lowland to upland wraps around Manchester from Bolton in the north-west to the edge of Hazel Grove in Stockport in the east, and includes the industrial towns of Bury, Bolton, Rochdale, Oldham, Dukinfield, Ashton Under Lyne, Hyde and Glossop. Its deeply incised, steep river valleys characterise the transition from moorland to urban area. It is situated between the open moorlands of the Dark Peak and Southern Pennines to the east and north.

The habitats across this area are dominated by grassland of varying quality, with some small hedgerows and walls. Locally restricted hay meadow plant species include great burnet and ragged robin. The drier soils sometimes support oak and birch woods while the wetter, lower parts have woodland dominated by ash and

alder. Concentrated pockets of woodland are confined to narrow steep-sided stream valleys which cut into the smoothly undulating, upland, pastoral landscape.

The adjacent moorlands of the South Pennines and Peak District are of particular importance for breeding bird populations, including merlin, golden plover, curlew and twite. Brown hare and mountain hare are found in this area benefitting from its mixed landscape of open fields, hedgerows, uncut grass and small woodland.

Habitats and species

- **Woodland** – is concentrated in narrow, steep-sided valleys that cut into smooth shoulders of pastoral land, but it also extends along whole river valleys. Woodland over 2 hectares covers 10% of the total area, with around 1% of the total area being ancient woodland. This makes up 35% of woodland in the entire Greater Manchester area.
- **Rivers and canals** – are an important feature of this area, providing transport routes and important sites for biodiversity. Rochdale Canal is designated as a Special Area for Conservation as it supports floating water-plantain.
- Past industrial activities have left a variety of sites, such as **quarries, mill lodges, reservoirs, canals and spoil heaps**, which are now valued for their biodiversity and geodiversity.
- Almost half of this area is classed as urban with high population densities across a belt of industrial towns, with busy transport networks and motorways, with several **parks and gardens** in the area including Heaton Park, Smithills Hall and gardens, Alexandra Park, Queen's Park and Stamford Park.
- The dominant land use is **grass and un-cropped land**. The lower, steeply undulating foothills to the fringes are of variable quality grassland, with some small hedges and walls to irregular fields enclosed by the 19th-century wooded valleys, and scrub on steeper slopes.

Key sites for nature

Compstall Nature Reserve SSSI is part of Etherow Country Park which is owned by Stockport Metropolitan Borough Council. It contains a number of habitat types including open water, tall fen, reed swamp, carr and mixed deciduous woodland, and

is an important example of clough woodland. The diversity of habitats supports tufted duck and mallard on the river and in adjacent ponds, whilst teal, goldeneye and pochard are frequent winter visitors. Dipper, grey wagtail and kingfisher have been frequently recorded for the site along with water rail, a particularly uncommon species. Within the woodland breeding populations of are green woodpecker, greater spotted woodpecker, woodcock, tawny owl and sparrow-hawk. The site condition is *Unfavourable, Recovering*, and incursions of Himalayan balsam are being controlled using short periods of cattle grazing while scrub has been removed.

Nob End SSSI is also a Nature Reserve, at Little Lever, not far from Bolton town centre. It is a steep sided tip at the confluence of the Rivers Irwell and Croal and was formed from an industrial process manufacturing sodium carbonate. It forms an unusual habitat where plants typically found in limestone areas thrive. These include a nationally rare species rich variant of the tall fescue–coltsfoot plant, and the grasslands feature mainly herbs rather than grasses – including rare carline thistle, blue fleabane and purging flax to name but a few. Several species of orchids occur in high numbers. In the wetter areas of marshy grassland and willow carr burnet moths and common blue butterflies thrive. The site condition is *Unfavourable, Recovering*, with management in place to tackle Himalayan balsam and rosebay willow herb.

The West Pennine Moors SSSI including Gale Clough and Shooterslee Wood SSSI are shared with the South Pennine area (see above for details of both SSSIs).

Local Wildlife Sites/Sites of Biological Importance include:

- Smithills Country Park
- Doffcocker Lodge
- Chesham Woods
- Burrs Country Park
- Ashworth Valley
- Hopwood Woods Local Nature Reserve
- Tandle Hill Country Park
- Werneth Low Country Park
- Chadwich Country Estate Local Nature Reserve

- Northern Roots Bank Clough.

How nature helps

The woodlands, rivers and canals and grasslands of this Pennine Fringe area that wraps around the dense urban centre of our city-region provide significant benefits by:

- Bringing green infrastructure into the urban areas, through woodlands and greenways
- Providing transport links alongside the canals
- Providing a cooling effect through green and blue spaces, improving resilience to climate impacts
- Reducing the effects of pollution through tree and hedge cover
- Through parks and nature reserves, providing people with access to natural green spaces for leisure and recreation to promote both physical and mental health
- Reducing flood risk and assisting water management.

Pressures on habitats and species

This transitional area between the dense urban setting and the countryside faces pressures from development, transport links and recreation. Housing and road development cause urbanisation of the area. Agricultural uses for the land between the towns are mainly permanent pasture, with much of this land used for horses.

Helping nature to recover

Northern Roots is a pioneering project creating the UK's largest urban farm and eco-park on 160 acres of stunning green space in the heart of Oldham. The aim is to develop Northern Roots in a way that creates jobs, skills and business opportunities for local people, while preserving and enhancing the biodiversity and environmental value of the site. The Northern Roots site encompasses flat grass land, heath, boggy wetlands and dense wooded slopes. The boggy area in the centre of the site is being harnessed to create a series of ponds and reedbeds, which in future may include a swimming or fishing lake, helping to manage the vast volume of water that flows through the site while creating new habitats for nature. The woodlands have been

brought under active management and several more hectares of trees planted. An area has been dedicated to growing saplings, for planting on here and across the region. At the heart of Northern Roots is the ambition to develop the project in such a way that the biodiversity and ecological value of the site is improved. That a wider range of habitats, supporting more and more diverse populations of insects, plants, fungi, birds and mammals are created. The site should become a valuable corridor and haven for wildlife in the vulnerable urban fringe.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes that we want for nature across all of Greater Manchester are:

- Structurally diverse species-rich grasslands supporting pollinators and other invertebrates
- Species rich hedgerows, diverse in structure for active wildlife corridors across all lowland habitats
- Increased number of wetlands including reedbed, fens and ponds providing a suitable habitat for a diverse range of species

A sample of the priority Outcomes that relate to the lowland peat, wetlands and grasslands of the Pennine Fringe include:

- Increased woodland and tree cover including scrub, including in the cloughs, along streams and rivers and between areas of ancient woodland, reducing fragmentation and providing habitats for woodland birds, invertebrates and flora, and to reduce flood risk, improve water quality and store carbon
- Healthy, diverse waterbodies and riparian habitats that provide active wildlife corridors, connecting otherwise fragmented habitats
- Increased trees and canopy cover within our urban areas, particularly through street trees, to provide urban habitats and to better adapt these areas to the impacts of climate change (particularly reducing surface water flood risk and the risk of urban heating)

- Nature Based Solutions adapting the urban environment to be resilient to the impacts of climate change and reduced urban diffuse pollution
- Parks and public green spaces providing refuges and stepping-stones for wildlife, adapting our urban areas to climate change and providing access to high quality natural green spaces for recreation and people's physical and mental health.

This map displays the administrative boundaries of Greater Manchester, with each ward color-coded. The map includes labels for numerous towns and cities, such as Salford, Manchester, Stockport, and Bolton. It also shows major roads and the Manchester Airport. An inset map in the top right corner provides a broader geographical context of the region within the United Kingdom.

69

Semi-natural broadleaved woodland can be found in small pockets, some of which are ancient woodland sites, such as Bailey's Wood, Mere Clough and Prestwich Clough in the north, and Bramhall and Carr Woods in the south. Many of the river valleys have large areas of woodland along their slopes. The tolerance of black poplars to industrial pollution has meant that this species was widely planted as an urban tree in Manchester, however since around 2000 a virulent disease diagnosed as poplar scab has affected the Manchester poplar, and badly diseased trees have been felled. Several conspicuous species have colonised the urban areas with the fox, badger, peregrine falcon, black redstart and marsh orchid among the best-known examples. The mosaic of built environment and open space is also important for urban specialist species such as house sparrow and house martin.

Habitats and species

- **River valleys and canals** – important corridors of semi-natural habitats and natural green space line the conurbation's river valleys and canals.
- **Open grassland, woodland and wetland** link urban centres with open countryside and provide semi-natural habitats for several species
- **Woodland** is usually found in corridors along the slopes of the river valleys and on formerly brownfield land
- There are small pockets of **farmland, bounded by fences or hedges**. However, an increasing number of farms are now given over to urban farming uses such as equestrian facilities. Most holdings are grass and uncropped land
- **Public parks** and recreation facilities provide valuable open spaces for people within this urban environment but also offer a refuge for the urban wildlife
- Field boundaries, where they occur, include both fences and **hedges** in river valleys and on the peripheries of the urban areas.

Key Sites for Nature

Canals are where Manchester Conurbation's three SSSIs feature. However, as stated in Section 3 above, the condition of these waterbodies has been in decline.

The Rochdale Canal is a Site of Special Area of Conservation and SSSI for its important habitats for submerged aquatic plants and waterside vegetation, including extensive colonies of the nationally scarce species floating water plantain. It also supports diverse collections of aquatic flora, especially pondweeds. It is home to over 100 invertebrates, including two rare species of water beetle and pea mussel. The Rochdale Canal is *Unfavourable, Recovering* due to the natural recovery process of plant recolonisation being slow in some areas.

Huddersfield Narrow Canal SSSI – this SSSI extends through the Dark Peak (see above for details).

Hollinwood Branch Canal SSSI in Tameside is also a Local Nature Reserve. It is noted for being a mesotrophic standing water system (meaning that it has a moderate amount of nutrients, so has areas of open water) with diverse open-water plant species including rare examples as well as canal-side fen habitats of bullrushes and reed sweet-grass. Unfortunately, at the last assessment in 2012, the canal condition was *Unfavourable, Declining* because the canal side plants were intruding into the important clear water areas affecting water quality and species diversity.

Within Trafford, Local Nature Conservation Sites and wildlife corridors are of great importance and are included as part of the Natural Environment Assets in their Local Plan (draft plan as of June 2021).

Local Wildlife Sites/Sites of Biological Importance

Importantly for a build-up urban area, Manchester Conurbation also has local parks, nature reserves and other sites for local wildlife including:

- Heaton Park
- Clifton Country Park
- Highfield Country Park
- Blackley Forest Local Nature Reserve
- Boggart Hole Clough Local Nature Reserve

- Clayton Vale Local Nature Reserve
- Chorlton Water Park and several other nature reserves and water parks on the River Mersey
- Salford Quays
- Worsley Woods
- Sale Water Park
- Broad Ees Dole Local Nature Reserve
- Longford Park
- Ladybrook SBI.

How nature helps

Woods and trees, rivers and canals and park and grasslands in Manchester's conurbation provide vital services to our cities and towns through:

- Bringing green infrastructure into the urban areas, through woodlands and greenways
- Providing transport links alongside the canals
- Providing a cooling effect through green and blue spaces, improving resilience to climate impacts
- Reducing the effects of pollution through tree and hedge cover
- Through parks and nature reserves, providing people with access to natural green spaces for leisure and recreation to promote both physical and mental health
 - Reducing surface water and sewer flood risk and assisting water management
- Making the urban area more attractive.

Pressures on habitats and species

Development pressure is high in this busy urban centre, alongside the need to provide infrastructure and associated services. While parks and nature reserves are highly valued, biodiversity can be found in brownfield sites that have 'greened up', which in turn, are under development pressure. Incidental green space, parks and canal-sides can see high levels of use for recreation and leisure. Lighting in urban

areas can affect wildlife, as can litter, pollution and disturbance. Street trees and garden green space can be under pressure from poor management or paving over. (For more detail on these pressures in the urban setting, see Ecological [Networks](#) below).

Helping nature to recover

City of Trees is planting trees and restoring woodlands across the area, with a target of planting a tree for every resident within five years – that's 3 million trees.

My Wild Garden is a Lancashire Wildlife Trust campaign that encourages and supports people to use their gardens, workplaces and green space to create nature corridors throughout the Greater Manchester. Ranging from planting for insects to creating a wild patch or gardening for wildlife, resources help people to learn how to be play their part in the nature recovery network.

The IGNITION Living Lab at The University of Salford, opened in June 2021, showcases the value of Green Infrastructure over traditional grey building infrastructure and encompasses it will include a rain garden, green roof, living wall and sustainable drainage using trees.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes that we want for nature across all of Greater Manchester are:

- Structurally diverse species-rich grasslands supporting pollinators and other invertebrates
- Species rich hedgerows, diverse in structure for active wildlife corridors across all lowland habitats
- Increased number of wetlands including reedbed, fens and ponds providing a suitable habitat for a diverse range of species

A sample of the priority Outcomes that relate to the lowland peat, wetlands and grasslands of the Manchester Conurbation include:

- Increased trees and canopy cover within our urban areas, particularly through street trees, to provide urban habitats and to better adapt these areas to the impacts of climate change (particularly reducing surface water flood risk and the risk of urban heating)
- Nature Based Solutions adapting the urban environment to be resilient to the impacts of climate change and reduced urban diffuse pollution
- Parks and public green spaces providing refuges and stepping-stones for wildlife, adapting our urban areas to climate change and providing access to high quality natural green spaces for recreation and people's physical and mental health.
- The built environment, roads, railway lines, walking/cycling paths are richer in wildlife and plant species and provide connection to fragmented habitats.
- Healthy, diverse waterbodies and riparian habitats that provide active wildlife corridors, connecting otherwise fragmented habitats
- Rivers and streams rich with native and diverse plant and animal species, including keystone species such as otter, kingfisher, trout and salmon.

Greater Manchester's Ecological Networks

As well as looking at these broad areas, there are ecological networks that cut across Greater Manchester's administrative boundaries and its different landscapes. The city-region is criss-crossed by a network of historic canals and rivers. There are also pockets of trees and woodlands, grasslands and wetlands. Gardens and parks are located throughout Greater Manchester, and extensive areas of peat are found to the north and east in the uplands and in the lowland mosses of the west. These habitat networks support biodiversity and provide natural corridors and stepping stones for wildlife.

Urban areas

Across many of these National Character Areas, Greater Manchester's urban areas provide a network of natural assets, important for nature but particularly for the wider benefits they provide to people and the economy. The main urban area in the city-region centres on the built-up area of Manchester, Salford and Stockport but also includes the urban areas in Bolton, Bury, Oldham, Rochdale, Tameside, Trafford and Wigan.

Half of the areas classified as urban in Greater Manchester is made up of green spaces, waterbodies and other natural features. These can be described as "urban green infrastructure", which helps us understand the range of benefits these natural assets provide. This is particularly important in urban areas and their fringes, where most people live. Within these areas, natural assets include:

- Parks and green spaces – providing valuable open spaces for people (for access and recreation) and a refuge for urban wildlife. These include 'incidental' green space found on roundabouts, verges, small areas of grass or even wasteland. Cemeteries and allotments can also form a valuable part of the urban habitat mosaics and wildlife corridors.

- Private gardens – half of urban green space is made up of private gardens¹⁰, although research suggests that an increasing proportion of this (around 50% currently¹¹) may be hard/impervious surfaces (e.g. paving or driveways). Private gardens therefore offer a significant opportunity to support biodiversity and adaptation to climate change (flooding and overheating). Suburban gardens growing flowers and vegetables could be habitats for around 8,000 insect species¹².
- River valleys and canals – provide important corridors of open grassland, woodland and wetland for several species as well as recreation opportunities.
- Farmland – small pockets of farmland, particularly given over to uses such as equestrian facilities, are largely grassed and uncropped.
- Nature-based solutions – include street trees, green walls, green roofs and Sustainable Drainage Systems, which help urban areas adapt to climate change. They can also provide habitats for birds and insects in the built environment.

Trees and Woodlands

Trees and woodlands are important habitats to support biodiversity. But nationally, although woodland cover is gradually increasing, woodland wildlife is decreasing. The UK's woodland cover has more than doubled in the last 100 years, however much of this increase comprises non-native trees. Existing native woodlands are isolated and in poor ecological condition¹³. Ancient woodland is one of our oldest land uses and holds the most diverse ecosystems which are almost impossible to replace if destroyed.

¹⁰ [Greater Manchester Urban Green Infrastructure. The Ignition Project.](#)

¹¹ [Research Project: My Back Yard. Environmental Science Research in the Department of Natural Sciences, Manchester Metropolitan University.](#)

¹² [Introduction to garden wildlife. Wildlife Gardening Forum.](#)

¹³ [State of the UK's Woods and Trees 2021. Woodland Trust.](#)

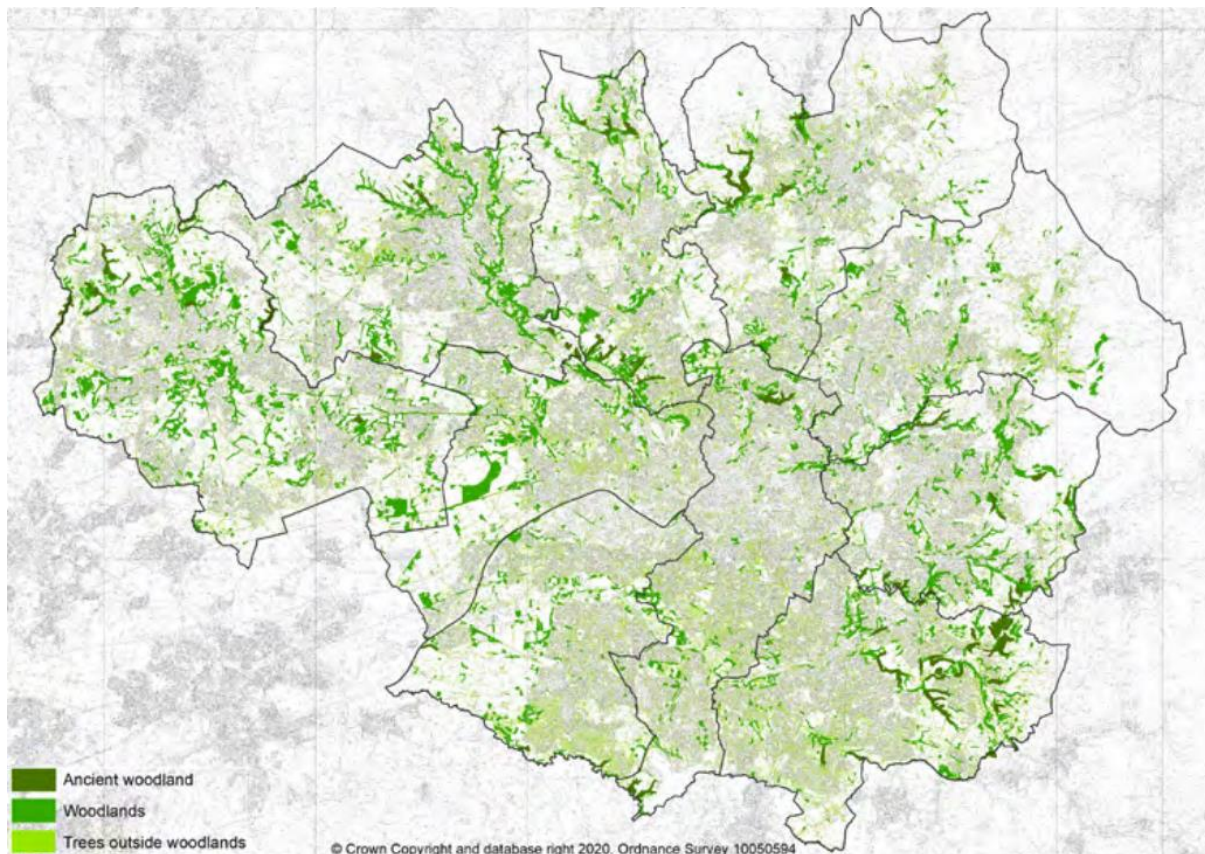


Figure 5. Ancient woodland, woodlands and trees outside woodlands in Greater Manchester. Source: City of Trees, All Our Trees report.¹⁴

The combined tree canopy across Greater Manchester covers 15.7% of the city-region's land surface, with approximately 11.3 million trees. This is around average for urban tree cover in England¹⁵. Whilst these include 192 species, the three most common tree species are hawthorn, sycamore and English oak. The city-region has a relatively diverse and young forest canopy with a need to increase the number of larger leafier species, such as sycamore.

A third of Greater Manchester's wooded area is in the Manchester Pennine Fringe, while the centre of Manchester and the Lancashire Coal Measures to the east each have over 20% of the woodland. However, the city-region's most populated areas have the lowest tree cover. There is much lower tree cover in the uplands of the

¹⁴ [All Our Trees: Greater Manchester's Tree & Woodland Strategy. Manchester City of Trees.](#)

¹⁵ [Tree canopy cover results – how did your town do? Woodland Trust.](#)

South Pennines and Dark Peak where it is generally restricted to the wooded cloughs. As the map shows, the woodland areas are fragmented, which is a challenge for nature recovery, because new woodland should be located within 500m of established sites so woodland species can move between them. Scattered trees outside woodlands can help provide linkages in the woodland habitat network for species movement.

Some of Greater Manchester's most important woodlands are detailed in the National Character Area character descriptions above. The jewels in the crown include clough woodlands which are SSSIs, namely Gale Clough and Shooterslee Wood, Brookheys Covert and Compstall Nature Reserve.

Ancient woodland found in the Manchester Conurbation, central area of the city region includes Semi-natural broadleaved woodland can be found in small pockets, some of which are ancient woodland sites, such as Bailey's Wood, Mere Clough and Prestwich Clough in the north, and Bramhall and Carr Woods in the south.

National Character Area	Lancashire Coal Measures	Mersey Valley	South Pennines	Dark Peak	Manchester Pennine Fringe	Manchester Conurbation
Percentage of GM's wooded cover	23%	8%	8%	4%	35%	21%
Percentage of this NCA which is wooded	10%	9%	5%	6%	10%	6%

Table 2. Percentage woodland cover by NCA area.

Source: Table of Habitats by NCA (Appendix 2)

How Trees and Woodlands help

Trees and woodland not only provide valuable habitats, but they provide wider environmental and social benefits as well:

- Trees play a vital role in carbon storage and in improving resilience to climate change by slowing the flow of water into streams and rivers, helping to reduce the risk of surface water flooding and reducing the urban heat island effect
- In the right place, they can help manage air quality
- They create better places for walking and cycling
- They create a barrier to noise
- They improve the look and feel of an area, which can give a boost to the local economy
- Natural regeneration, particularly near ancient woodland, is likely to have a higher quality woodland flora assemblage to colonise from compared to establishing new broadleaved woodlands from scratch.

Pressures on Trees and Woodlands

Woods and trees are subject to a range of threats from direct loss to the impacts of climate change, imported diseases, invasive plants, animal grazing and air pollutants:

- **Mismanagement and loss of urban trees:** careless construction or conflict with disadvantages of trees, such as shade, can lead to the damage or destruction of urban trees.
- **Lack of woodland management:** most woodlands in Greater Manchester do not have an up-to-date management plan or schedule of operations¹⁶. Woodlands need management to improve their condition and help prepare them for an increasingly unsettled environment and climate. This includes good forestry practices, legal compliance, safety and protecting designated sites for

¹⁶ [All Our Trees: Greater Manchester's Tree & Woodland Strategy. Manchester City of Trees.](#)

biodiversity. Moreover, woodlands need a diversity of species and ages of trees too, for resilience and to provide a rich habitat for wildlife.

- **Old age or poor health of trees:** The Greater Manchester i-Tree survey results¹⁷ tell us that around 30% of Greater Manchester's trees are in poor or moderate condition, either because of disease, damage or old age. Trees in poor condition are unlikely to thrive and so we can expect that we will lose these trees by 2050.
- **Ash dieback:** a very serious disease and concern to the health of a significant number of Greater Manchester's trees.
- **Development:** the need to provide land for homes and employment sites means that trees can be lost through development.
- **Climate change:** is causing extremes of temperature, wind, and rainfall, which could have major impacts on trees. Droughts particularly affect young trees which have not yet established strong root systems. Climate change also allows pests and diseases to expand their natural ranges, putting more trees at risk, for example ash and horse chestnut are particularly at risk.

Helping nature to recover

Greater Manchester is a leader in community forestry; the Red Rose Forest (now City of Trees) and Pennine Edge Forests were established in 1990 to restore previously degraded sites. The planting carried out over the last 30 years has seen an increase in species including the greater spotted woodpecker and long tailed tits.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes relating to Trees and Woodlands are:

- Increased woodland and tree cover including scrub, including in the cloughs, along streams and rivers and between areas of ancient woodland, reducing

¹⁷ [i-Tree Eco. Manchester City of Trees.](#)

More resilient, structurally and species diverse tree and woodland habitats to increase biodiversity, support carbon storage, enhance soil health and reduce flood risk

Increased trees and canopy cover within our urban areas, particularly through street trees, to provide urban habitats and to better adapt these areas to the impacts of climate change (particularly reducing surface water flood risk and the risk of urban heating).

Rivers, streams and canals



Greater Manchester is home to four river catchments, the Irwell, Upper Mersey, Lower Mersey and Douglas. The 2400km of river valleys and 150km of canals within these catchments form very important corridors of semi-natural habitats and natural greenspace throughout Greater Manchester. Open grassland, woodland and wetland are closely linked to the water courses and link urban centres with open countryside.

70% of Greater Manchester's watercourses are modified with straightened and walled channels, and culverts (where rivers have been redirected in tunnels underground). In places, the Manchester Ship Canal follows the original routes of the Rivers Mersey and Irwell. Reflecting the area's industrial heritage, the Manchester Ship Canal, Bridgewater Canal, Leeds and Liverpool Canal, and Rochdale Canal are all inter-connected, linking the Manchester conurbation with surrounding areas.

The North West River Basin Management Plan is the over-arching strategy which contains information on current water body status and required measures to meet the Water Framework Directive. Within this, for Greater Manchester, the four Catchment Partnerships are delivering improvements. For example, the Irwell Catchment Partnership brings together the key organisations, including United Utilities and the Environment Agency, which have set out ambitions and activities in the Catchment Plan 2019-2027. Despite progress over the last 25 years, within Greater Manchester 90% of waterbodies are failing their objectives with most being at 'moderate' or below.

River catchment management using nature-based solutions, not simply hard engineering, is a vital element of flood risk mitigation and delivering water quality improvements. This is important because over 14% of Greater Manchester is susceptible to surface water flooding with Wigan, Bury and Rochdale at greatest risk of surface water flooding. River levels can rise rapidly in the lower parts of catchments following heavy rain in the uplands.

Trees and woodlands, attenuation ponds, swales and 'leaky dams' in tributaries are all measures that slow water runoff into the river system and protect people and property from flooding, while providing wider benefits for nature.

How Rivers, Streams and Canals help

Rivers, streams, canals and waterbodies provide opportunities including:

- Well-managed, they can help reduce flood risk
- They can provide attractive car-free routes for walking and cycling
- Leisure opportunities – even open water swimming in Salford Quays
- Tourism and recreation attractions
- A link to the industrial heritage of Greater Manchester.

Pressures on Rivers, Streams and Canals

Rivers and streams are subject to pressures that affect the habitats they provide and the biodiversity within them, these include human and climate pressures such as:

- **Physical modifications** – particularly in urban areas flood defences, weirs, culverts and changes to allow navigation all affect the river course, flow levels and can cause sediment build up. These modifications also affect the relationship between the river and the surrounding habitat, with hard edges closing off potential habitat connections and links between different types of habitat.
- **Pollution from wastewater** – sewage from leaks or storm related overflows contain nutrients, bacteria and harmful chemicals that can harm biodiversity.
- **Diffuse pollution** – rainwater draining to rivers and streams from roofs, roads and pavements in urban areas and from farmland in rural areas carries pollutants that, at scale, can have a significant impact on water quality.
- **Changes to the natural flow and level of water** – reduced water level caused by extraction or low rainfall can be fatal for wildlife. Reduced flow affects fish health and exacerbates the effect of weirs. Climate change is expected to increase pressure on water availability for people, crops and wildlife. At the same time, more extreme storms and downpours will also affect rivers and streams. Although the impact on water flows, water quality and ecosystems is not fully understood, river and stream habitats need to be as resilient to these changes as possible.

Helping nature to recover

Leaky dams are being installed on Crompton Moor in Oldham, through funding from the Environment Agency and the EU LIFE IP Natural Course programme and delivered by City of Trees in partnership with Oldham Council, The Unity Partnership (LLFA) and the Friends of Crompton Moor.

“This pilot project on Crompton Moor will not only slow the flow of flood water and create habitat for wildlife but will help demonstrate the potential of such schemes for climate mitigation.”

David Brown, Flood Risk Senior Adviser, Environment Agency

Physical modifications, brick river channels and weirs have been removed by the Environment Agency along reaches of the River Medlock in the centre of Manchester, restoring river margins and providing flow diversity through boulder rapids and a build-up of gravel banks, this has seen the return of plants and animals.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes relating to Rivers, Streams and Canals are:

- Naturally functioning and resilient water environments and river catchments, helping us adapt to the impacts of climate change and reduce the risk of flooding
- Healthy diverse waterbodies and riparian habitats that provide active wildlife corridors, connecting otherwise fragmented habitats
- Rivers and streams rich with native and diverse plant and animal species, including keystone species such as otter, kingfisher, trout and salmon.

There are also Outcomes relating to riverside and wetlands.

Parks and Gardens

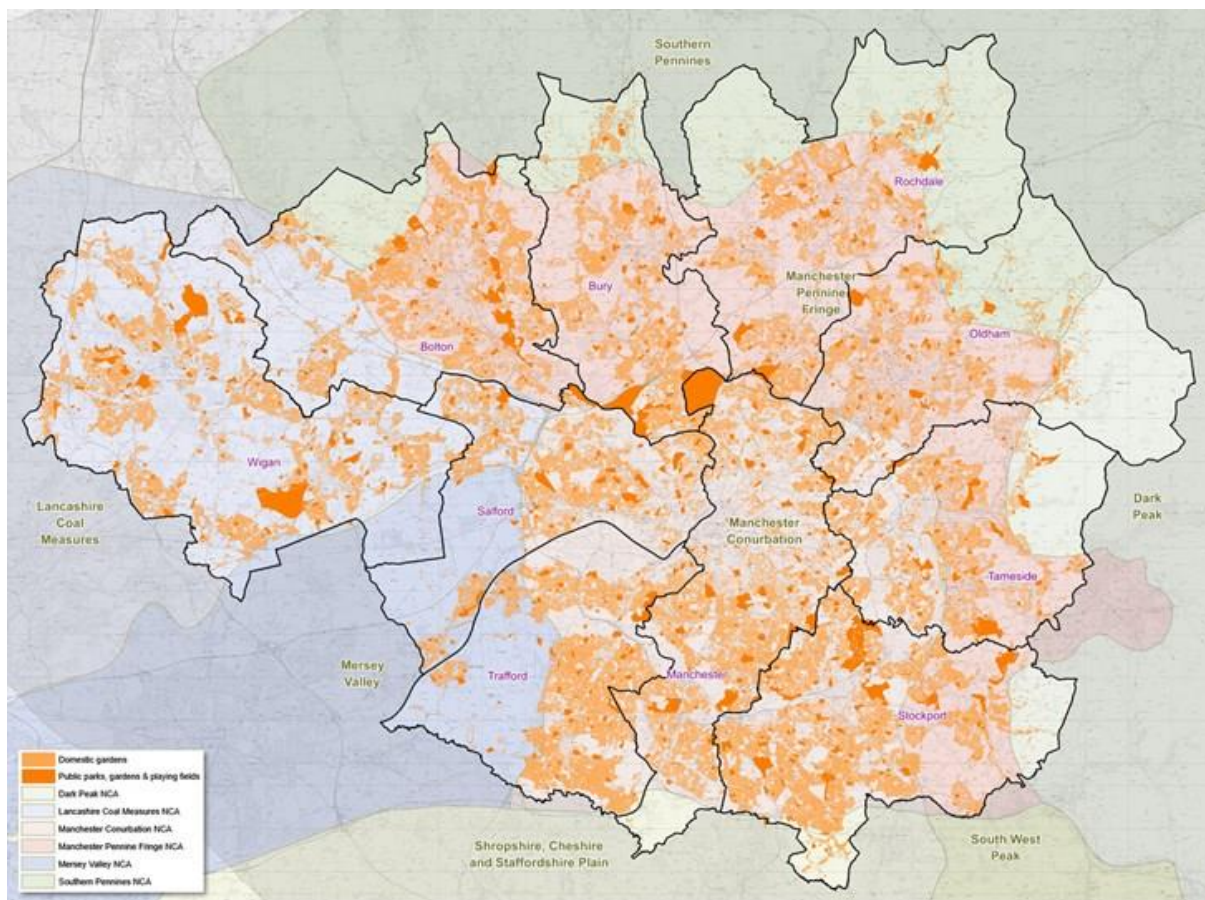


Figure 7. Parks and Gardens in Greater Manchester

Source: GMEU

Greater Manchester's parks and gardens cover half the urban area of the city-region. Many parks are publicly owned and managed by local authorities. They are vitally important for people's mental and physical health, being spaces for connection with nature and recreation in particular.

Those fortunate to have gardens also benefit from the impact on their mental health, in particular. The majority of gardens are privately owned and unregulated by public authorities, although some trees are protected or regulated for safety reasons.

Gardens with flowers, trees, hedges and ponds make up an important proportion of existing and potentially improved stepping stones and habitat mosaics for invertebrates – especially pollinators, birds and even mammals.

How Parks and Gardens help

Parks and gardens provide us with greenspaces that are vital places for recreation and our mental and physical health. However, access to good quality green space is unequal – a Groundwork report into equity in access to nature in urban areas¹⁸ found that:

- Only 5% of adults say that access to nature has never been important to them or their mental health
- 40% of people from ethnic minority backgrounds live in the most green-space deprived areas
- 29% of people living with a long-term illness or disability had not visited a natural space in the previous month

Pressures on Parks and Gardens

As for so many of our wild spaces, gardens are also under pressure from development and human activity. However, significant areas of gardens have been lost to extensions, patios and paving or plastic turf replacing plants and grass. Only half of the typical Manchester garden is green¹⁹. People may remove hedges and replace these with easier-to-maintain fencing, which form barriers rather than natural corridors for wildlife such as hedgehogs and remove valuable habitats for birds and invertebrates.

Public parks have come under increasing pressure from the budget cuts local authorities have had to make to their services over the last 10 years due to austerity. This has reduced the amount of money local authorities have been able to invest in maintaining and enhancing public parks and green spaces. In addition, use of these has continued to rise, particularly over the course of the Covid-19 pandemic, resulting in increased pressure on them.

¹⁸ [Report finds severe inequalities in access to parks and greenspaces in communities across the UK. Groundwork.](#)

¹⁹ [My back yard: the contribution of gardens to urban ecosystem services in Manchester. Dr Gina Cavan.](#)

Helping nature recover

My Wild Garden is a Wildlife Trust campaign supported by GMCA that links to the Manchester City Council My Wild City project to create a city-wide nature reserve. The campaign encourages and supports people to use their gardens, workplaces and green space to create nature corridors throughout the Greater Manchester. Ranging from planting for insects to creating a wild patch or gardening for wildlife, resources help people to learn how to be a part of the nature recovery network. Over 1,500 people signed up to make their gardens nature friendly during 2020.

Mayfield is a 24-acre multi-purpose housing, offices and retail development in the centre of Manchester. Within this, a new 6.5-acre park, Mayfield Park, will be built. As well as providing grassy space for leisure and recreation, wilder areas will include floodable meadows and biodiverse ecological areas beside the river.

As part of restoring nature in our parks and gardens, there are opportunities to deliver and manage greenspace so that it provides multifunctional benefits. Good examples of this are those conducted at Clayton Vale or River Quaggy or Castle Irwell urban wetland.

The new RHS Bridgewater provides an excellent example of how working with nature can promote and deliver multiple benefits, in this case to the local population of Greater Manchester. This site demonstrates various techniques that can be adopted by householders to managers of large public / private greenspaces to enhance ecology.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The Outcomes relating to Parks and Gardens are:

- Parks and public green spaces providing refuges and stepping-stones for wildlife, adapting our urban areas to climate change and provide access to high quality natural green spaces for recreation and people's physical and mental health
- Gardens providing refuges and stepping-stones for wildlife and contributing to our urban areas adapting to climate change by storing and slowing the flow of water.

Peat

Greater Manchester is unique in England as an example of an urban city-region with both extensive lowland and upland peat resource close to a large urban population.

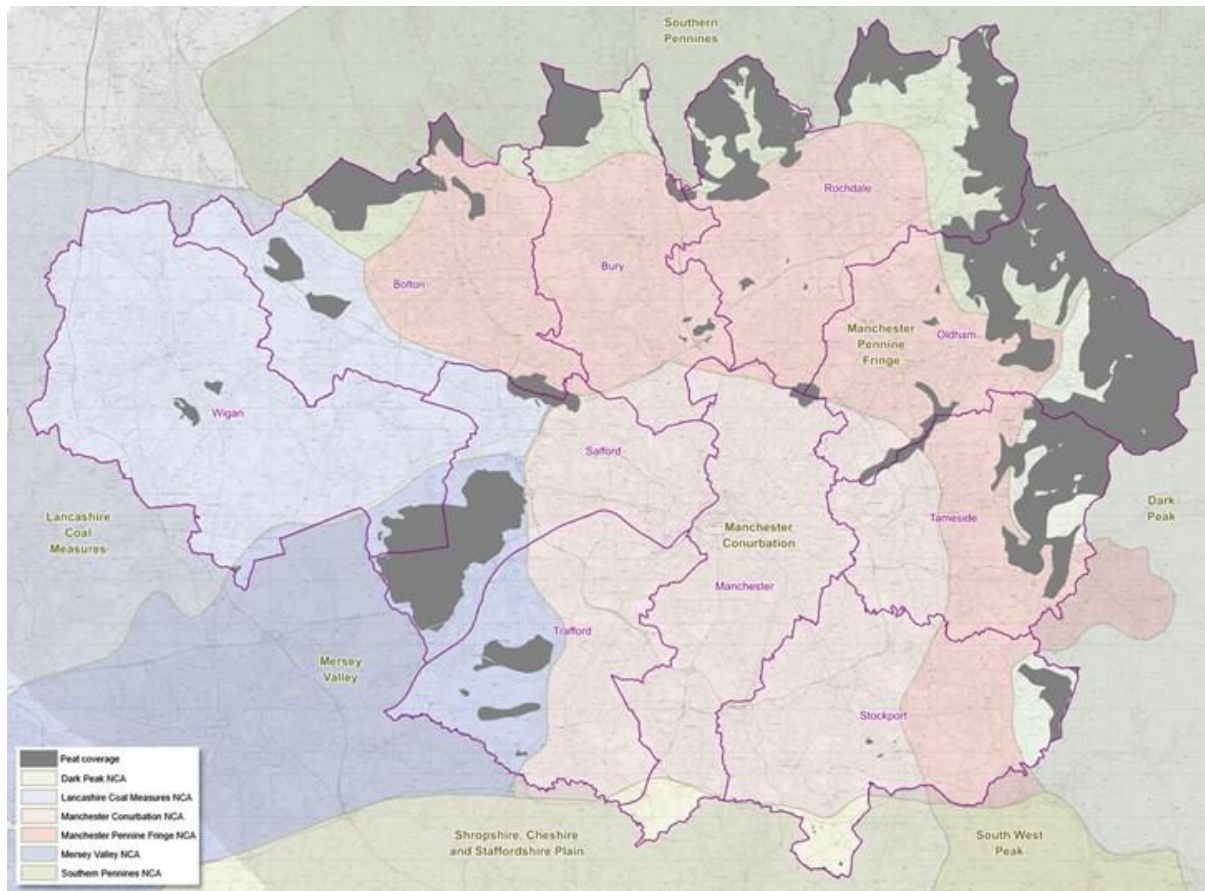


Figure 8. Indicative map of areas with underlying peat (of varying depths) in Greater Manchester

Source: GMEU

Peat areas are an important habitat and provide a range of important services in addition to biodiversity, including enhancing water quality, carbon sequestration, flood risk management, and mitigation for the impact of future storms and droughts.

There are approximately 17,500 hectares (ha) of peatlands within the city region boundary. Of these, around 5,000 hectares are in the lowlands, and around 12,500 ha are in the uplands. The depth of peat in these areas varies. Despite the areas on

the map appearing connected, areas of functioning peat are fragmented and less diverse than before.

How Peat helps: Peat and Climate Change

Peat is currently the source of around 1.5% of Greater Manchester's carbon emissions and alongside the importance of restoring the habitat, reducing emissions from this source and returning peat to being a carbon sink is vital for reaching the city-region's carbon neutrality target of 2038.

The extent of upland peat in Greater Manchester is 12,500 ha, with annual associated emissions of around 50,000 t CO₂-e each year.

The extent of lowland peat in Greater Manchester is 5,000 ha, with associated annual emissions of around 130,000 t CO₂-e per year. Nearly 90% of these emissions are derived from just three forms of intensive agriculture (turf production, cropland and intensive grassland), which collectively cover just 55% of land cover on lowland peat in Greater Manchester.

The lowland peat Chat Moss area alone, if fully restored, would reduce current annual emissions by 80,000 t CO₂-e, compared to current emissions under its present land use.

(These figures were derived from Greater Manchester Peat Pilot Report for Defra, September 2020).

In the uplands, large tracts of blanket bog are 'gripped' (drained), have been unsustainably grazed and have been damaged, with an increasing frequency and intensity, by wildfires. Only 20% of Greater Manchester's upland peat is in a protected area (SSSI, SPA, SAC), and 30% is currently under Higher Level Stewardship (HLS) agreements. However, this scheme ended in 2013 with the current 10-year agreements set to expire. Both protected sites and areas under HLS agreements had lower CO₂ emissions than average, with only a modest reduction achieved in HLS areas.

Pressures on peat

Despite cleaner air over the last 25 years, our moorlands and upland peat have been damaged through decades of industrial pollution and remain under significant threat of wildfire. Several large wildfires, sometime the result of discarded cigarettes or arson have impacted moorlands around Greater Manchester in the last five years, including fires at Winter Hill and Saddleworth Moors in 2018 which lasted for several days. Human-started fires are also becoming an increasing threat.

Bare peat means reduced biodiversity, risk of erosion and flooding and that it cannot store carbon. Peat suffers when it is left bare of vegetation due to:

- Extraction
- Intensive agricultural practices (e.g. turf production in lowland areas).
- Historic air pollution
- Wildfire
- Historic drainage
- Pressures from access
- Seasonal weather variations impacts
- Colonisation by non-native plants
- Development pressures.

Helping nature recover

The Moors for the Future Partnership works at landscape scale across the Peak District and South Pennine moors pioneering research and action to stabilise the degraded bare peat of the blanket bogs and then to help moorland plants of sphagnum, cotton grass and crowberry to re-establish with the help of ‘nurse’ grasses.

Scout Moor Wind Farm is situated on the moors above Rochdale. It supports the Scout Moor Habitat Enhancement Fund, set up to enable environmental improvement works in the Pennines of East and South Lancashire and Greater Manchester. The fund has supported moorland restoration schemes to re-wet Blanket bog and enhance upland habitats such as Heathland and Fen.

[Pennine Prospects](#) is also at the heart of the sustainable development of the South Pennines. It works to manage and enhance the area's natural, cultural and heritage assets so that they contribute to the social, economic and environmental wellbeing of the South Pennines.

What we want to achieve for nature recovery

The full set of Outcomes and Measures that show what we want to achieve and how we will achieve it is shown in [Section 5](#).

The priority Outcomes relating to Peat are:

- A dynamic mosaic of active blanket bog, heath, upland springs and flushes and associated habitats storing carbon, supporting improvement in water quality, reduced flood risk and reduced risk of wildfires
- Functioning and species diverse lowland raised bog habitats storing carbon, reduce flood risk and improved water quality.

5. Achieving nature recovery – what we want to achieve and how we will achieve it

Developing the priorities, outcomes and measures for nature recovery

This strategy follows the Lawton principles, of making spaces for nature which are ‘more’, bigger, better, and joined.

[Section 3](#) of the strategy **mapped Greater Manchester’s existing habitats** – showing the existing areas, places and sites that are already good for nature and which form the basis for nature recovery.

[Section 4](#) outlined **the space for nature recovery** – looking at the different parts of Greater Manchester’s natural environment, its geography and ecology, and the potential for improvement across its landscape areas and networks. It also described the pressures that nature faces, as well as some of the wider benefits it provides. The examples of projects already under way show how we can help deliver nature recovery.

Using the information on where nature already exists and what areas and networks we need to use as a foundation for nature recovery, we can begin to identify the key habitats, species and locations to improve, expand and connect to support nature recovery. The next section of this strategy outlines Outcomes and Measures, which are defined as follows:

- **Outcomes** describe **what we want** – the end vision for what nature in recovery looks like.
- **Measures** describe **what we need to do** to achieve the outcomes – how we get there.

The Outcomes have been prioritised into “high” and “medium”. All of the Outcomes are important, however, if there is an option for delivering a high priority vs. a medium priority, the High priority Outcome should receive preference.

How did we develop the Outcomes and Measures?

To develop and prioritise the Outcomes and Measures for nature's recovery, GMCA convened a series of 9 virtual and interactive workshops open to residents and local experts in which 148 people contributed to developing the Outcomes and Measures. We held a further 26 sector/geography-based workshops and two workshops with young people. Furthermore, a Greater Manchester wide consultation on nature recovery led to over 1000 responses with residents offering their views on the priorities for nature.

GMCA worked closely throughout with colleagues at Natural England and the Greater Manchester Ecology Unit, supported and guided by a Steering Group made up of a wide range of stakeholders.

The resulting Outcomes and Measures are presented in this section, identifying the practical actions that will be needed to achieve the Outcomes for nature recovery in Greater Manchester. These are provided in a table sorted by theme follows:

- GM wide – outcomes and measures
- Woodland
- Upland Moorland
- Urban Green Infrastructure
- Waterways
- Wetlands

Grouping by key habitat themes in this way allows for clearer comparison across measures which are often related and even duplicated across outcomes. Where this is the case, it is because that measure or action delivers multiple outcomes or benefits.

Each outcome has a priority rating (high or medium), measures, reference to its relevant map, and which specific layer of map information it relates to (this is useful if using the online map and searching for a location or geographic coverage of a particular outcome or measures). Measures which are not geographically specific

are also given but do not have a map reference. These measures have a note instead, for example, measures such as reducing herbicide or pesticide use whilst controlling invasive species should be carried out wherever possible.

The Opportunity Maps, as well as the underlying data layers, will be available online at <https://mappinggm.org.uk/> to enable more detailed searches. The maps provided are categorised according to habitat types, together with an overarching map showing all the measures. Representing the maps in this way provides a view of similar and related measures within one map. It will be possible to view any combination of measures and specific locations from within Mapping GM.

Opportunity maps provided:

- Grasslands and Heathlands
- Rivers and Canals, Standing Water and Wetlands
- Trees and Woodlands
- Uplands
- Urban
- Opportunities: Combined (all habitats and areas)

As described above, they portray opportunities for nature recovery, rather than imposing constraints on other activities. This does not mean that those actions have to be delivered in those locations or that nothing else can take place there, be that development or other types of nature recovery activities. These maps have been created with the best data available during the pilot – further data can be used alongside this, including new data that might become available, to build on the evidence base provided.

Outcomes, Priorities and Measures for Nature Recovery

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
GM Wide	Structurally diverse species-rich grasslands supporting pollinators and other invertebrates	High	Create new species-rich grasslands	Grasslands and Heathlands	Grassland Opportunity (Create)
					Heathland Opportunity (Create)
			Manage existing grasslands to create diverse sward structures and successional areas	Grasslands and Heathlands	Existing PHI* and SBI Grassland (Enhance)
					Existing PHI and SBI Heathland (Enhance)
	Species rich hedgerows, diverse in structure for active wildlife corridors across all lowland habitats	High	Manage and enhance existing hedgerows including introducing hedgerow trees	Grasslands and Heathlands	Farmland (Existing Hedges)
			Plant and secure management of new hedgerows	Grasslands and Heathlands	Farmland (Existing Hedges)
	Increased number of wetlands including reedbed, fens and ponds providing a suitable habitat for a diverse range of species	High	Create new ponds close to existing high biodiversity ponds to ensure habitat clusters of varying maturity	Wetland and Rivers	Existing Ponds
			Enhance and restore existing ponds	Wetland and Rivers	GCN Strategic Area (Pond Creation)
					Existing Ponds

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
GM Wide			Where conditions allow, expand existing reedbed and fen habitat to support mosaic of wetland habitat and open water	Wetland and Rivers	Lowland Wetland Opportunity (Create)
					Lakes
			Create new wetland habitats to support flood risk management and to buffer existing open water sites	Wetland and Rivers	Lowland Wetland Opportunity (Create)
					Lakes
					Catchment Tree Planting Opportunities (Create)
	Increased diversity of plants across the lowland and wetland mosaic of habitats	Medium	Enhance existing sites to increase botanical diversity	Grasslands and Heathlands	Existing PHI and SBI Grassland (Enhance)
					Existing PHI and SBI Heathland (Enhance)
			Create new species rich grassland stepping-stone sites linked to green infrastructure	Grasslands and Heathlands	Grassland Opportunity (Create)
					Heathland Opportunity (Create)
			Create new species rich grassland stepping-stone sites within farmed environment	Grasslands and Heathlands	Heathland Opportunity (Create)

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
GM Wide			Manage linear transport infrastructure verges for grassland where conditions are dry, and wetland fringing where conditions are wet	Grasslands and Heathlands	Motorways
					A Roads
			Reduce herbicide and pesticide use on lowland agricultural land whilst maintaining control of invasive species	N/A: This measure should apply wherever possible.	
			Reduce mowing and spraying regimes where appropriate for infrastructure verges and natural and semi-natural green space combined with positive management for species rich grasslands	Grasslands and Heathlands	Motorways
					A Roads
				Urban	Public Parks and Playing Fields
					Urban Grassland Opportunity
					Railways/Metrolink
				N/A: Measure has been mapped as best as possible; however, this measure should	Public Parks and Playing Fields
					Urban Grassland Opportunity

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
GM Wide	Increased number and diversity of non-invasive mammals including water voles across a mosaic of wetland habitats	Medium		be delivered wherever possible and it is safe to do so.	Railways/Metrolink
			Create and manage 5-50 m wide buffer strips alongside rivers and streams where possible, especially in areas of known water vole populations, providing range of grasses, reeds and sedges for food sources	Combined <i>Water vole distribution is available from GMEU for free for conservation projects.</i>	Rivers, canals and lakes
			Manage known populations of mink where overlapping with water vole ranges	N/A: <i>Access to detailed data restricted to prevent persecution or disturbance</i>	Riparian or Canal Side Tree Planting Opportunities (Create)
			Remove barriers to movement within riparian habitats, such as weirs, or create by-pass structures, to allow fish movement and improved mobility for other food sources for wetland mammal species, such as otter	Wetland and Rivers	Priority River Obstructions to Remove
					Obstructions or Locations to Create Passages

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Woodland	Increased woodland and tree cover (including scrub), including in cloughs, along streams and rivers and between areas of ancient woodland, reducing fragmentation and providing habitats for woodland birds, invertebrates and flora, and to reduce flood risk, improve water quality and store carbon	High	Create new woodlands within riparian habitats, where appropriate	Woodland	Woodlands and Tree Planting: Riparian or Canal Side Tree Planting
			Implement targeted woodland creation through planting and encouraging natural regeneration, particularly adjacent to existing woodlands	Woodland <i>Especially important in relation to close by Existing Ancient, Existing Woodland and Existing Wet Woodland</i>	Woodlands and Tree Planting: Tree Planting Opportunity (Create) Wet Tree Planting Opportunity (Create) Clough Tree Planting Opportunity (Create)
			Implement grazing control measures where required	N/A: Implement grazing controls wherever required to prevent damage and loss to vulnerable trees and plants	
			Create woodland and tree cover in urban areas	Woodland	Urban Area
					Urban Tree Planting Opportunity

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Woodland					Urban Wet Tree Planting Opportunity
					Urban Clough Tree Planting Opportunity
	More resilient, structurally and species diverse tree and woodland habitats to increase biodiversity, support carbon storage, enhance soil health and reduce flood risk	High	Manage all woodland to ensure they are being enhanced, particularly ancient and other designated woodlands	Woodland	Existing Ancient Woodland (Enhance) Existing Wooded Areas and Wood Pastures (Enhance) Existing Wet Wooded Areas and Wood Pastures (Enhance)
			Control non-native invasive species	N/A: Apply wherever possible	

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Woodland			Ensure newly created woodlands have ongoing appropriate management	N/A: Apply wherever possible	
			Manage ash dieback	N/A: Apply wherever possible	
	Community orchards, providing habitats for pollinators and other wildlife, producing food and linking communities to nature	Medium	Manage existing community orchards to maximise community benefit	Woodland	Existing Orchards (Enhance)
			Manage newly planted orchards, by appropriate guards, to allow them to establish and grow	N/A: Apply wherever possible	
			Create new orchards in appropriate locations open to community access including schools, parks and green spaces	N/A: Apply wherever possible	
	Wet woodland habitats providing improved habitat for a variety of species, particularly invertebrates, reducing flood risk and enhancing water quality	Medium	Create and enhance opportunities for wet woodland	Woodland	Wet Tree Planting Opportunity (Create)
			Manage existing wet woodland through appropriate water management, ensuring diverse range of tree sizes and willow species to support willow tit populations	Woodland	Existing Wet Wooded Areas and Wood Pasture (Enhance)

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Upland moorland	Increased diversity of species and abundance of invertebrates in upland habitats, including bees and hoverflies.	High	Promote re-vegetation and vegetation diversification of upland habitats	Upland <i>This is a very broad measure and applies to all upland habitats and creation opportunities. It covers the whole map e.g. grassland, heathland, flushes, fens, swamps, blanket bog.</i>	All the Upland map area
			Manage grazing to create structural diversity in upland habitats	N/A: Apply wherever possible	
			Create and restore flower-rich habitats	N/A: Apply wherever possible	
			Create specific niches for priority species where appropriate	N/A: Apply wherever possible	
	A dynamic mosaic of active blanket bog, heath, upland springs and flushes and associated habitats storing carbon, supporting	High	Reintroduce and increase sphagnum cover	Combined	Upland Peat Extent
					Blanket Bog in Poor Condition
					Blanket Bog in Needs Improvement

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Upland moorland	improvement in water quality, reduced flood risk and reduced risk of wildfires		Promote re-vegetation and vegetation diversification of upland habitats	Upland <i>This is a very broad measure and applies to all upland habitats and creation opportunities. It covers the whole map e.g. grassland, heathland, flushes, fens, swamps, blanket bog.</i>	All the Upland map area
			Manage grazing to create structural diversity and dynamic habitats	N/A: Implement grazing controls wherever required to prevent damage and loss to vulnerable trees and plants	
			Appropriately manage heathland, including controlling bracken where appropriate	Upland	Existing PHI and SBI Heathland (Enhance)
					Heathland Opportunity (Create)
			Implement tree planting and/ or natural regeneration where appropriate	Upland	Riparian or Canal Side Tree Planting Opportunity (Create)

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Upland moorland					Clough Tree Planting Opportunity (Create)
					Tree Planting Opportunity (Create)
					Wet Tree Planting Opportunity (Create)
			Rewet blanket bog by reducing land drainage to create more wetland areas where appropriate (e.g. by grip and gully blocking).	Combined	Blanket Bog in Poor Condition
					Blanket Bog Needs Improvement
	More-connected habitats and mosaics of habitats across the uplands to facilitate the movement of species	High	Target priority habitat restoration and creation	Upland <i>This is a very broad measure and applies to all upland habitats and creation opportunities. It covers the whole map e.g. grassland, heathland, flushes, fens, swamps, blanket bog.</i>	All the Upland map area

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Upland moorland			Increase linkage between different habitats types facilitating the needs of different stages of wildlife life cycle	N/A: Apply wherever possible	
			Targeted woodland creation in cloughs, where appropriate	Upland	Clough Tree Planting Opportunity (Create)
	Diverse and abundant key species of breeding birds in upland habitats	Medium	Restore degraded moorland	Upland <i>Apply wherever possible</i>	
			Manage grazing systems to create structural diversity	N/A: Implement grazing controls wherever required to prevent damage and loss to vulnerable trees and plants	
			Take an appropriate approach to legal predator control	N/A: Apply wherever possible	
			Ensure structural and species diversity within habitats year-round, as appropriate	Upland Map <i>This is a very broad measure and applies to all upland habitats and creation opportunities. It covers the whole map</i>	All the Upland map area

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Upland moorland				<i>e.g. grassland, heathland, flushes, fens, swamps, blanket bog</i>	
			Implement targeted, proven management of wet rush pasture	Upland	Existing PHI and SBI upland flushes, fens and swamps (Enhance)
					Existing PHI and SBI Wetlands (Enhance)
					Lakes
	Abundant species of birds of prey in upland habitats	Medium	Provide appropriate habitat at scale for birds of prey	N/A: Apply wherever possible	
			Create an environment that enables successful breeding of birds of prey	N/A: Apply wherever possible	
	A sustainable population of mountain hares	Medium	Increase habitat structural diversity to create places to hide and eat	Upland <i>This is a very broad measure and applies to all upland habitats and creation opportunities. It covers the whole map e.g. grassland,</i>	All the Upland map area

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Upland moorland				<i>heathland, flushes, fens, swamps, blanket bog</i>	
	Thriving flushes, rich with sphagnum moss, rushes and sedges, for the diverse species they support	Medium	Ensure appropriate grazing management to maintain open structure.	Upland <i>This is a very broad measure and applies to all upland habitats and creation opportunities. It covers the whole map e.g. grassland, heathland, flushes, fens, swamps, blanket bog</i>	All the Upland map area
			Reduce land drainage to create more wetland areas where appropriate, e.g., grip and gully blocking	Combined	Blanket Bog in Poor Condition
					Blanket Bog needs improvement
					Upland Peat Extent

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Urban Green Infrastructure	Increased trees and canopy cover within our urban areas, particularly through street trees, to provide urban habitats and to better adapt these areas to the impacts of climate change (particularly reducing surface water flood risk and the risk of urban heating)	High	Plant street trees (including SuDS enabled ones) where pavements allow and conditions are suitable	Urban	Urban Tree Planting Opportunity
					Urban Wet Tree Planting Opportunity
			Ensure new developments include new trees within landscaping schemes where appropriate	N/A: Apply wherever possible	
			Plant trees within green spaces and parks i.e., wooded areas in existing green spaces	Urban	Public Parks and Playing Fields
			Create Miyawaki forests within dense urban areas to maximise tree canopy cover	Urban	Urban Tree Planting Opportunity Urban Wet Tree Planting Opportunity
			Create community tree nurseries that involves the community engagement in tree planting	N/A: Apply wherever possible	
			Refill empty tree pits in urban areas	N/A: Apply wherever possible	
	Nature Based Solutions adapting the urban environment to be resilient to the impacts of climate	High	Plant SuDs enabled street trees where conditions are suitable	Urban	Urban Tree Planting Opportunity Urban Wet Tree Planting Opportunity

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Urban Green Infrastructure	change and reduced urban diffuse pollution		Incorporate natural SuDS in all new developments where possible	N/A: Apply wherever possible	
			Retrofit natural SuDS in the urban environment, particularly around buildings and along highways	N/A: Apply wherever possible	
			Introduce street trees to reduce heat island effect	Woodland Map	Urban Cooling Tree Planting Zone
			Retrofit biodiverse green walls and green/blue roofs onto existing buildings	Text	N/A
			Manage incidental green spaces across urban areas to increase species richness	Woodland	Opportunities within the urban area
			Reduce mowing regimes and increase of scrub across Local Authority assets	N/A: Measure has been mapped as best as possible; however, this measure should be delivered wherever possible and it is safe to do so	

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Urban Green Infrastructure			Protect, manage and enhance existing hedgerows including introducing hedgerow trees where appropriate, particularly within Local Authority assets	N/A: Measure has been mapped as best as possible; however, this measure should be delivered wherever possible and it is safe to do so	
			Protect and secure management of new hedgerows where appropriate, particularly within Local Authority assets	Urban	Public Parks and Playing Fields
					Motorways (alongside)
					A Roads
					Railway and Metrolink
					Urban Areas (Incidental spaces)
	Parks and public green spaces providing refuges and stepping-stones for wildlife, adapting our urban areas to climate change and provide access to high quality natural green spaces	High	Increase spaces for wildlife within parks and public green spaces by reducing mowing regimes and creating species rich wildflower areas	Urban	Public Parks and Playing Fields
			Increase spaces for wildlife within parks and public green spaces by	Urban	Public Parks and Playing Fields

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Urban Green Infrastructure	for recreation and people's physical and mental health.		increasing tree and scrub cover where appropriate		Urban Area (Incidental spaces)
			Create new green spaces designed for wildlife within urban centres	Urban <i>Includes tree planting but also smaller ponds/capes and grasslands/heathlands</i>	Urban Area
			Manage incidental green spaces across urban areas to increase species richness	Urban	Urban Area (Incidental spaces)
	The built environment, roads, railway lines, walking/cycling paths are richer in wildlife and plant species and provide connection to fragmented habitats	High	Plant street trees where pavements are wide enough	Urban	Urban Tree Planting Opportunity
			On roadside verges, reduce mowing regime and encourage scrub where appropriate	Urban	Motorways
					A Roads
					Railways and Metrolink
			Create species rich wildflower grass verges to roads and rail lines	Urban	Motorways
					A Roads
					Railways and Metrolink

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Urban Green Infrastructure			Manage and reduce invasive species such as Japanese knotweed and Himalayan Balsam along rail lines to encourage native scrub and wildflower regeneration	Urban	Railways and Metrolink
			Create green bridges to connect habitats across large linear infrastructure	N/A: Apply wherever possible	
			Create green or brown roofs on bus/tram shelters to support and enhance connectivity along transport corridors	Urban Map	A Roads Railways and Metrolink
	Gardens providing refuges and stepping-stones for wildlife and contributing to our urban areas adapting to climate change by storing and slowing the flow of water	Medium	Create gardens for wildlife in new developments	N/A: Apply wherever possible	
			Introduce and encourage new ponds wherever possible	N/A <i>Apply wherever possible especially to the specification used for GCN District Level Licensing e.g. depth, surrounding habitat, soft banks.</i>	

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Urban Green Infrastructure			Increase porosity of fences to encourage the movement of wildlife	N/A: Apply wherever possible	
			Put in place bird boxes and feeders and bat roosting features wherever possible	N/A: Apply wherever possible; including bat bricks/houses and swift bricks/houses	
Waterways	Naturally functioning and resilient water environments and river catchments, helping us adapt to the impacts of climate change and reduce the risk of flooding	High	Naturalise rivers, reconnecting flood plains and tackling heavily modified water bodies through removal of weirs and obstructions. Where this isn't possible introduce fish passes to allow migration.	Wetland and Rivers	Floodplain Reconnection Opportunity
					Priority River Obstructions to Remove
					Obstructions or Locations to Create Passages
			Where possible, soften banks that can't be removed and create in-channel islands	N/A: Apply wherever possible	
			Plant trees in the right places to reduce flood risk	Wetland and Rivers	Urban Areas (SUDS)
					Catchment Tree Planting Opportunities
				Urban	Urban Areas

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Waterways			Increase the use of natural SUDs and rain gardens		Suburban Area
			Facilitate land management that allows for resilience, permeable landscapes, grasslands, hedgerows, other (semi)-natural features.	N/A: Apply wherever possible	
			Implement catchment sensitive farming delivering water quality improvement	N/A: Apply wherever possible	
	Healthy, diverse waterbodies and riparian habitats that provide active wildlife corridors, connecting otherwise fragmented habitats	High	Protect existing designated sites	Combined	Existing PHI and SBI Grassland (Enhance)
					Existing PHI and SBI Heathland (Enhance)
					Existing PHI and SBI Upland Flushes, Fens and Swamps (Enhance)
					Existing PHI and SBI Wetlands (Enhance)
			Reduce urban diffuse pollution through contaminated land legacy	N/A: Apply wherever possible	

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Waterways			and road run-off through wetland filters such as reed beds		
			Where possible, soften banks that can't be removed and create in-channel islands	N/A: Apply wherever possible	
			Remove weirs and obstructions. Where this isn't possible introduce fish passes to allow migration	Wetland and Rivers	Priority River Obstructions to Remove
					Obstructions or Locations to Create Passages
			Control non-native invasive species	N/A: Apply wherever possible	
			De-culvert or improve culvert environment	Wetland and Rivers	Priority River Obstructions to Remove
					Obstructions or Locations to Create Passages
			Create mammal ledges and ledges under water to provide slower flow and cover for fish	N/A: Apply wherever possible	
			Create buffer strips between 5-50m wide where possible to support range of bankside riparian habitat	Wetland and Rivers	River, Canals and Lakes

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Waterways	Rivers and streams rich with native and diverse plant and animal species, including keystone species such as otter, kingfisher, trout and salmon	High		<i>50m buffer zones along all rivers and canals</i>	
			Introduce species where necessary and appropriate to the ecosystem	N/A: Apply wherever possible	
			Reduce diffuse pollution through buffer strips	Wetland and Rivers	50m buffer zones along all rivers and canals
			Wherever possible, restore in channel heterogeneity of habitats that are necessary for key species	N/A: Apply wherever possible	
			Improve habitat and implement fish stocking in some locations where appropriate to ensure sustainable fish stocking	N/A: Apply wherever possible	
			Remove weirs and obstructions. Where this isn't possible introduce fish passes to allow migration	Wetland and Rivers	Priority River Obstructions to Remove
					Obstructions or Locations to Create Passages
			Control non-native invasive species	N/A: Apply wherever possible	

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
			Ensure any developments along watercourses include measures to enhance the water environment	N/A: Apply wherever possible	
Wetlands	Functioning and species diverse lowland raised bog habitats storing carbon, reduce flood risk and improved water quality	High	Manage hydrology and re-wet peat by blocking ditches and other water management practices	Wetland and Rivers	Restorable lowland peat extent
					Upland Peat Extent
			Reintroduce plant and invertebrate species where appropriate, particularly - plants: sphagnum, cotton grass, cranberry, sundew and large cross leaved heath; invertebrates: bog bush cricket, crickets, large heath butterfly	Wetland and Rivers	Existing PHI and SBI Lowland Wetland Habitats (Enhance)
			Control scrub to prevent expansion and encroachment	Wetland and Rivers <i>Apply wherever possible</i>	Existing PHI and SBI Lowland Wetland Habitats (Enhance)
			Reduce nitrate pollution loads from various sources (particularly highways)	N/A: Apply wherever possible	
			Restore lowland raised bog through transitional habitat	Wetland and Rivers	Restorable Lowland Peat Extent

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Wetlands			creation, e.g., fen and appropriate paludiculture		Great Manchester Wetlands NIA
	Pasture and arable farmland providing improved and better-connected habitats for farmland birds, including the tree sparrow, yellowhammer and corn bunting	High	Implement rotational cropping for winter stubble and planting spring cereals in fields	Grasslands and Heathlands	Farmland (Arable)
					Farmland (Permanent Grassland)
			Link grasslands by leaving areas and pockets of rough grasslands in field edges and sow floristically enhanced margins	Grasslands and Heathlands	Farmland (Arable)
					Farmland (Permanent Grassland)
	Increased diversity and abundance of species of invertebrates across the lowland and wetland mosaic of habitats	High	Manage connecting grassland spaces to wetlands to be structurally diverse sward heights and increase diversity of flora	Grasslands and Heathlands	Existing PHI and SBI Grasslands (Enhance)
					Existing PHI and SBI Heathland (Enhance)
				Wetland and Rivers	Existing PHI and SBI Lowland Wetland Habitats (Enhance)

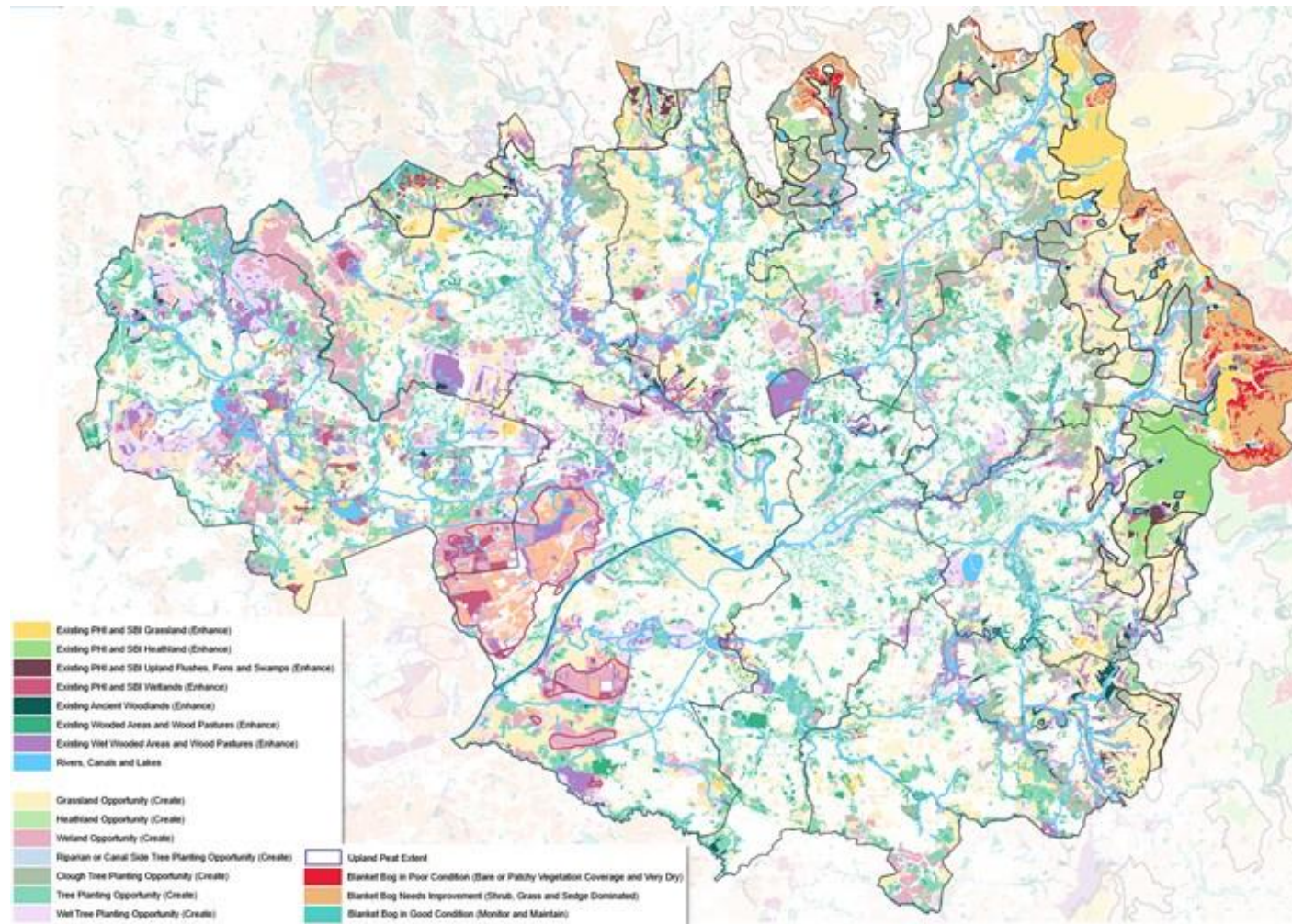
Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Wetlands			Connect species rich grassland sites with hedgerows where possible and where land management allows	Grasslands and Heathlands	Existing PHI and SBI Grasslands (Enhance)
					Grassland Opportunity (Create)
					Farmland (Arable)
					Farmland (Permanent Grassland)
					Farmland (Existing Hedges)
			Increase the number of wetland steppingstone habitats between larger wetlands through pond creation and restoration between larger wetland sites	Wetland and Rivers	Existing PHI and SBI Lowland Wetland Habitats (Enhance)
					Great Crested Newt Strategic Area
					Lowland Wetland Opportunity (Create)
			Buffer and expand existing wetland sites to create a mosaic of wetland habitats, including wet grassland and wet woodlands.	Wetland and Rivers	Existing PHI and SBI Lowland Wetland Habitats (Enhance)
					Lowland Wetland Opportunity (Create)

Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (plus notes in italics)	Specific layer (Mapping GM)
Wetlands	Increased number and diversity of key species of birds across lowland wetlands, grassland and farmland (wetland, waders, farmland)	High	Expand, where appropriate, existing species rich grassland and wetland sites to a size suitable for breeding species Ensure appropriate management and creation of supporting ditch and pool infrastructure for farmland birds and waders	Woodland	Existing Wet Woodland Areas (Enhance) Wet Tree Planting Opportunity and Wood Pastures (Enhance)
				Wetland and Rivers	Lowland Wetland Opportunity (Create)
				Woodland	Wet Tree Planting Opportunity (Create)
				Grassland map	Grassland Opportunity (Create)
					Heathland Opportunity (Create)
				Wetland and Rivers	Lakes
					Existing PHI and SBI lowland wetland (enhance)
					Lowland wetland Opportunity (Create)
				Grassland and Heathlands	Farmland (Arable)
					Farmland (Permanent Grassland)

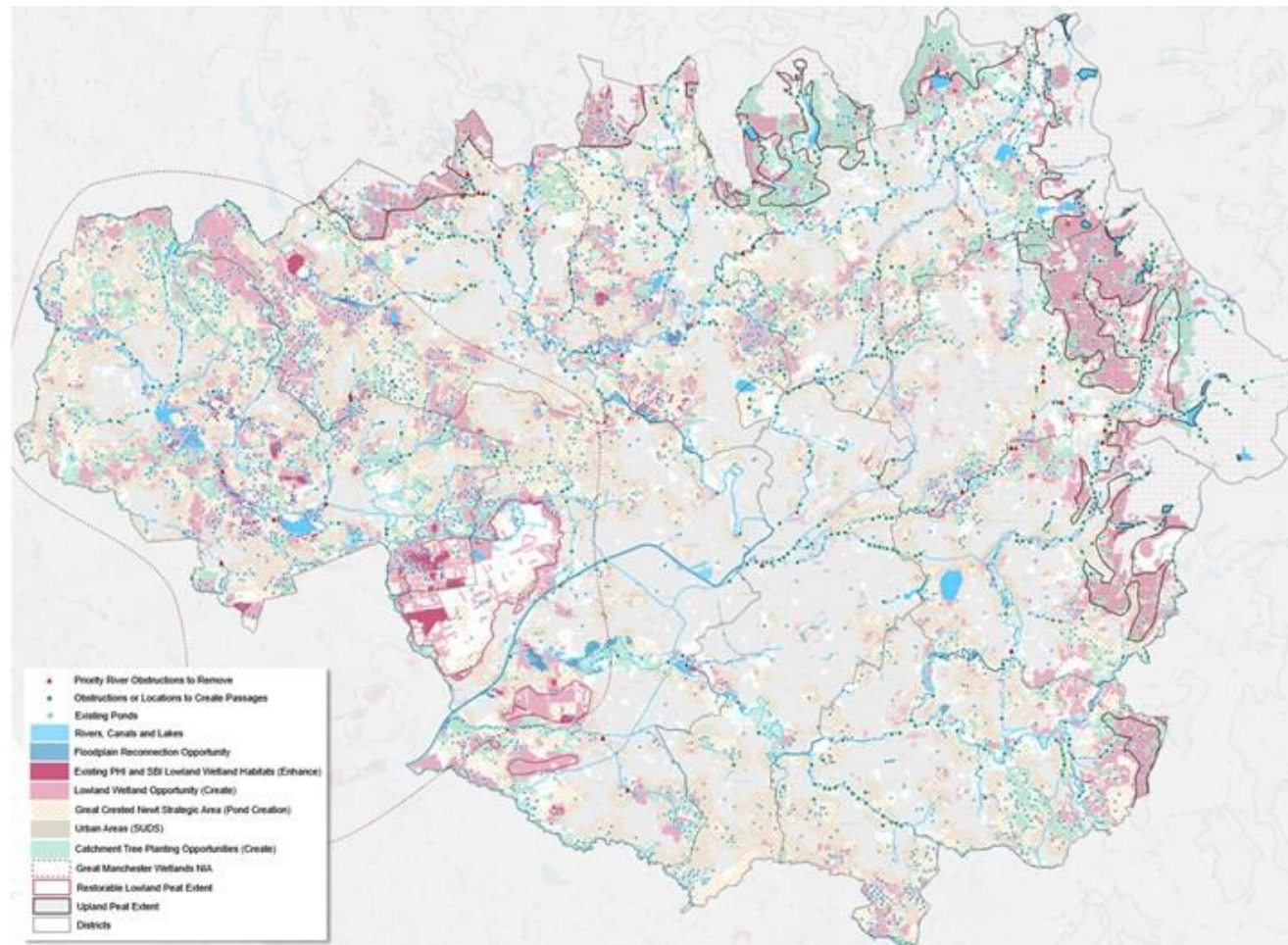
Theme	Outcome: What do we want?	Priority	Measures: How can we achieve it?	Map (<i>plus notes in italics</i>)	Specific layer (Mapping GM)
Wetlands	Increased number and diversity of bat species and the abundance of bats	Medium	Ensure a variety of habitat types across the landscape for bats to forage.	N/A: Apply wherever possible	
			Increase roosting opportunities for bats including artificial roosting provision within new development	N/A: Apply wherever possible	
	Increased population size of key species of reptiles and amphibians across the lowland and wetland mosaic of habitats	Medium	Ensure the sloping edges around ponds are structurally diverse and include hibernacula for reptiles and amphibians to shelter/over winter	N/A: Apply wherever possible	
			Ensure wildlife corridors for reptiles and amphibians across the landscape including across transport infrastructure such as amphibian tunnels	N/A: Apply wherever possible	
			Assist new colonisations where appropriate for key species such as adder	N/A: Apply wherever possible	

*PHI stands for Priority Habitat Inventory

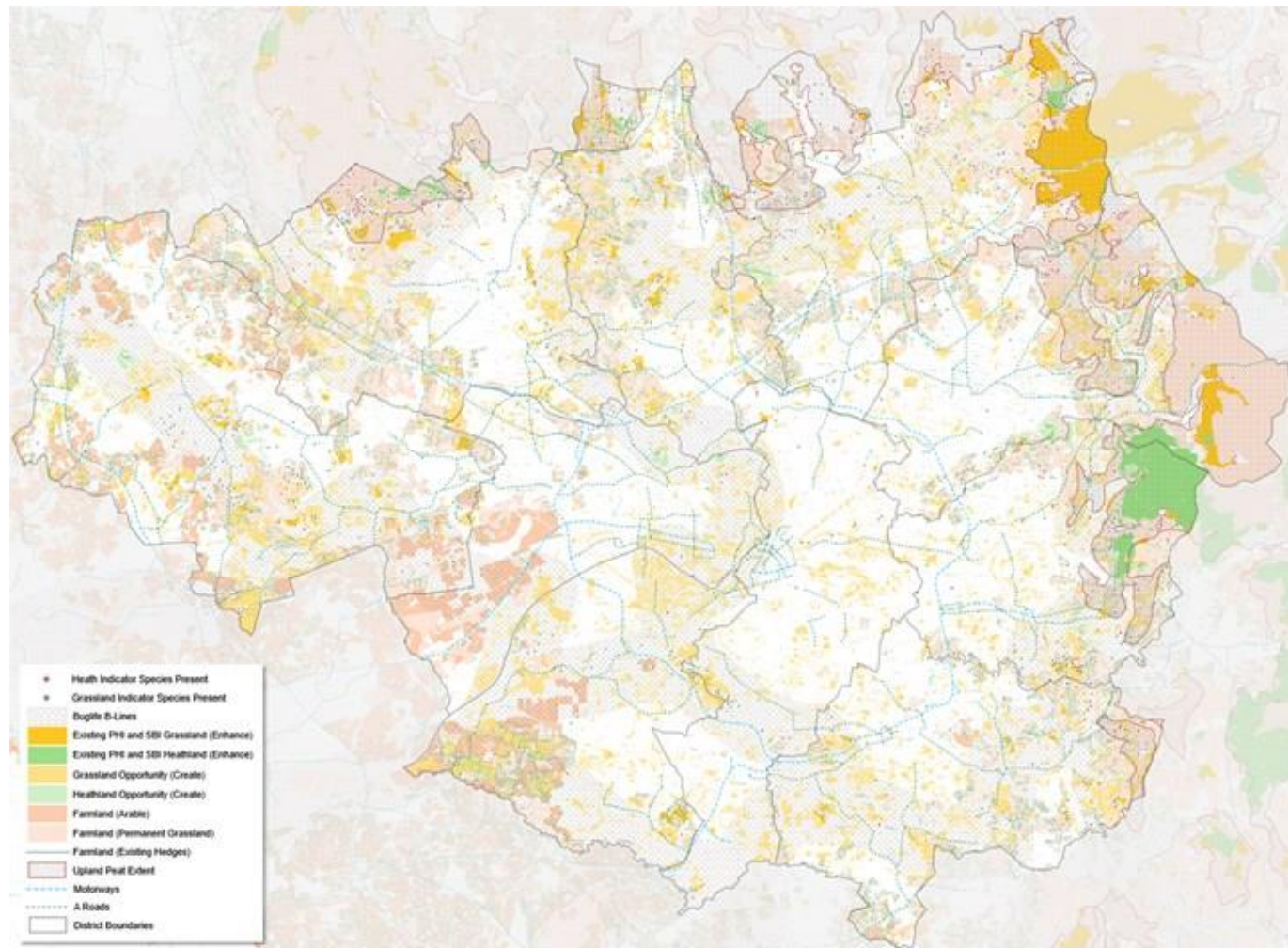
Opportunity Map: Combined opportunities



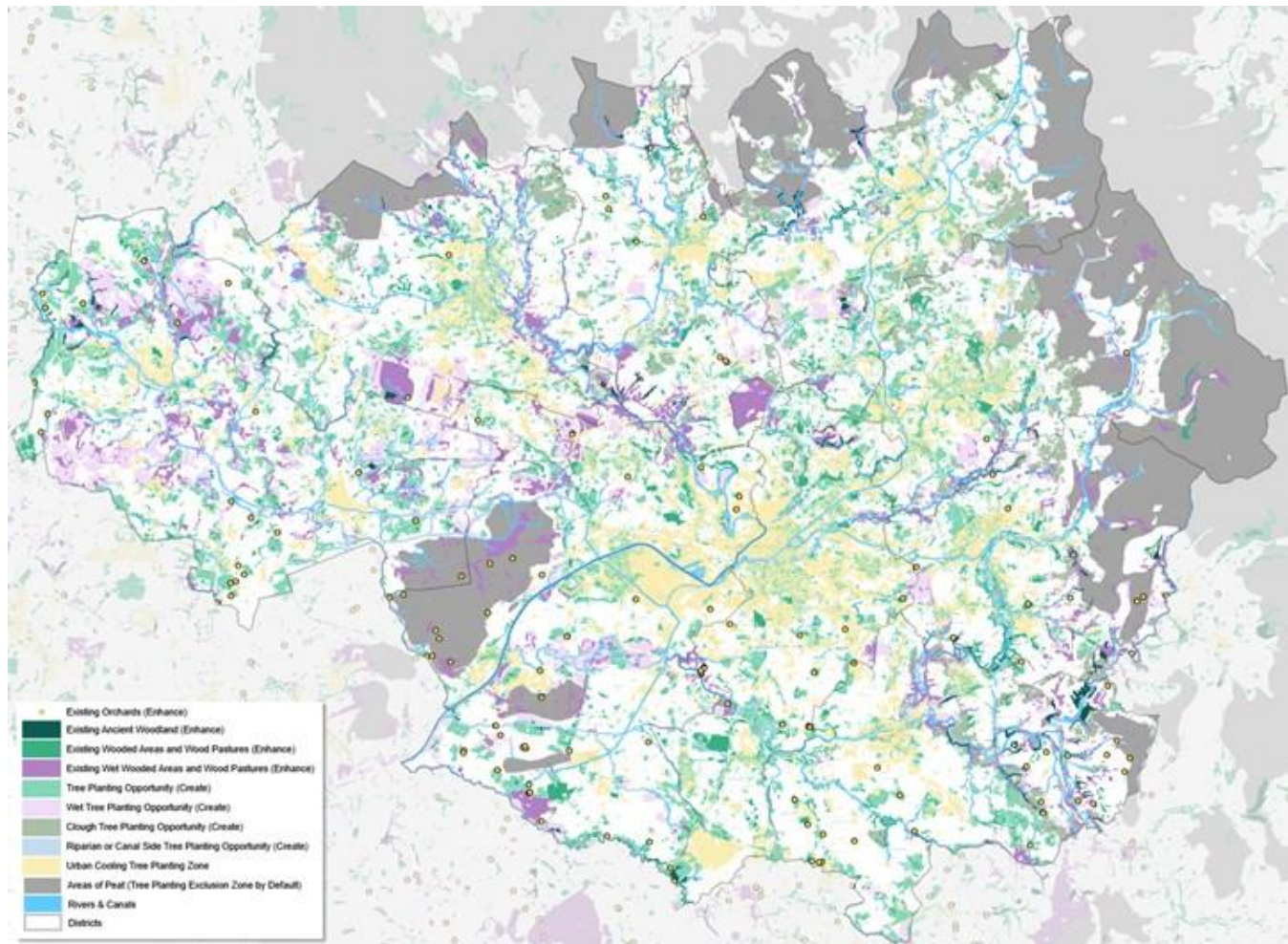
Opportunity Map: Rivers and Canals, Standing Water and Wetlands



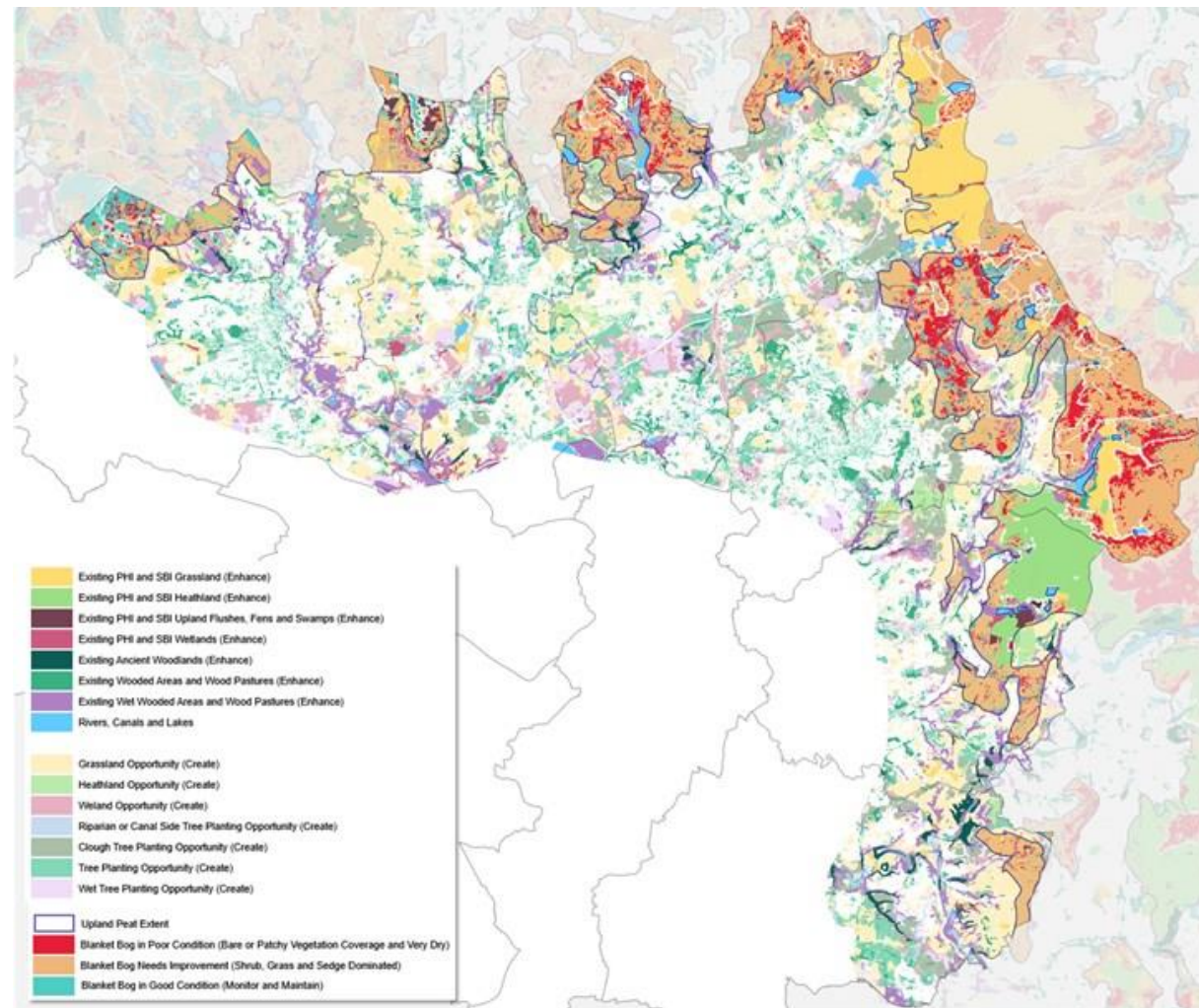
Opportunity Map: Grasslands and Heathlands



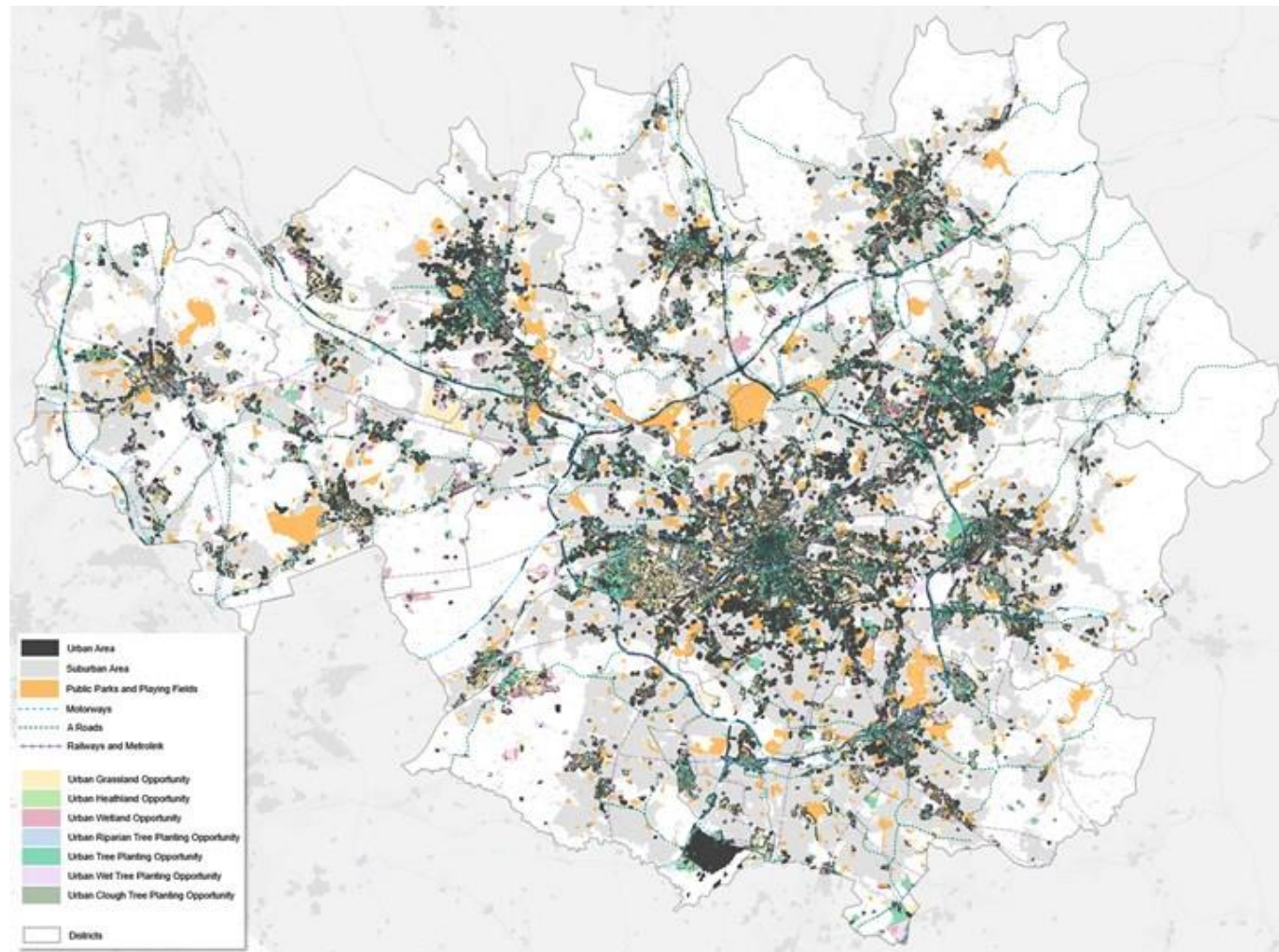
Opportunity Map: Trees and Woodlands



Opportunity Map: Uplands



Opportunity Map: Urban



6. Implementation

This document is a strategy, rather than an implementation plan. As such it does not identify within it a set of actions through which this strategy will be delivered. Nor does it identify funding sources, delivery agencies and timelines for those actions. Instead, this strategy should be used by those across Greater Manchester to inform and drive priorities and actions to support nature's recovery and the delivery of wider environmental benefits. It will be used as the basis to develop implementation plans.

The strategy will be of most interest for those in Greater Manchester responsible for managing land. For land managers, this strategy can help them understand how their land fits in with the wider nature recovery network in Greater Manchester. It can focus and inform the actions they can take to deliver nature recovery and wider environmental benefits on their land. The measures set out and the areas for which they are identified are not intended to be prescriptive; instead, they can help guide existing or planned nature recovery activities. They can also be used in planning for current agri-environment schemes or future support, such as the planned new schemes that will reward environmental land management.

In order for the measures proposed within this strategy to be implemented, land managers should examine their feasibility and plan them in detail with expert input (including ecological, wider environmental and economic advice), deliver them in line with any legal requirements (i.e. with any required permits, planning consents or permissions) and secure the landowner's permission. They should also consider the wider environmental and social benefits these measures could bring with them, using the Natural Capital approach²⁰ being embedded in Greater Manchester. They should also engage with local communities who may be impacted by or benefit from any changes.

This should culminate in a robust, costed, long-term land management plan for the land, with broad support from interested stakeholders and local communities. It is the

²⁰ [Environmental Tools in Greater Manchester's. Nature Greater Manchester.](#)

sum of implementing these land management plans in a coordinated way, informed by this strategy, that will deliver nature recovery in Greater Manchester. Monitoring and measuring the contribution of these to nature's recovery will be vital in understanding our progress in tackling the biodiversity emergency.

Beyond those managing Greater Manchester's land, this strategy should inform and inspire all of us to act to support nature's recovery, however small that action might be. So much positive work is already underway across the city-region, of which this strategy has showcased just a small proportion. This can inspire all of us to help play our part in making Greater Manchester a better place for nature.

APPENDICES

Appendix 1. Steering Group Membership

Organisation
City of Trees
Environment Agency
Forestry Commission (Local)
Forestry Commission (National)
Greater Manchester Combined Authority (Environment)
Greater Manchester Combined Authority (Place)
Greater Manchester Ecology Unit
Greater Manchester Natural Capital Group (Chair)
Lancashire Wildlife Trust
Natural England
National Farmers Union
National Trust
Peak District National Park
Peel L&P
RSPB
Salford City Council
United Utilities

Appendix 2. National Character Areas Habitats

Areas measured in hectares (ha) using Cartesian analysis

	Lancashire Coal Measures	Mersey Valley	Southern Pennines	Dark Peak	Manchester Pennine Fringe	Manchester Conurbation	Shropshire, Cheshire and Staffordshire Plain
National Character Areas (area ha)	23987	9053	14994	7348	36834	33788	1575
Percentage cover of GM	19%	7%	12%	6%	29%	26%	1%
Wooded areas (ha)	2383	828	821	407	3622	2141	75
Percentage of GM's wooded cover	23%	8%	8%	4%	35%	21%	1%
Percentage of this NCA which is wooded	10%	9%	5%	6%	10%	6%	5%
Grasslands (ha)	199	22	565	75	254	82	3
Percentage of GM's grasslands	17%	2%	47%	6%	21%	7%	0%
Percentage of NCA which is grassland	1%	0%	4%	1%	1%	0%	0%
Arable farmland (ha)	3575	3068	1274	600	2279	1875	181
Percentage of GM's arable farmland	28%	24%	10%	5%	18%	15%	1%
Percentage of NCA which is arable farmland	15%	34%	8%	8%	6%	6%	11%
Peat (ha)							
Percentage of GM's peat							

Percentage of NCA which is peat							
Lowland wetlands (ha)	417	331	87	13	215	135	-
Percentage of GM's lowland wetlands	35%	28%	7%	1%	18%	11%	-
Percentage of NCA which is lowland wetland	2%	4%	1%	0%	1%	0%	-
Lowland heathland (ha)	7	0	10	37	41	6	-
Percentage of GM's lowland heathland	7%	0%	10%	37%	41%	6%	-
Percentage of NCA which is lowland heathland	0%	0%	0%	1%	0%	0%	-
Moorland (ha)	-	-	3876	3780	45	-	-
Percentage of GM's moorland	-	-	50%	49%	1%	-	-
Percentage of NCA which is moorland	-	-	26%	51%	0%	-	-
Public parks & gardens and domestic gardens combined (ha)	5662	801	997	385	9390	12881	94
Public parks & gardens only (ha)	1419	135	216	100	1800	2753	17
Percentage of GM's public parks and gardens	22%	2%	3%	2%	28%	43%	0%
Percentage of NCA which is public park or garden	6%	1%	1%	1%	5%	8%	1%
Domestic gardens only (ha)	4243	666	781	285	7590	10128	77
Percentage of GM's domestic gardens	18%	3%	3%	1%	32%	43%	0%
Percentage of NCA which is domestic garden	18%	7%	5%	4%	21%	30%	5%

Ponds (ha)	1395	358	395	107	1011	521	130
Percentage of GM's ponds	36%	9%	10%	3%	26%	13%	3%
Percentage of NCA which is pond	6%	4%	3%	1%	3%	2%	8%
Number of ponds within NCA	109	25	29	7	64	39	5
Lakes and reservoirs (ha)							
Percentage of GM's lakes and reservoirs							
Percentage of NCA which is lake or reservoir							
Rivers and canals (m)							
National designations dissolved (ha)	162	188	2423	2308	83	7	11
Percentage of GM's national designations	3%	4%	47%	45%	2%	0%	0%
Percentage of NCA which is designated	1%	2%	16%	31%	0%	0%	1%
Local selections (ha)	1972	688	4056	3578	2262	1466	51
Percentage of GM's local selections	14%	5%	29%	25%	16%	10%	0%
Percentage of NCA which is locally selected	8%	8%	27%	49%	6%	4%	3%