West Midlands Combined Authority State of Nature Report 2025

West Midlands Combined Authority

Greener Together

Foreword

Since the Industrial Revolution, the scale and intensity with which we have exploited and degraded our natural environments has far exceeded nature's capacity to recover and thrive. The UK is now ranked as one of the world's most nature depleted countries and unfortunately declines in our native species, and quality and diversity of our natural habitats have continued through the 20th century and into recent decades.

The heart of the Industrial Revolution lies in the West Midlands region, and there is much to be proud about the rich heritage that resides here. In fact, nature finds a way to survive even in post-industrial environments and rare specialist plant species can be found on former colliery spoils, which deserve special attention. Furthermore, our network of canals, sympathetically managed, can now act as vital corridors for wildlife, as well as providing important places for people to access nature for recreation, commuting and enjoyment.

It is important to note that access to nature is not evenly distributed across the West Midlands. Unfortunately, areas with high deprivation tend to also have poorer access to nature and fewer biodiverse habitats. Several studies now demonstrate the link between increased time in nature with numerous health and wellbeing benefits. Thriving natural environments can also provide important ecosystem services, such as holding back floodwaters, reducing temperatures and storing carbon. Identifying where our most nature-deprived areas lie and how they can be improved is key in ensuring all residents can reap the benefits from living in a more resilient and healthier natural world.

Today, the predominantly urban and suburban makeup of the West Midlands dominates the landscape, yet opportunities for wildlife to thrive are still present. Notably, gardens comprise approximately 25% of the region and a growing cultural and behavioural shift towards more environmentally friendly lifestyles present a key juncture for the West Midlands to contribute to nature recovery.

This State of Nature report aims to bring together a wealth of information to describe the existing distribution and type of natural environments present across the West Midlands. Understanding where our habitats are situated, and what value they offer to humans and wildlife, is important when considering how we prioritise actions to improve, restore and expand nature and where best to deliver those actions.

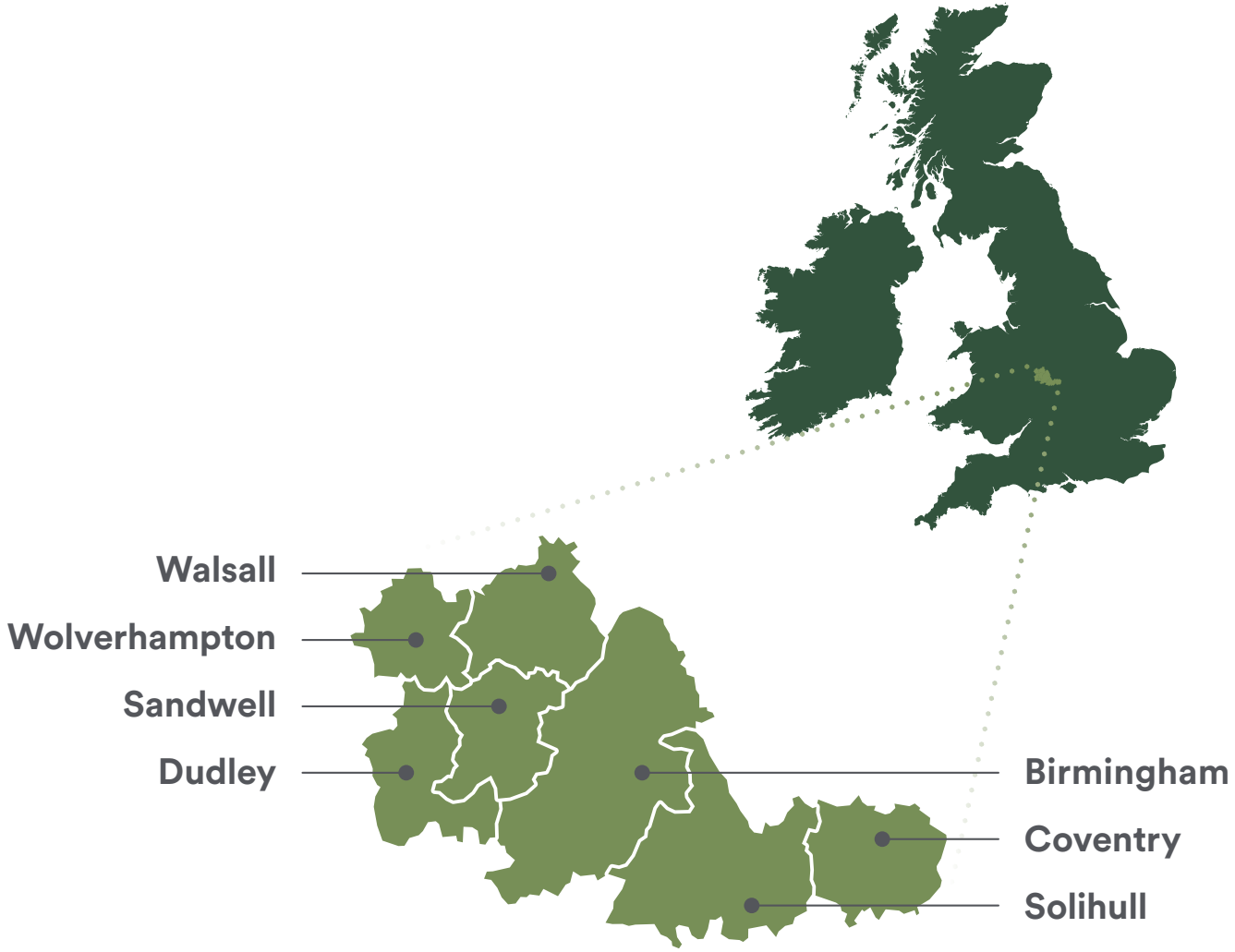
Contents

Section 1: Our Land

Introduction

The West Midlands Combined Authority (WMCA) area spans approximately 90,000 ha, and incorporates seven constituent authorities: Dudley, Sandwell, Walsall, Wolverhampton, Birmingham, Solihull and Coventry.

Three counties border the WMCA: Staffordshire to the north and west, Warwickshire to the east and south, and Worcestershire to the south. The diversity of habitats and the species that live within them are all governed by environmental factors and characteristics, as well as the influence of people over centuries. This section provides a brief overview of these within the West Midlands, and how they relate to the distribution and type of natural habitats we see today.



Geology and Soils

The West Midlands has a high geodiversity – this describes the geological variety of rocks, fossils and minerals and the landscapes that they form. Considering geology is important as it acts as the foundation of the natural world, underpinning the soils, habitats and shape of the landscape we see. Biodiversity (the variety of life on Earth) relies on geology for the breadth of soils, habitats, ecosystems and species that can be established.

In relation to its size, Birmingham and the Black Country have some of the most diverse geology in the world, as it spans hundreds of millions of years and a huge variety of different rock types, remnants of different environments and climates that existed in the region eons ago. Whilst the bedrock underlying much of the region dates from far back in Earth's history, when tropical swampy forests occupied the land, the present-day landscape has been shaped by the action of glaciers from the last Ice Age, where ice sheets extended as far south as the West Midlands tens of thousands of years ago. This has left glacial sands, gravels, and glacial till in many places across the region, with other superficial deposits (alluvium and river terrace deposits) originating from the rivers that cross the area (Figure 1-1).

The underlying rocks dictate the shape of the land, its elevation, the soils that are created and the drainage through a landscape. This is because erosion and weathering act differently on different types of rock. Gently rolling land in Wolverhampton and north and northeast Birmingham is due to the sandstone bedrock, which erodes to give gentle, well-drained land and fertile soils. This is interspersed with high ridges, such as at Barr Beacon, which represent areas capped with more resistant bedrock such as conglomerates (a rock comprised of large gravel). To the southwest, resistant quartzite rocks (a rock made from quartz-rich sand) form high and hilly ground towards the Lickey Hills, just south of the region.

These geological variations create topographical variations, which in turn influence local microclimate based on exposure. For example, rain-bearing western winds carry over the rain shadow of the Cambrian mountains, up the Severn valley and across, meaning rainfall in the central part of the West Midlands is higher than in the east, on lower ground.

The Black Country Global Geopark showcases part of the region's rich industrial heritage and its international geological importance. Global Geoparks are designated by United Nations Educational, Scientific and Cultural Organisation (UNESCO) and are granted to areas of international significance to ensure their protection, but also promote the concepts of education and sustainable development. The Black Country Global Geopark covers important sites that represent the start of the Industrial Revolution, and the region's nickname for the "workshop of the world", but also highlights important fossil discoveries that were made as a result of historic mining.

Whilst the exploitation of the mineral resources in this area led to the widespread removal and pollution of the natural landscape, leading to the name "Black Country", plants, lichens, mosses and fungi are able to recolonise slag and spoil heaps over time, leading to rare and distinctive habitat types called "open mosaic habitat on previously developed land", that can thrive on and make use of polluted or metal-rich soils.

Many of the geological sites in the Geopark, are also home to important habitats for a variety of species, demonstrating how co-benefits can be found between protecting our industrial heritage and our biodiversity. For example, Saltwell's National Nature Reserve contains important woodland habitats, and Wren's Nest National Nature Reserve supports species-rich calcareous grassland and diverse ash-elm woodland; both of which are rare habitats in the West Midlands region but thrive at these locations due to its limestone bedrock.

Recent funding through the Community Environment Fund has given Birmingham and the Black Country Wildlife Trust an opportunity to create new walking routes and restore natural habitats within the Geopark, thus demonstrating the importance of activities that benefit multiple aspects of our natural world.

Park Lime Pits Local Nature Reserve, Rushall

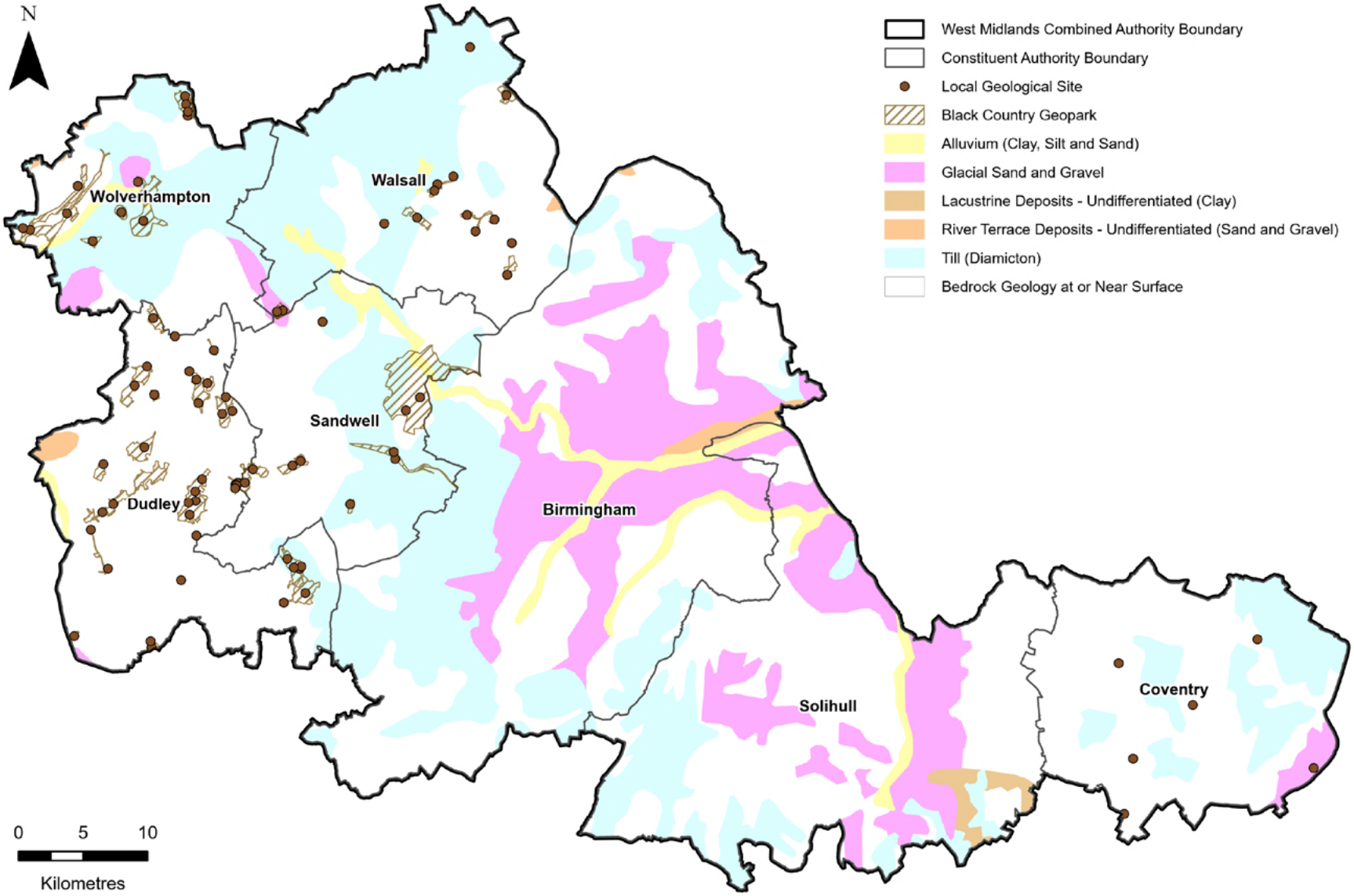


Figure 1-1: Superficial geology map of WMCA area.

Superficial Geology data obtained via BGS WMS. British Geological Survey © NERC. Local Geological Sites provided by Coventry City Council and City of Wolverhampton Council 2024. Black Country UNESCO Global Geopark provided by Black Country Global Geopark 2024. Crown copyright [and database rights] (2024) AC0000808122 OS OpenData.

Landscape Character and Land Use

Over millennia, people have altered our physical landscape as well as the habitats that naturally grow on them. This started with the first farming practices and settlements, to the significant alterations during the Industrial Revolution, and continues today with building and developing on land, as well as the effects of anthropogenic climate change altering natural habitat ranges and tolerances.

This means that the physical controls on the landscape, such as weather, temperature and altitude, are no longer typically the dominant controls on what habitats are found where, especially in the West Midlands region. A combination of physical and human factors result in defining a "landscape character" that delineates the locally distinctive qualities of an area.

Natural England devised "National Character Areas" (NCA) that span the entire country; the WMCA consists of the Arden NCA covering Solihull, Coventry and much of south east Birmingham; Cannock Chase and Cank Wood NCA covering north west Birmingham, Walsall, Sandwell and partially Dudley and Wolverhampton; and the Mid Severn Sandstone Plateau NCA which covers the western portions of Wolverhampton and Dudley (Figure 1-2). However, the urban fringe environment is important in offering some diversity of natural habitats: contained within or on the outskirts of the heavily urbanised areas are mature hedgerows with old oak trees, historic parklands and important river corridors.

The region does contain important tracts of non-urbanised landscapes, particularly farmland and rural open space in the "Meriden Gap" between Solihull and Coventry. This countryside has both arable land and pastures, wooded regions (including remnants of historic parklands or ancient woodlands), hedgerows, and a gently varying topography.

The West Midlands region is also characterised by significant transport routes and corridors: roads, rail, waterways and air corridors stretch across the region. Examples include the motorway corridors of the M42, M40, M5 and M6, Birmingham Airport located in Solihull and the rail network and tram network connecting Birmingham and Wolverhampton. High Speed 2 (HS2) is a high- speed railway link currently under construction with two proposed stations the West Midlands – Birmingham Interchange, near Birmingham Airport, and Birmingham Curzon Street in the city centre. Significant construction efforts are occurring along the proposed rail line.

Transport routes can both represent a barrier to wildlife movement or an important corridor for dispersal. For example, calcareous grasslands and scrub can form on railway sidings that are often made with limestone rubble, yet roads without suitable passes or culverts represent a major barrier most non-avian species cannot cross safely.

Wolverhampton

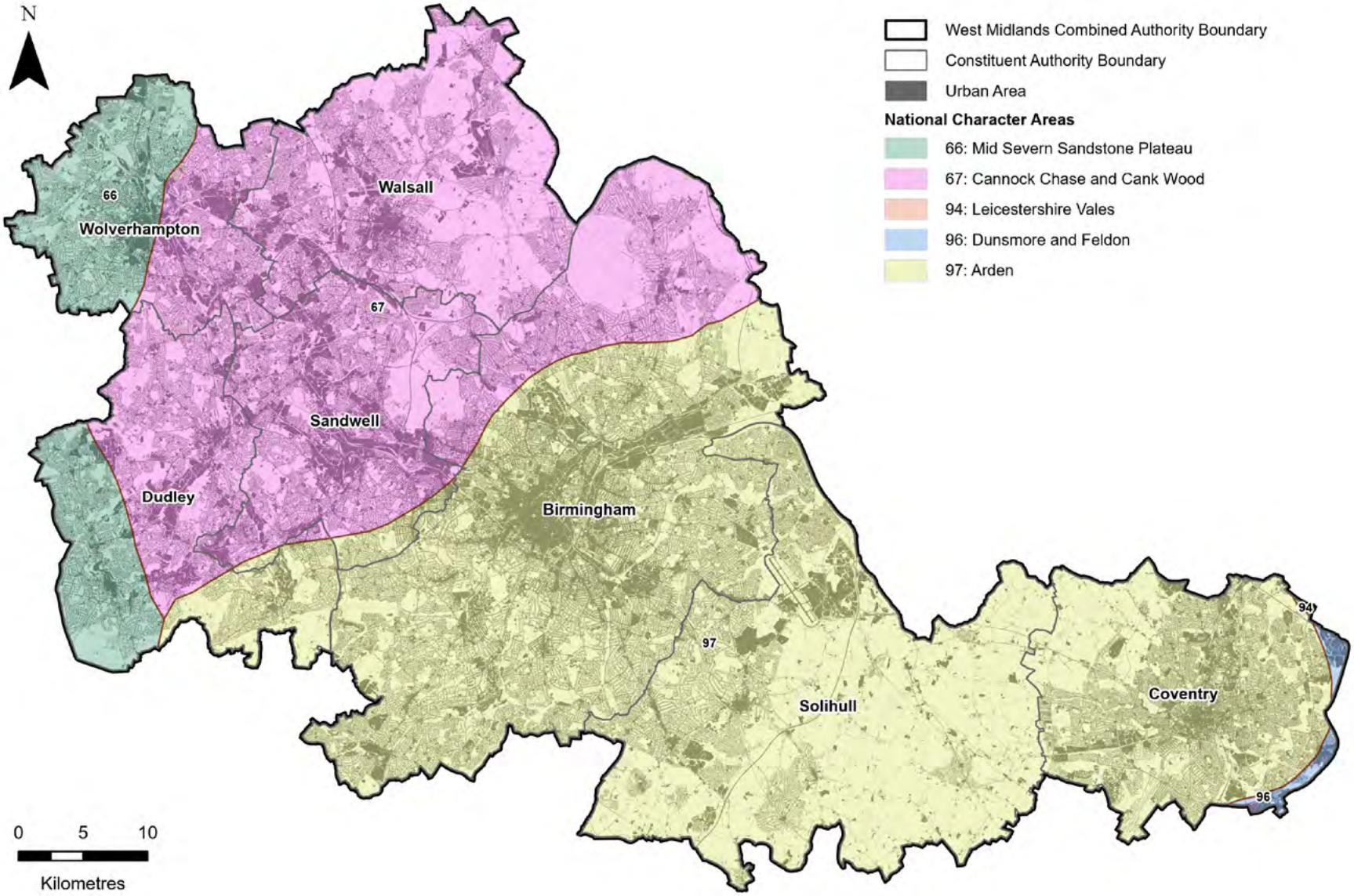


Figure 1-2: National Character Areas of WMCA area.

National Character Areas of WMCA area. © Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2024. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024. Crown copyright [and database rights] (2024) AC0000808122 OS OpenData.

Hydrology

Many of the watercourses present within the West Midlands include the headwaters for the catchments outlined below; therefore, the impacts of water management within this region can have significant impacts further downstream. The west and south of the West Midlands, Wolverhampton and Dudley drain to the south, within the River Severn hydrological catchment. Coventry also drains to the south of the West Midlands within the Avon hydrological catchment. The north and east of the West Midlands (Birmingham, Solihull and Sandwell) drain to the north, and are in the Trent and Humber hydrological catchment. The River Tame catchment, with tributaries starting in Wolverhampton, Walsall and Sandwell, is the most urbanised in the UK, containing 1.7 million people in its catchment before joining the River Trent (Figure 1-3).

There are areas of flood risk, according to the Environment Agency[1], in the West Midlands near to rivers in Aston, Bournville and Coleshill, but the West Midlands in general is not at high risk from river flooding. The West Midlands has a long industrial history, and most of the area is covered by buildings, roads and other hardstanding, which can lead to a large amount of water collecting on these hard surfaces or high levels of surface water runoff, as rainwater cannot soak into the ground during heavy rain. This can lead to flash flooding, which has previously affected areas in Wolverhampton, Solihull (along the M42 in summer 2021) and Walsall, in May 2018 and Birmingham in September 2024.

The region's industrial history also left a legacy of river pollution – for example, the Tame was once one of the most polluted rivers in the UK, but a purification system through lakes at Lea Marston in Warwickshire has resulted in much cleaner waters.

Canals are artificial waterways that were built to allow water traffic to pass through. The West Midlands has 149 miles (240 km) of canals which are managed to improve biodiversity and are used for recreational activities. Canals play a role in the area's flood management; however, they occasionally pose a flood risk during heavy rainfall, or if they are not properly maintained.

Wyrley and Essington Canal, Pelsall

1 https://www.gov.uk/check-long-term-flood-risk

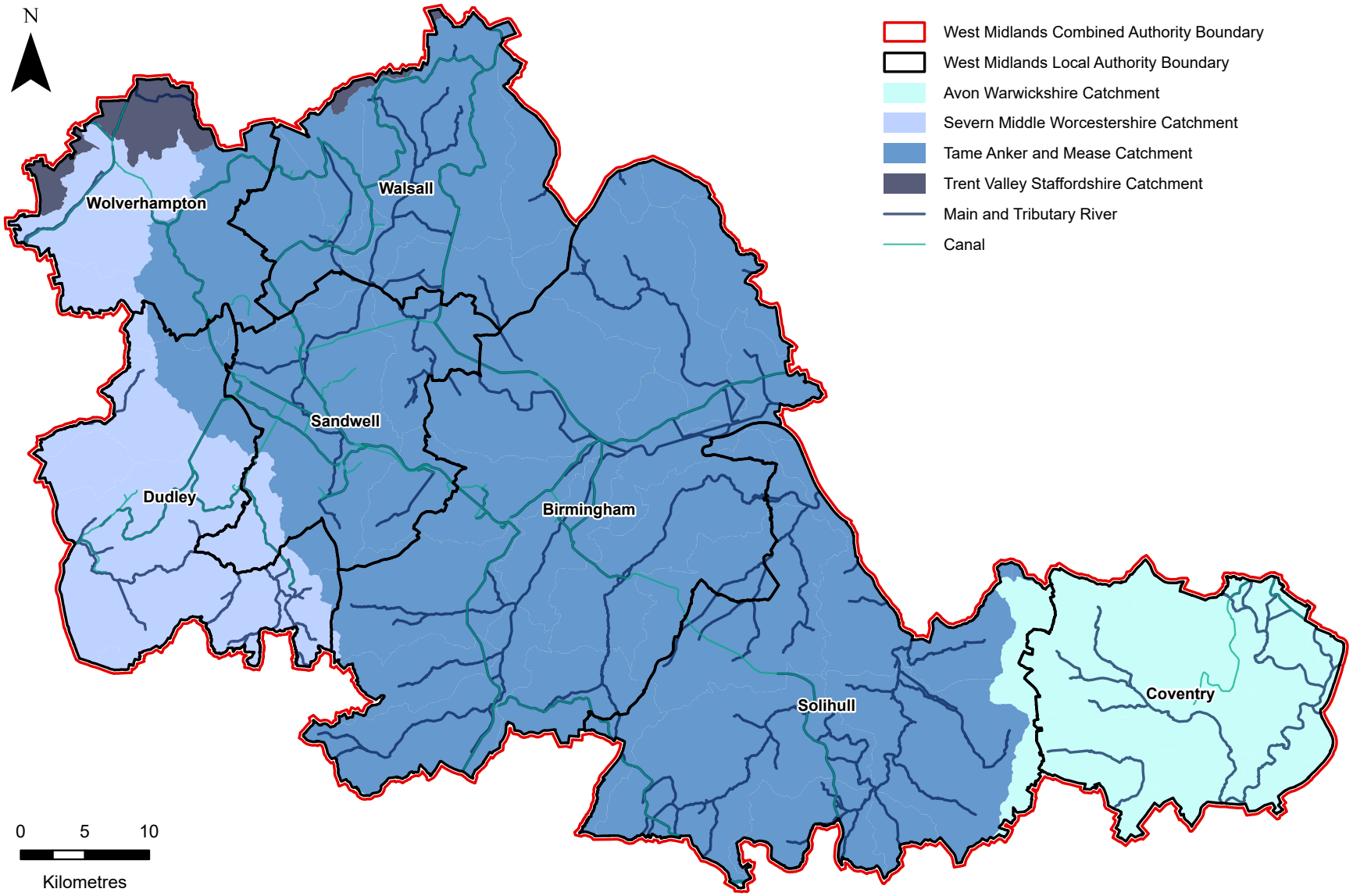


Figure 1-3: Waterbodies and catchments within WMCA area.

Air Quality

Air quality is a key physical component of the environment, that is closely linked to people's physical health as well as the condition of natural habitats. Studies in the West Midlands have shown that nearly 2,300 people die early due to long term exposure to air pollution every year in the West Midlands[2], and many species of plants suffer when exposed to polluted air, thus reducing the condition or the distribution of certain habitats.

However, trees and plants can also influence air quality at a local level, filtering out pollutants such as nitrogen dioxide (NO2) and particulate matter (PM). This is an example of how the natural world can provide "ecosystem services" that benefit people and communities (see Section 3). These pollutants were modelled in 2021 by WM-Air modelling, which identified the highest levels of NO2 and PM2.5 in central Birmingham, Coventry, Sandwell and Walsall[3].

Several plans to improve air quality are in operation in the West Midlands, for example, the Air Quality Action Plans (AQMA) and the most recent WMCA Air Quality Framework. The ultimate goal of the WMCA Air Quality Framework is to "have air quality that is safe for all people, no matter where you live in the region, resulting in significantly improved public health and environmental outcomes."

Linking to wider environmental pollution, the Pollution Hotspot tool developed by Friends of the Earth[4] identifies neighbourhoods where water, air, noise and light pollution are above thresholds that would damage nature and wildlife. Scores across the West Midlands are consistently poor, with a large proportion of the region having thresholds damaging in all four categories, and the remaining areas meeting thresholds for at least two categories.

Priory Woods Local Nature Reserve, Sandwell

2 https://www.wmca.org.uk/what-we-do/environment-energy/air-quality/
3 https://www.wmca.org.uk/media/lkchqkr4/wmca-air-framework-implementation-plan-2024-2026.pdf
4 https://friendsoftheearth.uk/nature/do-you-live-pollution-hotspot?utm_source=media&utm_medium=referral&utm_campaign=nature&utm_content=FY2425-08_text-link-media

Climate Risk and Vulnerability

In June 2019, WMCA declared a climate emergency – this acknowledges that the authority needs to act on the causes and impacts of climate change as a political commitment. Significant work across the region demonstrates the awareness of the causes of climate change, the likely impacts and how they will be felt differently across the region, and how climate change can be mitigated, especially through natural solutions.

Studies in the region have shown that the West Midlands will experience warmer, wetter winters, hotter, drier summers and more unpredictable and severe weather events, such as storms, strong winds and heat waves. The West Midlands Climate Risk and Vulnerability Assessment (CRVA) brought together a large number of indices of climate-related hazards (such as flood risk, summer temperatures and air pollution indices), vulnerability (such as socio-economic characteristics), and exposure (population density) to devise a map across the region that demonstrates climate risk and vulnerability[5]. The risk component relates to where climate hazards will be most prevalent whilst the vulnerability component indicates which communities might have less capacity to 'bounce back' when climate shocks hit.

The CRVA results can show us which existing natural assets are most exposed to different climate hazards, as well as which parts of the region would most benefit from nature-based climate adaptation measures to improve the resilience of the communities living there.

The results show that greatest areas of vulnerability are those in densely populated, highly urbanised ('grey') parts of the region. Areas with high rates of deprivation tend to be those areas that also lack green infrastructure and canopy cover. While Solihull appears to have relatively low risk scores, this is largely due to the socio-economic characteristics and low population density compared to the rest of the region; this is not to say that climate hazards are not a cause for concern, since both fluvial and pluvial flooding are prevalent risks in the area.

Austin Park, Longbridge

5 https://west-midlands-combined-authority.github.io/crva/

Protected Areas

Many locations receive specific protection due to their value to nature and/or the wider environment (for example, sites designated for their geological interest). These protected sites provide vital areas for wildlife to thrive and can act as key refuges in locations where little other natural habitats may exist in the wider area (Figure 1-4).

The level of protection areas receive can vary from international and national designations down to local level designations. Statutory designations are given to sites which meet published criteria in terms of their value to particular species, species groups, migratory species and habitats of high importance, among other features. These include designations at a national scale, including Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR), and at an international scale, which includes Special Areas of Conservation (SAC). These statutory designated sites cover over 3,800 hectares (ha) (Table 1-1); though it should be noted that some of these sites have overlapping designations, for example Cannock Extension Canal is designated as a SAC and a SSSI. Special Protection Areas (SPA) and Ramsar sites are also statutory designated sites at the international scale; however, neither of these are present within the West Midlands.

Local designations are based on criteria typically devised by local conservation partnerships and authorities, such as the Wildlife Trusts, and so may include designations for species and habitats rare within the particular geographic area, or of high local significance. Within the West Midlands these are called Local Wildlife Sites (LWS), Sites of Importance for Nature Conservation (SINC) or Sites of Local Importance for Nature Conservation (SLINC). Over 6,400 ha receive local protection, through their recognition in the National Planning Policy Framework (NPPF) which provides some protection from development. Many of these sites will typically also overlap with a national designation. In addition, linear locations also receive protection: these may be road verges that have considerable botanic interest; or important hedgerows and canals.

Statutory designated sites	Area(ha)	% of WMCA Area
Special Areas of Conservation	21	0.02%
Sites of Special Scientific Interest	1,253	1.39%
National Nature Reserves	914	1.01%
Local Nature Reserves	1,618	1.79%
Non - statutory designated sites		
Sites of Importance for Nature Conservation	2,559	2.83%
Sites of Local Importance for Nature Conservation	2,300	2.55%
Local Wildlife Site	1,599	1.77%
Total[6]	**10,264**	**11.36%**

Table 1-1: Areas of sites designated for nature conservation in the WMCA.

6 Many of these sites designated for nature conservation have overlapping designations

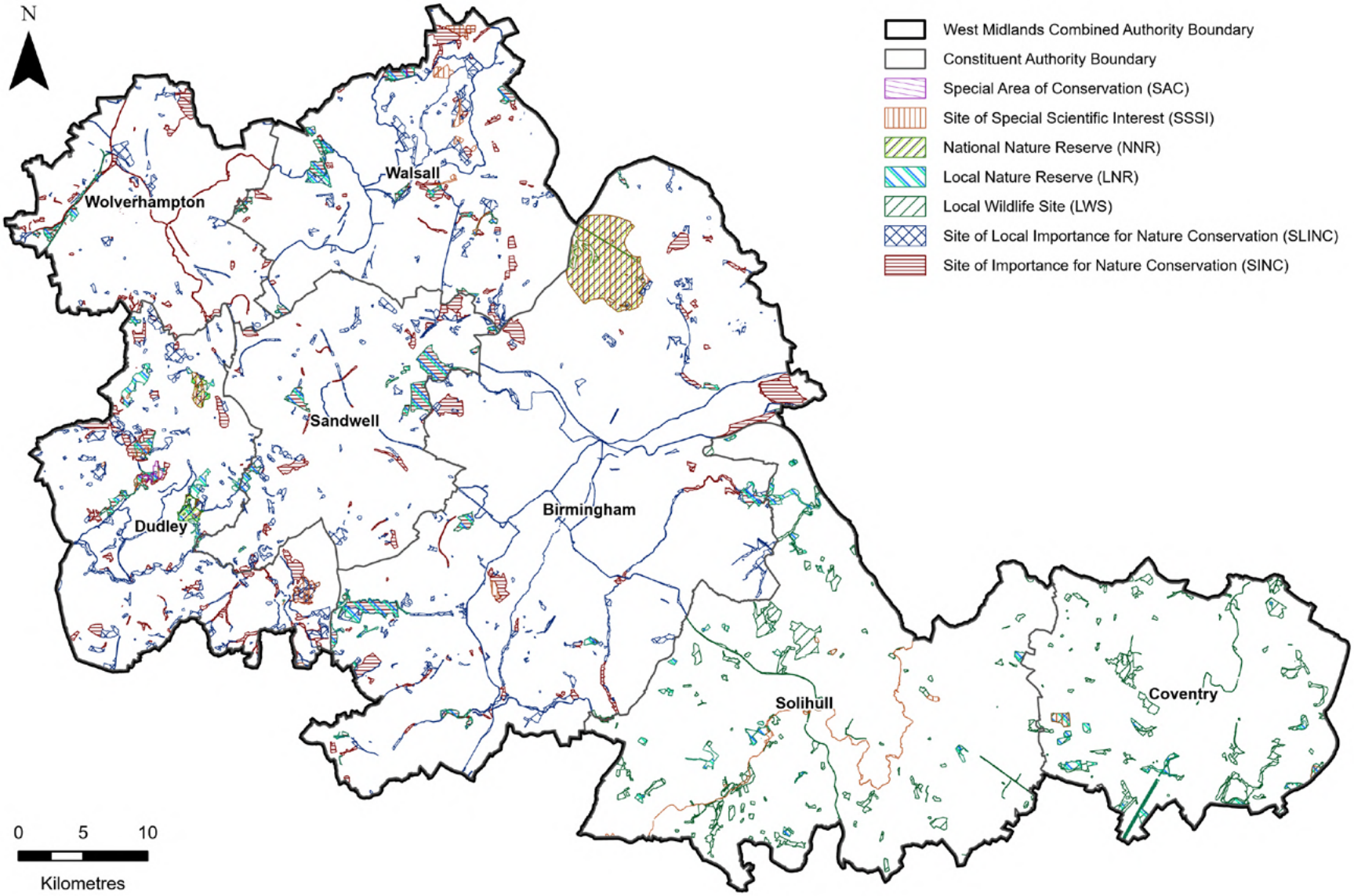


Figure 1-4: Designated sites for nature conservation within the WMCA area.

Some locations are deemed “candidate” or “potential” local wildlife sites – these may be locations where surveys have identified that the site meets criteria to class it as a LWS, but that designation has not yet formally been granted. Over 900 ha falls into this category, which represents a significant landmass that could receive more formal protection and improved management for nature.

There are knowledge gaps regarding the ecological condition of many protected sites, due to limitations in monitoring capacity. There is long term data collected on the condition of SSSIs, to monitor their conservation value and the progress of any restoration measures that may be in action. Over three-quarters of SSSIs are ranked as “unfavourable – recovering” in the West Midlands, meaning that their condition is lower than ideal, but that the trajectory for recovery is positive (Figure 1-5). This means that there is a significant opportunity to restore and enhance SSSIs so they can provide an even higher value to nature in the years to come.

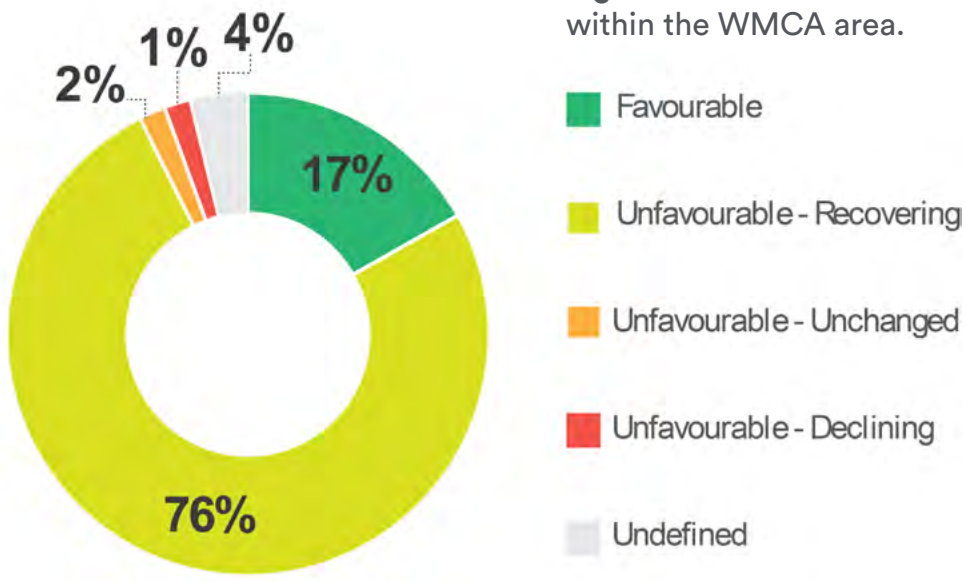


Figure 1-5: Condition of SSSIs within the WMCA area.

Connectivity

A key feature of a well-functioning, biodiverse natural environment is the connectedness of different parcels of natural habitats, referred to as “connectivity”. Statutory and locally designated sites are of high value to nature, but if they are poorly connected to other natural habitats and sit in isolation,

they can be threatened. For example, animal species have different capacities to move across habitats to colonise new areas: a motorway will represent a significant barrier to amphibian and reptile movement, whereas birds of prey may fly over mostly unaffected. Unlit corridors of vegetation enable bats to fly and forage, and streams, canals and rivers allow movement of aquatic species along blue corridors.

The “Lawton principles”[7] are important to consider in ecological restoration and in enhancing places for nature. These are “more, bigger, better and more joined up”, referring to creating more, and larger, spaces for nature, that are of high quality and are connected by corridors and areas of natural habitat. Figure 1-6 illustrates the numerous

7 https://webarchive.nationalarchives.gov.uk/ukgwa/20130402170324mp_/http:/archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf

approaches that can be taken to enhance ecological networks for wildlife.

Ensuring connectivity of habitats across the West Midlands is of particular importance as the region is dominated by urban and suburban environments. These often present barriers and result in a fragmented landscape. It is therefore important to also consider habitats that may be constructed and integrated within urban habitats, including connecting habitats as part of new housing developments, planting roadside trees and managing wild verges to reduce the barrier effect of roads. Natural habitats within the urban environment offer vital pathways or stepping stones for species to move freely within the West Midlands and further afield into the wider ecological network. Considering connectivity is vital in targeting habitat creation and restoration projects that will result in the highest benefit across a larger spatial scale.

Figure 1-6: Approach to enhancing ecological networks[8].

These are: improving the quality of habitat patches (a); making existing sites bigger (b), which can include creating ecotones (c); enhancing connectivity through a continuous corridor (d) or a stepping stone corridor (e); creating new sites (f); and reducing pressures on sites either by establishing buffer zones (g) or enhancing the wider environment (h)

Sutton Park (SSSI and NNR), Birmingham

8 https://www.gov.uk/government/news/making-space-for-nature-a-review-of-englands-wildlife-sites-published-today

Section 2: Our Nature

Introduction

The West Midlands offers a diverse array of habitats which provide the environment and conditions in which a species can survive, reproduce and thrive.

This section details the habitats that are present across the West Midlands today, drawing upon numerous datasets and information sources to paint a picture of the current baseline of habitats present, and where possible, summarise any recent trends or changes in the distribution of habitat types. Places with good examples of habitat types, or where recent projects have taken place to restore habitats, are named within each section[9].

Different habitats provide different niches and homes for wildlife; and an overall diversity of different habitat types provides more space for a greater variety of different species, thus contributing to an overall increased biodiversity. However, different habitat types also experience different threats and pressures, that can act to damage them, that can reduce their ability to function and provide ecosystem services or niches for wildlife and can result in their total loss.

Eleven main habitat types are presented in Figures 2-1 to 2-3, showing the composition across the WMCA area and its constituent authorities. Birmingham represents the largest area within the WMCA and Wolverhampton the smallest.

A summary habitats table is provided in Appendix A and a breakdown of habitat composition in each constituent authority is provided in Appendix B.

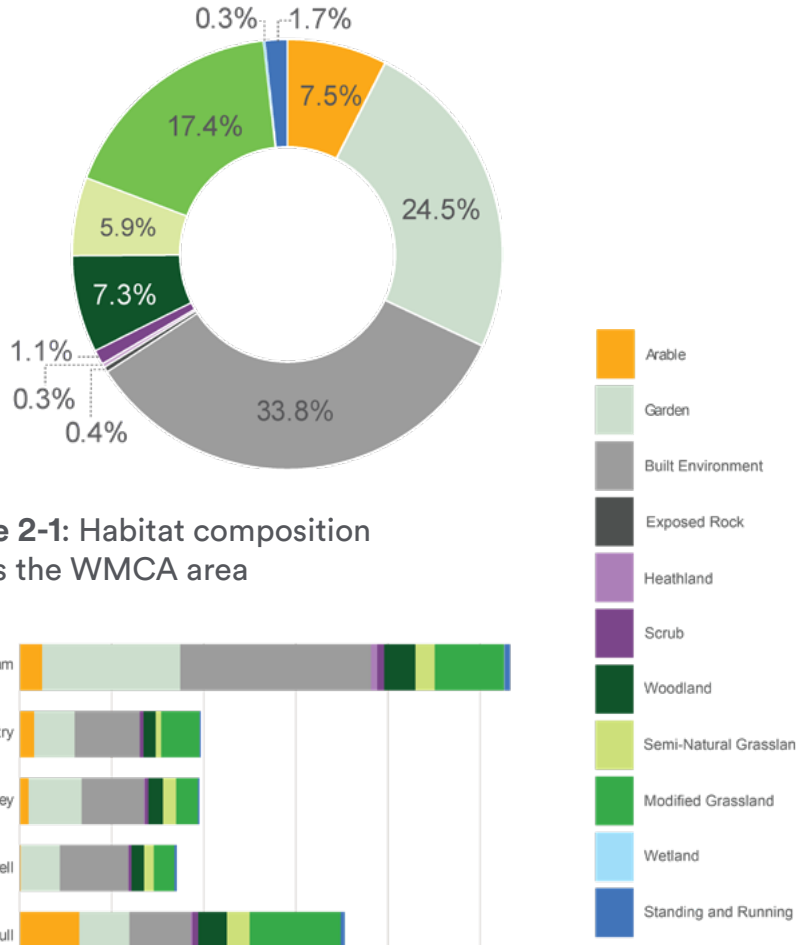


Figure 2-1: Habitat composition across the WMCA area

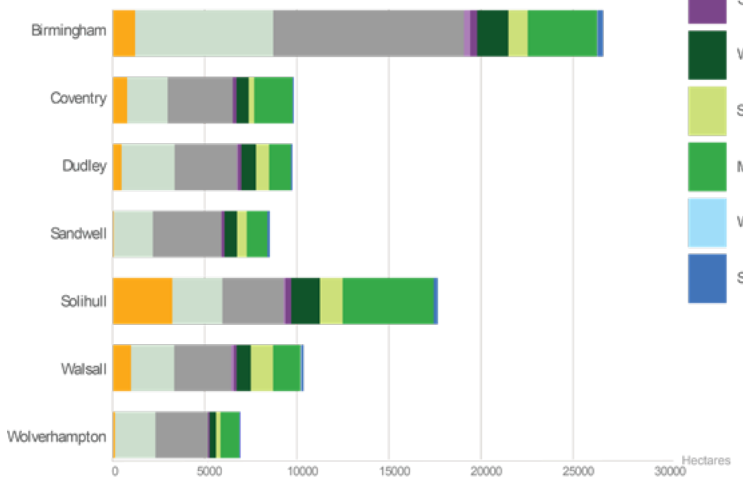


Figure 2-2: Habitat composition within the WMCA constituent areas

9 The town or local area is named after place names, unless the location is already named within the place name (e.g. Edgbaston Reservoir).

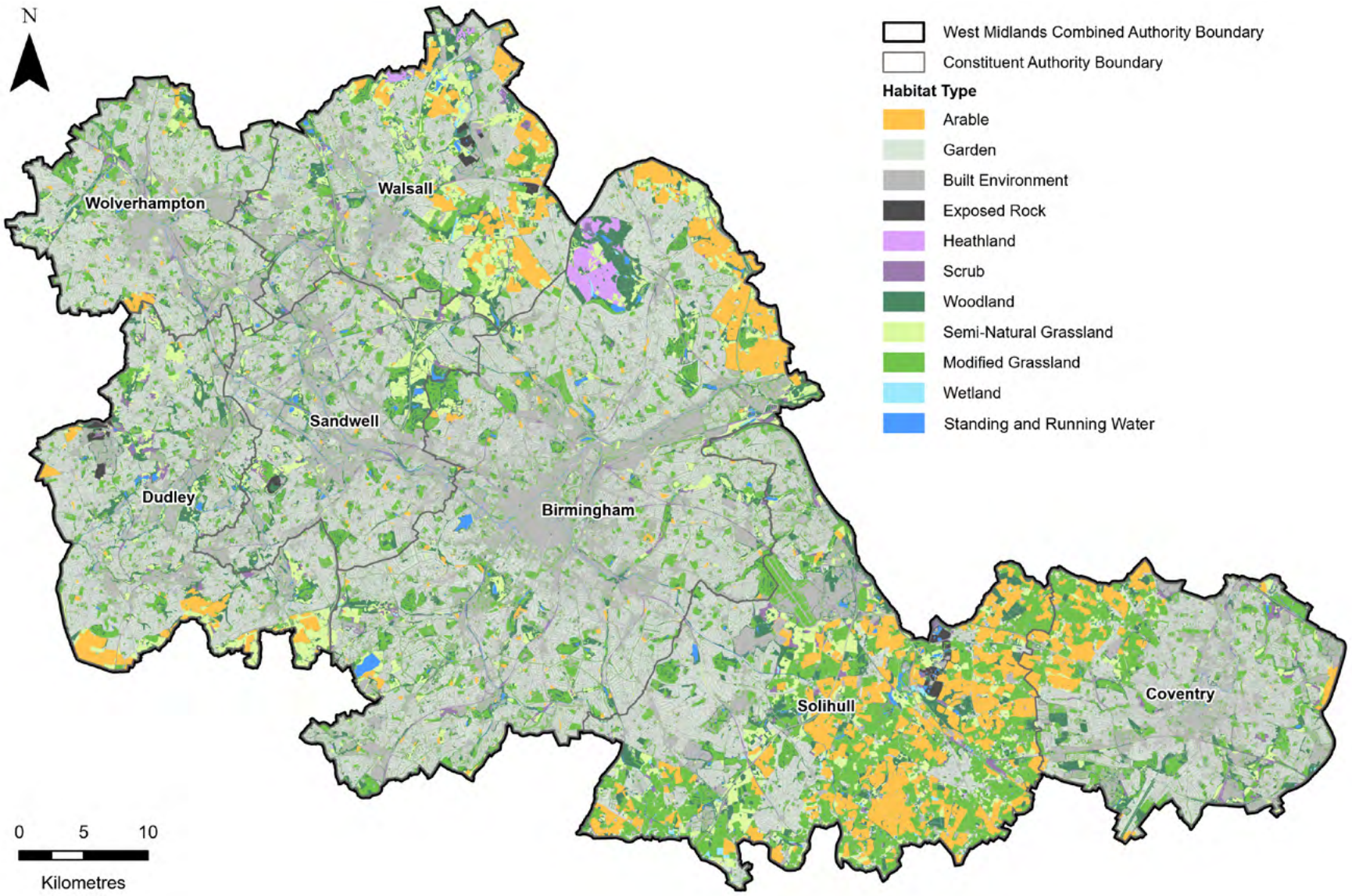


Figure 2-3: Habitat map of the WMCA area.

Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024. Contains OS data © Crown copyright and database right (2024)

Throughout this section, “species spotlights” are given that relate to a specific habitat type. This list of species was derived from a longer list of Biodiversity Action Plan (BAP) species identified within Birmingham and the Black Country and Warwickshire, and species were selected that covered a variety of taxa and habitats.

Species are a vital component of nature within the WMCA region, and many are common and widespread. As part of the LNRS process, specific species and species assemblages have been identified through review of species records held by EcoRecord and Warwickshire Biological Record Centre as well as engagement with local experts and species importance to the strategy recording groups. Through a process of developing a long-list and then refining this through further analysis and engagement a final short-list has been produced for the Local Nature Recovery Strategy where actions will be developed to maintain and improve their populations across the region. This list also includes suitable species for reintroductions.

The species described in the actions below are those which the LNRS can best support due to their declining populations. This also reflects the species issues which are of greatest, local people and organisations.

Species

- Water vole
- Otter
- White-clawed crayfish
- Glow worm
- Harvest mouse
- Osprey

Species Assemblages

- Urban birds
- Farmland birds
- Heathland insects
- Deadwood insects
- Brownfield butterflies
- Riparian birds
- Wet woodland birds
- Grassland fungi
- Sutton Park mire vegetation
- Arable weeds
- Bats
- Urban gardens and allotment species
- Elm-associated insects
- Pollinators

Species for reintroduction

- Marsh fritillary
- Beaver

Aston Hall and Park, Birmingham

Woodland and Trees

Within the WMCA, woodland cover ranges from 5% to nearly 9% across the region, with the greatest quantity of woodland being located in Solihull, and the smallest quantity of woodland cover being in Wolverhampton (Figure 2-4).

Sutton Park, Birmingham

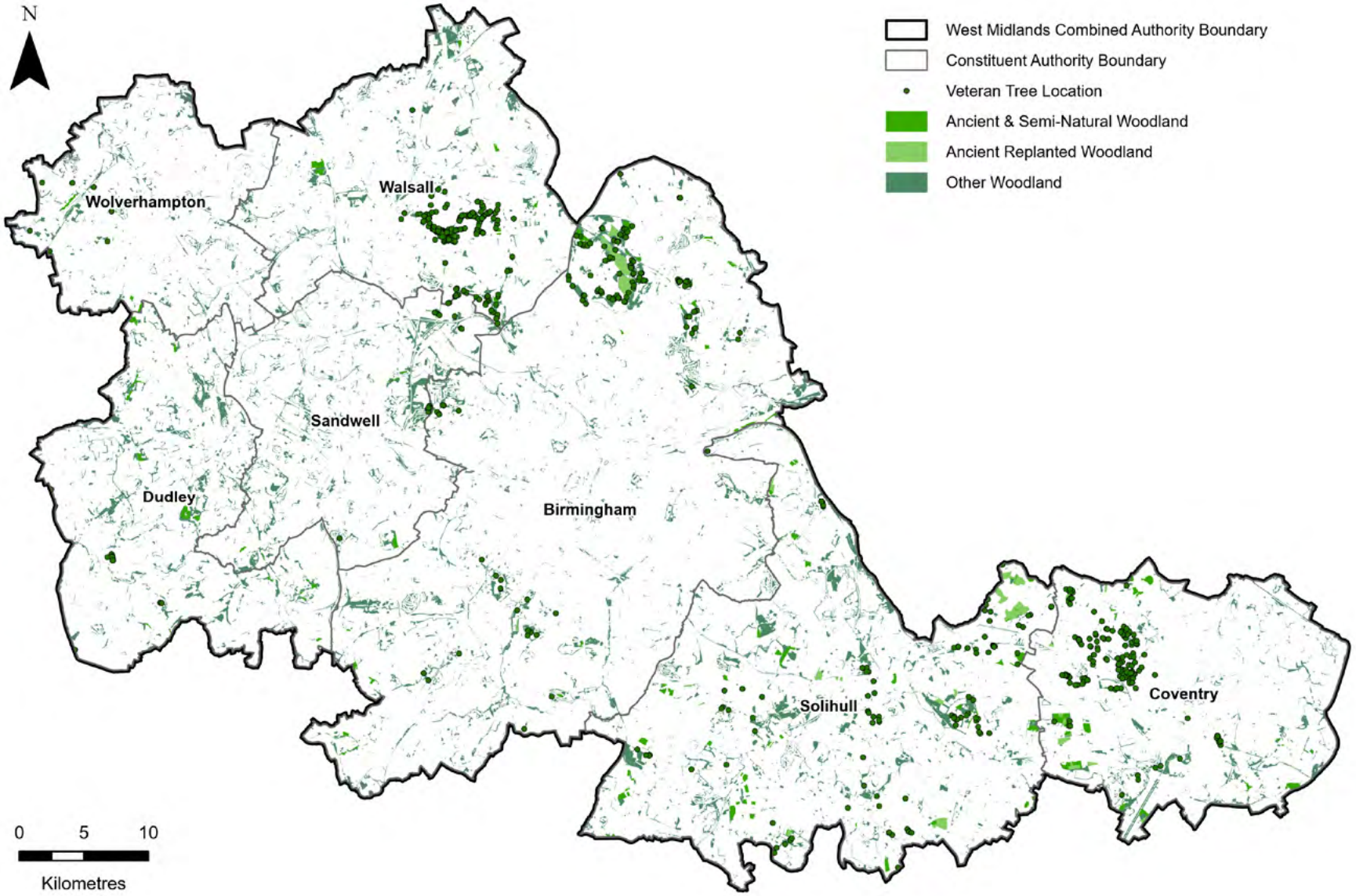


Figure 2-4: Woodlands within the WMCA area.

Other Woodland Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024.

Ancient Woodlands, Veteran Trees, Wood Pasture and Parkland

Habitat description

Woodland habitats can take centuries to fully mature, and there are clear differences in the species present and the diversity of species between recently planted woodlands and our older forests, in particular our ancient woodlands. Ancient woodlands are areas of woodland that are known to have been established since at least 1600. They can be classified into two different categories:

- Ancient and semi-natural woodland – ancient woods which have developed naturally; and
- Ancient replanted woodland – ancient woods which have been felled and replanted with non-native species yet still retain the complex soil of ancient woodland species

Understory vegetation such as wood anemones are strong indicators that a woodland may be ancient, due to their slow colonisation speed.

The Woodland Trust estimates that only 2.4% of the UK is covered by ancient woodland today. Whilst some ancient woodlands are well documented, fragments of ancient woodland and veteran trees continue to be identified today, through careful study.

Whilst ancient woodlands typically contain an array of mature trees within their habitat, very mature or "veteran" trees can also exist outside of a woodland habitat type. Although less common, it is possible for veteran trees to be found in urban areas, where land has been developed. Veteran trees are characterised by particular features that typically only develop after the tree has reached significant maturity. This can include signs of decay, sections of dead wood and large fungal growths such as bracket fungi species.

Whilst veteran trees are defined by the mature features they possess, ancient trees are defined by their age, in a similar manner to ancient woodland. The point at which a tree becomes classed as ancient differs between species, for example, yew trees can be several hundreds of years old, whereas ancient birch trees, which are faster-growing and shorter-lived species, may become ancient after 150 years.

Another related habitat type are long-continuity wood pastures and parklands. These are different to urban parks; they typically have a history of being deer parks or a similar land use type that is historical/ has a long-continuity of land use. They can often contain mature or veteran trees alongside open grassland.

Conservation status and importance of habitat

Ancient woodlands and ancient trees are classed as irreplaceable habitats. These are habitats that are either very difficult, or take a significant duration of time, to restore or recreate. For ancient woodlands and ancient trees, this is due to the fact that they take centuries or more to develop, and typically require soils that have not been subject to nutrient enrichment or alteration, such as through agricultural use. Woodland decomposition, creating deadwood is a vital aspect of a tree or woodlands' lifecycle and provides nutrient-rich habitat for woodland species. Deadwood can include fallen branches, trees or bark, standing dead trees, decaying stumps and roots as well as rotting heartwood within veteran and ancient trees.

Wood pasture and parklands are UK BAP priority habitats, and together with ancient woodlands, veteran trees, and old parklands are particularly important for invertebrate and lichen species that are specialists on dead and decaying wood. Veteran and ancient trees provide rot holes, crevices and cavities important for a variety of species, including owls and bats.

Occurrence and trends in the West Midlands

A total of 738 ha of ancient woodland is present across the West Midlands, representing 0.8% of land cover. Across the constituencies of the WMCA, ancient woodland cover ranges from 0.2% to 1.8%, with Solihull having the greatest cover of ancient woodland and Sandwell having the smallest (Figure 2-5).

Many areas of ancient woodland are typically protected by a statutory site designation, for example Tile Hill Woods in Coventry is a SSSI designated for its ancient woodland, as is Ladywood – ancient woodland that is part of Saltwells NNR.

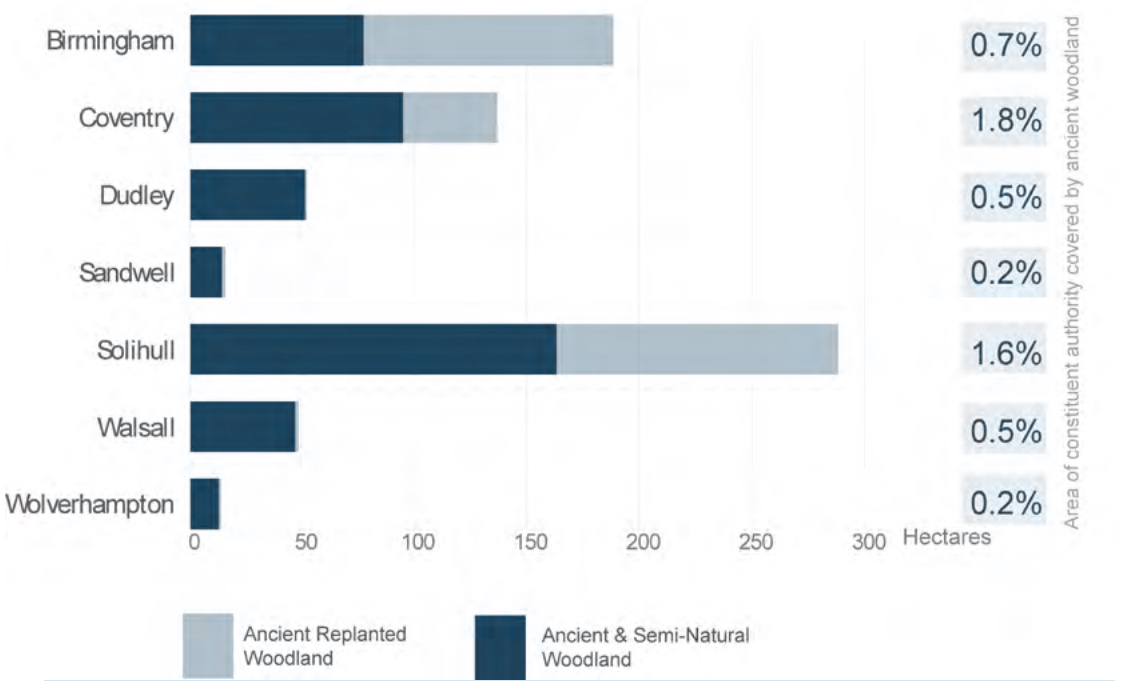


Figure 2-5: Areas of ancient woodland within the WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024.

In 2024, Walsall Arboretum and country park was designated by the Woodland Trust as the first Ancient Tree Site in the West Midlands, due to its number of ancient and veteran trees. Over 130 veteran trees are present in the Arboretum, with 17 classed as ancient.

Particular locations for ancient woodland, parkland, veteran and ancient trees include Park Hall Wood, east Birmingham, and around Sutton Coldfield in the north east of the region.

The Arden landscape that covers Solihull and Coventry contains pockets of historic parkland, with ancient and veteran trees also found within ancient hedgerows.

The Castle Bromwich Hall Gardens Parkland Project[10] seeks to restore areas of the historic park and gardens through habitat enhancements across 12 ha of the formal parkland, that forms part of the historic Bradford Estate on the edge of Birmingham.

Other Woodlands

Habitat description

Woodlands are a broad category of habitat, in which the land is predominantly covered by trees over 5 m in height. There are many different types of woodland, each containing its own unique composition of broad-leaved or coniferous species, understory vegetation, open spaces, and scrub. Woodlands create distinctive landscape features (such as forming mosaics within grasslands, with defined edge habitats) that can support a range of species, both floral and faunal.

The character and condition of woodlands can be defined by their species composition, age, location, climate, management history and usage. Types of woodland found throughout the West Midlands include ancient woodland, broad-leaved, coniferous, mixed and wet woodland.

Broad-leaved woodlands are those in which the trees have broad leaves of various shapes (such as in lime and oak trees) and that likely lose their leaves in autumn. Trees within broad-leaved woodlands do not have needles, compared to coniferous woodlands that are dominated by tree species which do, such as cypress or pine trees. Mixed woodlands contain a variety of broad-leaved and coniferous species.

Wet woodlands are important habitat types that often border rivers and streams, or are found more widely on a river floodplain, and they can often transition into drier woodland habitat types on a natural gradient. Wet woodland can be distinguished by the species present (such as alder, willow and downy birch). The soils in wet woodlands are poorly drained and/or flood annually, creating a niche that certain trees will colonise.

10 https://www.castlebromwichhallgardens.org.uk/the-parkland-project/

Conservation status and importance of habitat

Deciduous woodland is a priority habitat within the UK and within the WMCA covers a total area of 4,023 ha.

Woodlands are excellent resources in tackling climate change. Woodlands are known for being carbon sinks, removing carbon from the atmosphere and storing it within trees. A young woodland comprising mixed native species can store over 400 tonnes of carbon per ha[11].

In addition, the ecosystem services provided by trees and woodlands extends beyond carbon capture. The root systems of trees can play a key role in flood prevention, and improve soil health by increasing fertility, reducing erosion and supplying nutrients.

Woodlands that are in good condition are able to provide these services more effectively than those in poor condition. Signs of good condition include an array of native species and a diversity of structure including mature trees with a large canopy, an underlayer of shrubs and ground flora comprising herbaceous species.

Such woodlands also provide a wealth of ecological niches for woodland species such as the great spotted woodpecker, tawny owls, the speckled wood butterfly, badgers, roe deer and bats.

The Woodland Trust's State of the UK's Woods and Trees[12] report estimates that there are over 3.21 million ha of woodland across the UK, yet only 7% are in "good" ecological condition, based on a series of factors such as amount of deadwood, presence of veteran trees, and tree species diversity. This study also showed that many species that rely on woodlands are in decline, with woodland bird species decreasing by 29% since 1970, butterflies by 41% since 1990 and woodland plants declining by 18% since 2015.

Wet woodlands can be vulnerable to clearance for other land uses and drainage, whereby the species relying on key wet conditions can no longer survive.

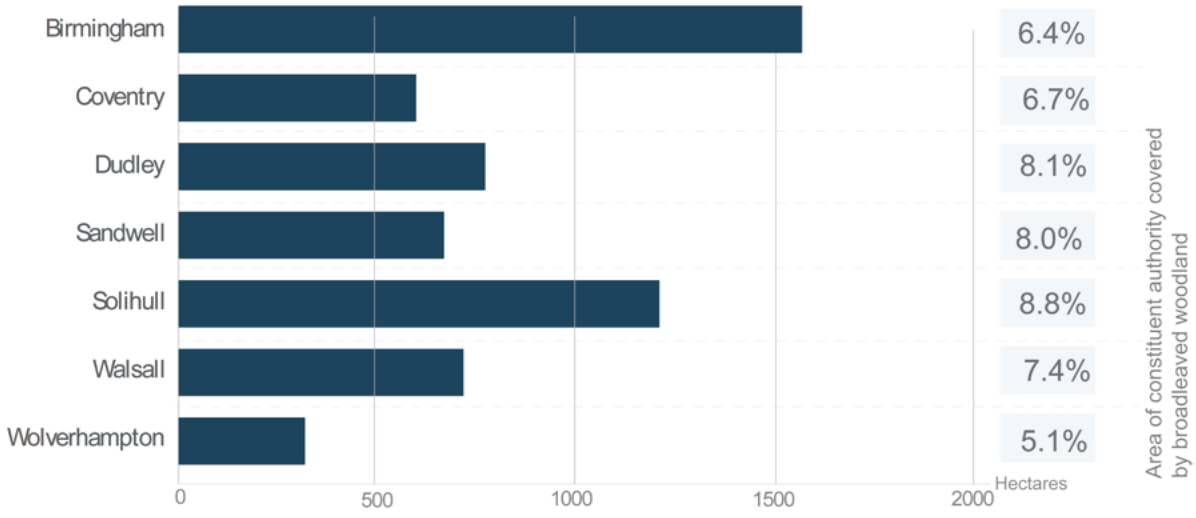


Figure 2-6: Broadleaved woodland within the WMCA area. Woodland Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024.

11 https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/how-trees-fight-climate-change/
12 https://www.woodlandtrust.org.uk/state-of-uk-woods-and-trees/

Mixed woodland is widespread, with Solihull having the largest area at 178.617 hectares, and Sandwell the least at 11.580 hectares. Coniferous woodland, while less common than mixed woodland, is still relatively significant, with Solihull leading at 166.730 hectares, and Sandwell having the least at 2.541 hectares. Wet woodland is the least common type, with Solihull having the most at 6.520 hectares, and Dudley and Sandwell having none.

Despite its limited presence, wet and riparian woodlands are essential for water regulation, flood mitigation, and providing habitats. There are significant opportunities to plant and expand wet woodland areas, particularly in regions where they are currently absent, such as Dudley and Sandwell.

Species Spotlight: Bats

Historically, bat populations in the UK have faced severe declines, with pipistrelle bats dropping by at least 70% between 1978 and 1993. Currently, the National Bat Monitoring Programme indicates that most of the 11 species it tracks have stabilised or increased since monitoring began in 1999.

Bats typically roost in broad-leaved woodlands and forage in various habitats including rivers, mixed farmland, and suburbs. Common species, such as the common pipistrelle and brown long-eared bat, often roost in houses, which can cause conflicts with homeowners and developers. Threats include climate change, habitat loss, pesticide use, and increased urban development. Despite some positive trends, ongoing monitoring and conservation efforts are crucial to address these challenges and to conserve British bat populations.

Bats in the UK are protected under the Wildlife & Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats & Species Regulations. Internationally, they are covered by the EC Habitats Directive (Annex IVa and II for some species), the Bern Convention (Appendices II and III), the Convention on Migratory Species (Bonn, 1980), and the Agreement on the Conservation of Bats in Europe (London, 1991).

Of the 18 species of bat found in the UK, 14 have been recorded in Warwickshire, and the Alcathoe bat; however, this newer species has not yet been identified in the West Midlands (Table 2-1).
The Warwickshire Bat Group and the Birmingham and Black Country Bat Group both work to protect and enhance the species of bats which are present in the region. Six of Warwickshire's bats are on the current UK BAP Priority Species List, published in 2007 by the Joint Nature Conservation Committee.

Bat Species	Description
Common Pipistrelle	This species is widespread and often found in gardens, parks, woodlands, open water, and hedgerows. It roosts in tree holes and buildings and is particularly common in urban areas.
Soprano Pipistrelle	Common in gardens, parks, woodlands, and hedgerows, especially near rivers and water features. It roosts in tree holes and buildings, with colonies of several hundred individuals being relatively common. It is also frequently found in bat boxes, including during hibernation.
Nathusius' Pipistrelle	A rare migrant that feeds near open water and woodlands and is often found in parks with lakes. It roosts in tree holes or cracks but mating roosts have also been observed in buildings.
Brown Long-eared	This species is common in woodland edges, mixed farmland with robust hedgerows, and suburban areas. It roosts in trees and buildings with large roof voids near woodlands, often found in buildings with expansive open roofs, and primarily hibernates in below-ground features.
Noctule	A widespread species that feeds over woodlands, open water, meadows, and parkland. It roosts almost exclusively in tree holes and is one of the largest bats in the UK, known for its narrow wings and fast flight.
Daubenton's	Common and often found feeding over water. It roosts in trees and buildings (including bridges) near water, and hibernates in wide stone bridges, caves, and cellars.
Whiskered	Widespread and primarily feeds in woodlands and mixed farmland with robust hedgerows. It roosts in trees and buildings.
Brandt's	This species may have a more southerly range compared to the Whiskered bat and mainly feeds in woodlands. It roosts in trees and buildings.
Natterer's	Restricted in distribution within the sub-region, this species feeds in species-rich grasslands and over open water woodlands. It roosts in trees and buildings, particularly in large joints in old timbers, and hibernates in caves and cellars.
Serotine	Restricted in distribution, this species feeds in pasture and large disturbed areas, often foraging for beetles on the ground. It roosts in trees and frequently in buildings, especially under ridge tiles.
Barbastelle	A rare species that roosts and feeds in woodland, particularly in old wood and behind loose bark, making it vulnerable to disturbances from forestry activities.

Table 2-1: Bat species present within the WMCA area

Bat Species	Description
Lesser Horseshoe	Restricted in distribution, this species feeds near woodlands, open water, and species-rich pastures, and can be seen feeding in tunnels and wide bridges. Once primarily cave-dwelling, it now mostly roosts in buildings but can still be found in caves, mines, and cellars during hibernation.
Bechstein's	A rare woodland species with a southern distribution extending to the Bristol Channel. It has been found in the southwest of Warwickshire in very low numbers since 2017.
Alcathoe	A new species only identified in 2010 that appears to occupy the same habitat as Whiskered and Brandt's bats but is physically smaller than these species. A species that appears to be found throughout England, but records are too rare to provide assurances that they are likely to occur in Warwickshire.

Natterers Bat © Natural England - Alice Maramao

Urban Trees

Habitat description

Urban trees is a term used to describe any areas of tree cover within towns and cities, ranging from street trees, garden trees, trees within urban hedgerows and small groupings of trees, for example on road verge corners or roundabouts. These trees can be found right across the urban landscape, such as along parks and community gardens, in school or hospital grounds, along streets and along blue corridors like canals, streams and rivers.

Typically, urban trees are planted and the species has been chosen to suit the environmental conditions of the urban environment and the desired appearance of the grown tree. This means a variety of species are used, but they are often hardy or tolerant of pollutants that occur in towns, such as from car exhausts, and they may not always be native species. Some examples include London plane, sycamore and small-leaved lime.

Urban trees may grow to a considerable age, however, on occasion they may be removed on the grounds of health and safety or lost to urban development, meaning they are less likely to develop the veteran tree features of importance to wildlife.

Conservation status and importance of habitat

Urban trees are not typically classified as Priority habitat or covered under a UK BAP as they are unlikely to reach ancient or veteran status. Whilst trees like veteran and ancient trees are valuable for the specific features they provide, such as rot holes and cavities, urban trees are valuable in terms of the location that they grow in, providing natural corridors and small-scale oases in areas where natural habitat is severely restricted.

In a similar vein to woodlands, urban trees can provide a wealth of ecosystem services and benefits, particularly to the communities that live near them. Trees can help with the “urban heat-island effect” – this is the phenomenon of urban areas being significantly warmer than comparable rural areas, due to the higher land cover of dark surfaces like tarmac, which absorb and retain heat from the sun. Trees provide vital shade to reduce the temperature in urban areas. In addition, street trees can reduce localised air pollution, slow the impact of heavy rainfall, and provide societal and wellbeing benefits.

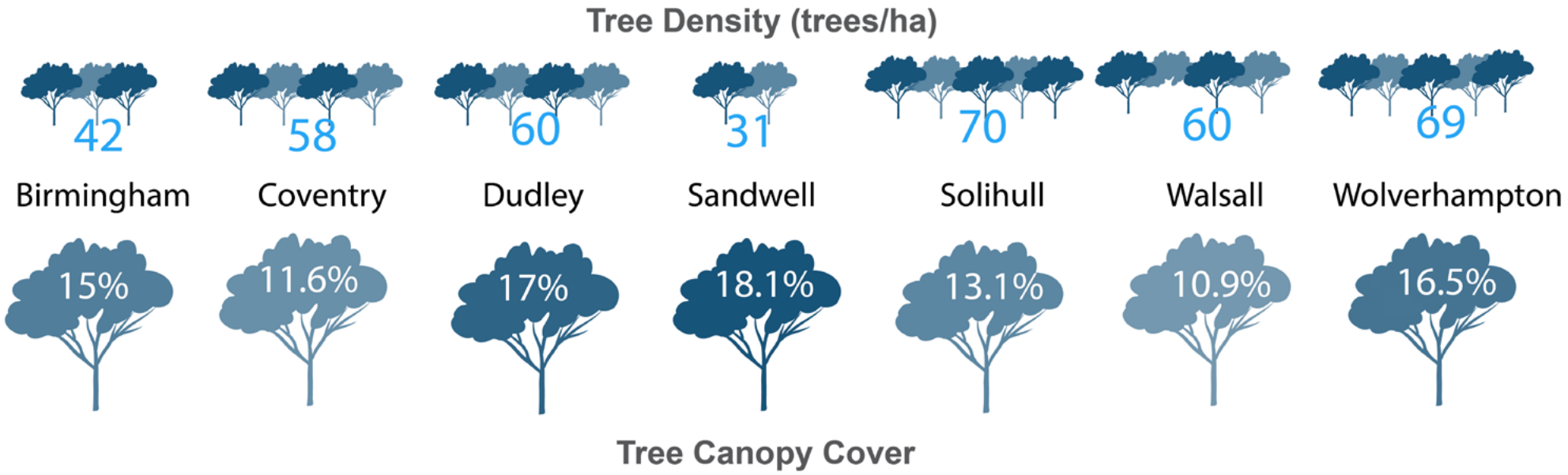
Occurrence and trends in the West Midlands

WMCA commissioned Treeconomics to complete the iTree survey[13] coverage for the WMCA region in 2023 to better understand the distribution of urban trees.

Across the region, this estimates that there are nearly 5 million individual trees, with an average canopy cover of 14.4% (compared to 13% nationally).

The tree abundance and extent, relates to storing nearly 2 million tonnes of carbon, removing over 200 tonnes of air pollutants and sequestering over 57.5 tonnes of carbon each year, and intercepts over 1.5 million m3 of water runoff[14].

Within the WMCA, tree density is greatest in Solihull and the lowest tree density is within Sandwell. Canopy cover is greatest in Dudley and smallest in Walsall (Figure 2-7).



13 iTree survey | Virtual Forest (arcgis.com)

14 https://virtualforest-tfwm.hub.arcgis.com/documents/edfaf46a144b42c8ab886c92a4ef3aa9/about

Heathland

Habitat description

Lowland heath is a habitat type found below approximately 300 m of altitude and is dominated by heathers and grass species. They often occur on sandy and gravelly soils, that are well-drained but nutrient poor, meaning the heathland dwarf shrubs can flourish where other species that require more nutrients do not.

Heathland habitats often comprise a range of different micro-habitats assembled together in a mosaic. For example, a small area can contain heath (dwarf shrub species such as heather, bell heather, cross-leaved heath and bilberry), grasses, bracken, bramble, scrub and young tree saplings, such as silver birch.

Wet heaths are found where drainage is impeded and, in some cases, thin peat soils form. Different species can be found in wet heaths, such as bog mosses and cross-leaved heath.

Heathland habitats typically require a degree of anthropogenic management to maintain a predominantly dwarf shrub composition, this would historically have been through a cycle of patch burning to create fresh growth for livestock and widespread grazing to avoid woodland succession. Without intervention heathlands tend to be colonised by larger shrub and tree species often resulting in the loss of more typical heathland fauna.

Conservation status and importance of habitat

Heathlands support ground-nesting birds, reptiles and invertebrates. Reptiles such as slow worm, adder and common lizard can use the microhabitats and habitat mosaics available for basking, shelter and foraging. Unusual flora can also develop on heathlands, such as carnivorous sundew plants that can catch insects on their sticky leaves and gain nutrients from them.

Across England, it is estimated that only one sixth of the lowland heathland present in 1800 now remains. Typically, this habitat type was viewed as low value and conversion to pastures or agriculture was deemed a better use of the land. Now, the importance of this habitat is realised, and lowland heathland is recognised as a priority habitat, with restoration projects occurring across the UK, targeting management actions such as grazing and creation of bare ground to maintain the mosaic of micro-habitats.

Some heaths are threatened by the level of recreation and human activity that occurs on them – for example, species can be threatened by trampling, arson or accidental fires which can spread rapidly and in an uncontrolled manner, destroying large swathes of heathland.

Occurrence and trends in the West Midlands

In total, there is nearly 397 ha of heathland habitat in the West Midlands (Figure 2-8). By area, Birmingham is ranked as having the largest proportion of heathland in the West Midlands – this relates to the large expanse of heathland in Sutton Park, although tracts of heath are also found elsewhere in

Birmingham such as at Kings Norton LNR or around Chinns Brook. The percentage cover

of heathland across the constituent authorities within the WMCA is low ranging from 0 to 1% of their total areas, with no heathland found within Wolverhampton. This heathland shows characteristics of both typical lowland heathlands, as found further south in England, but also upland heathland and wet heaths more akin to those in the Welsh borders and the Peak District.

Historic records indicate heathlands were once more widespread in the West Midlands, and that some of the heaths surviving today represent remnants of old heaths associated with traditional farming practices, pre-urbanisation. Sutton Park contains the most extensive tracts of heathland in the West Midlands, which also connects more directly to heathland habitat in South Staffordshire, as well as Shire Oak Park in Walsall.

However heaths can also develop on "new" ground: because they rely on acidic or base-poor soils, they can thrive on old coal spoil heaps such as at Brownhills Common and Pelsall North Common in Walsall.

Smaller heathland tracts are situated in Dudley and Sandwell, and even along railway verges in south Birmingham. Heathland also occurs along some canals such as the Walsall Canal and the Anglesey Branch Canal and are the subject of ongoing restoration effort by the Canal & River Trust[15].

The Purple Horizons Partnership is a flagship project which aims to restore and reconnect existing fragments of heathland habitats around the edges of the West Midlands conurbation. This will link up existing protected areas and develop a mosaic of a variety of habitat types, including wetlands, woodlands and grasslands as well as heathlands.

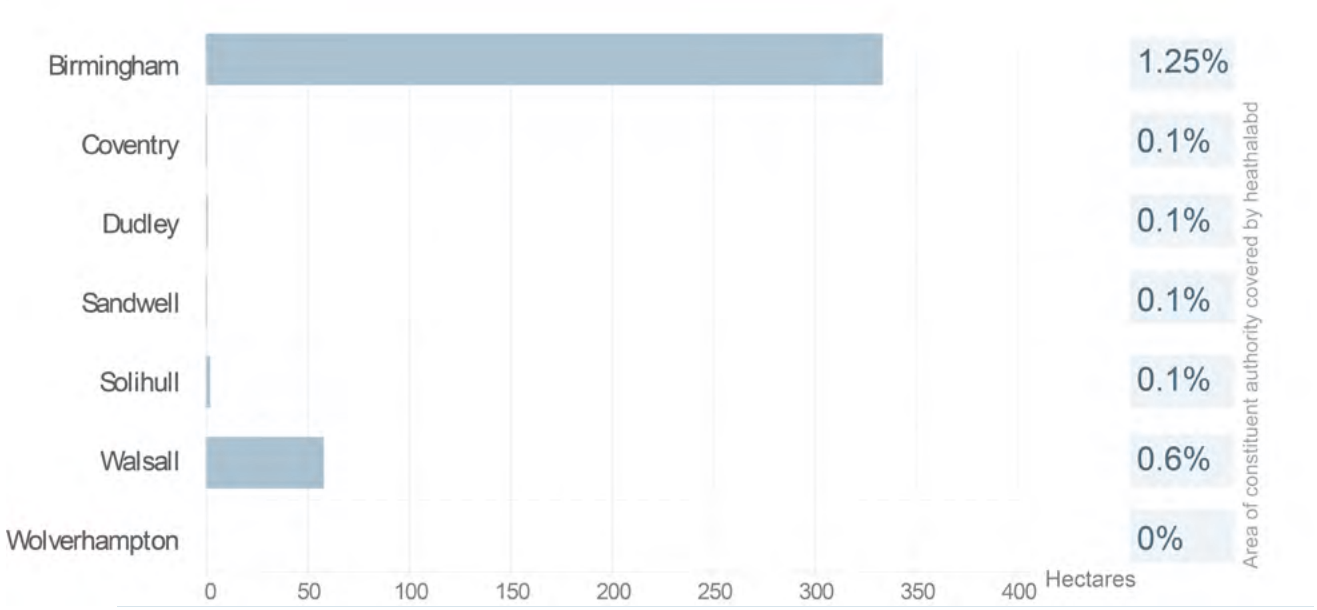


Figure 2-8: Heathland and shrub habitat across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

15 Heathland restoration | Canal & River Trust (canalrivertrust.org.uk)

Brownhills Common, Walsall

Species Spotlight: Adder

The adder, Britain's only venomous snake, inhabits woodland, heathland and moorland. Male adders usually have silvery-grey colouration, while females can be copper or brown. Both have red eyes and a distinctive, black zig-zag pattern along their backs. Adders are protected under the Wildlife and Countryside Act, 1981 and a Priority Species under the UK Post-2010 Biodiversity Framework. Adder face threats from habitat loss, fragmentation, and human persecution. Their reliance on specific habitats and communal hibernation sites makes them particularly vulnerable to environmental changes and development.

In the West Midlands, the adder's presence is sparse, largely due to high human population density and a lack of suitable habitats. Last confirmed sightings in the region date back to 2004, with adders historically found in a few specific locations. The species are rarely seen in urban areas unless adjacent to appropriate environments.

Local conservation efforts to support adder populations include work by the Warwickshire Amphibian and Reptile Team (WART) and Butterfly Conservation Warwickshire. WART maintains a database of reports, conducts site visits, and monitors potential habitats using artificial refugia. They focus on areas such as Sutton Park, Kenilworth, and MOD Kineton. Additionally, Butterfly Conservation Warwickshire have installed reptile hibernacula at Malpass Quarry in 2016. These efforts aim to mitigate habitat loss and support adder recovery in the region.

Adder © Natural England Allan Drewitt

Scrub

Habitat description

Scrub can be defined as an area of habitat comprising densely growing shrubs, bushes and low trees. Scrub forms crucial pockets within mosaic habitats and woodland. If left, scrub can transform open habitats into woodland via succession. Typically, scrub is comprised of willow, gorse, bramble, birch and blackthorn.

Scrub can be found in semi-urban environments as it typically can colonise empty land or bare ground in the process of succession – brambles can quickly spread, but especially on cleared ground from former buildings or sealed ground, buddleia plants can dominate for the first few years following abandonment. Whilst buddleia is not registered as a Schedule 9 Invasive, Non-Native Species (INNS), it is not native and spreads quickly, however, has considerable value to pollinators such as butterflies, and so its position in terms of biodiversity value is mixed or often contentious.

Conservation status and importance of habitat

Scrub is not designated as priority habitat however, it is an important habitat that can provide shelter for wildlife, nesting and roosting sites for birds and bat species, and a variety of food sources like fruits, nectar and seeds for invertebrates, small mammals and birds. The floral composition within dense scrub can be extremely variable, which in turn means that scrub habitats support a wide range of fauna (especially breeding birds). High quality scrub will consist of a range of woody plant species, such as

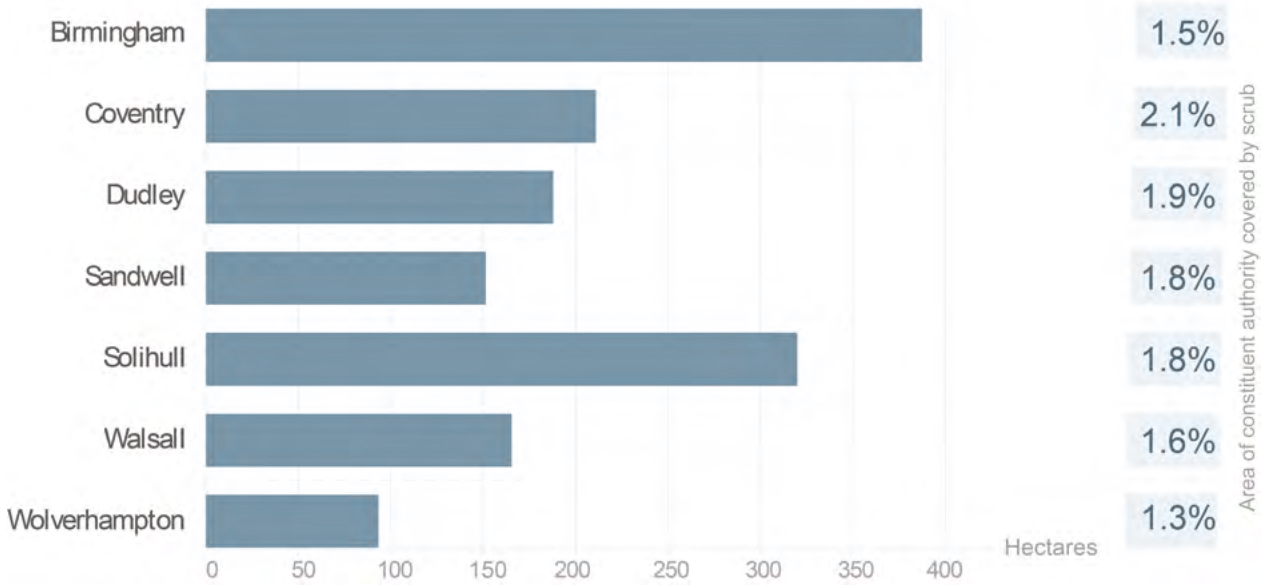


Figure 2-9: Scrub habitat across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

hawthorn, blackthorn, field maple and dog rose, and will have a varied structure with taller, older shrubs interspersed with more open areas of younger shrubs, bramble and saplings.

A total of 1, 517 ha of scrub is present across the West Midlands (Figure 2-9). The range in percentage cover of scrub between the constituent authorities is low, ranging from 1.34% to 2.14%. Coventry has the greatest percentage of scrub cover of constituent authorities within the WMCA and Wolverhampton has the smallest.

The transitional nature of this habitat often results in a lack of prioritisation for protecting this habitat. As described above, if left unmanaged it can develop into undesirable habitats. However, within an urban landscape, such as the West Midlands, it can perform a valuable function providing shelter for species to take advantage of and use as a stepping stone across a landscape lacking in other natural habitats.

Hedgerows

Habitat description

Hedgerows are crucial landscape features typical of the West Midlands countryside, used to enclose land. Hedgerows can form vital corridors for wildlife, connecting habitats while providing scrub, woodland and woodland understory flora habitat. Many hedgerows include ditch habitats, bank structures, fences and walls, which provide further diverse habitats for wildlife. Hedgerows found throughout the country are typically artificial in their origins, either as a result of wide woodland clearances for agriculture, or via planting to create boundaries between land ownership or to enclose livestock. Ancient hedgerows include those that were in existence before the Enclosure Acts, passed mainly between 1720-1840 and generally support a rich diversity of plant and animal species. They are also often associated with a rich cultural or heritage value.

Hedgerows require management, and many hedgerows have now fallen into neglect and become “relict” hedgerows. Relict hedgerows may be identified by gappy lines of hawthorn trees that are no longer stockproof or connected together, and typical hedgerow ground flora may be absent. Hedgerows can be sympathetically managed for wildlife, cut on a rotation every few years, to maintain a barrier, and may also be cut and flailed.

Hedgerows vary in their species composition, shape and size, and often consist of a diversity of tree species. Rural hedgerows often contain native species such as: hawthorn, ash, hazel and oak, whereas more urban or ornamental hedgerows often contain both native and non-native species including cherry laurel, privet and box.

Conservation status and importance of habitat

Within the UK, hedgerows may be classified as priority habitats if they meet a certain criteria relating to their size, species composition and level of connectedness. Hedgerows are key habitats for wildlife, supporting a vast diversity of floral and

faunal species. Hedgerows provide essential food, shelter and nesting/roosting sources for invertebrates, birds and small mammals,

such as hedgehogs. Hedgerows also allow species to travel and spread throughout the landscape, between habitat parcels. This connectivity is critical, especially for species that are unable to traverse large areas of open land. Older hedgerows have been demonstrated to typically have a greater diversity of woody species than newer hedgerows.

Hedgerows have declined rapidly over the last century. As intensive agriculture accelerated from 1950, approximately 190,000 km (118,000 miles) of hedgerows have been lost across the UK. The increase in usage of chemicals in agriculture has also contributed to the decline in hedgerows and hedgerow conditions, causing physical damage and reducing diversity.

Occurrence and trends in the West Midlands

Hedgerows in the WMCA area are typically found on the urban fringe – such as in Woodgate Valley Country Park or Sandwell Valley Country Park. However, old hedges can still be found within densely urban areas, such as along old roads and boundaries. However, they are typically very small and isolated and are vulnerable to clearance if their age and value is not appreciated. Recording these hedgerows is therefore of importance if they are to be protected.

The UK Centre for Ecology & Hydrology created a model of hedgerows across England, which shows a wide range in total hedgerow lengths across the constituent authorities. The model underestimates hedgerow lengths, in particular for the West Midlands, as data is focused on rural environments with urbanised regions excluded due to levels of uncertainty and likely low densities of hedgerows. Wolverhampton contains nearly 19 km of hedgerows whereas Solihull contains over 510 km. Birmingham, Coventry and Walsall have total lengths between 118 km and 132, with Dudley and Sandwell containing 55 km and 28 km respectively.

Sutton Coldfield © Ellen Miller

Species Spotlight: Hedgehog

The European hedgehog is a small brown mammal and perhaps the most familiar wild animal in the UK. They can be found in parks and gardens where they eat invertebrates, amphibians, bird's eggs, beetles and worms. Hedgehogs hibernate over winter in a nest of leaves or logs called a 'hibernaculum'. The species are legally protected under the Wildlife and Countryside Act, 1981 and classified as a Priority Species under the UK BAP.

Their population has declined significantly in recent decades, with recent estimates indicating a 33% decrease, and as such, the IUCN Red List marks them as vulnerable to extinction.

Records of European hedgehogs were returned from every constituent authority of the WMCA. Various organisations have taken significant actions to support hedgehogs, for example, the People's Trust for Endangered Species (PTES) has conducted surveys in Warwickshire using tracking tunnels. The WWT has performed targeted garden surveys, collected over 3,000 hedgehog records, and implemented torchlight monitoring programs. Local initiatives include the Warwickshire Association of Local Councils (WALC) and the Warwickshire Federation of Women's Institutes (WFWI) promoting hedgehog recording, and Severn Rivers Trust managing slug pellet use. The WWT's "Help for Hedgehogs" campaign has improved habitats through community involvement and established Hedgehog Improvement Areas (HIAs) in Solihull and Rugby. Other contributors include the Arden Farm Network for promoting wildlife- friendly farming practices, the Canal & River Trust for installing hedgehog hotels, and the Stour Valley Wildlife Action Group for public education.

Hedgehogs © Natural England Allan Drewitt

Grasslands

Across the WMCA, the percentage cover of modified grassland ranges from 12 to 28%, with Dudley having the smallest percentage cover and Solihull having the largest. The percentage cover of semi-natural grasslands ranges from 3 to 11.7%, with Coventry having the smallest percentage cover and Walsall having the largest (Figure 2-10).

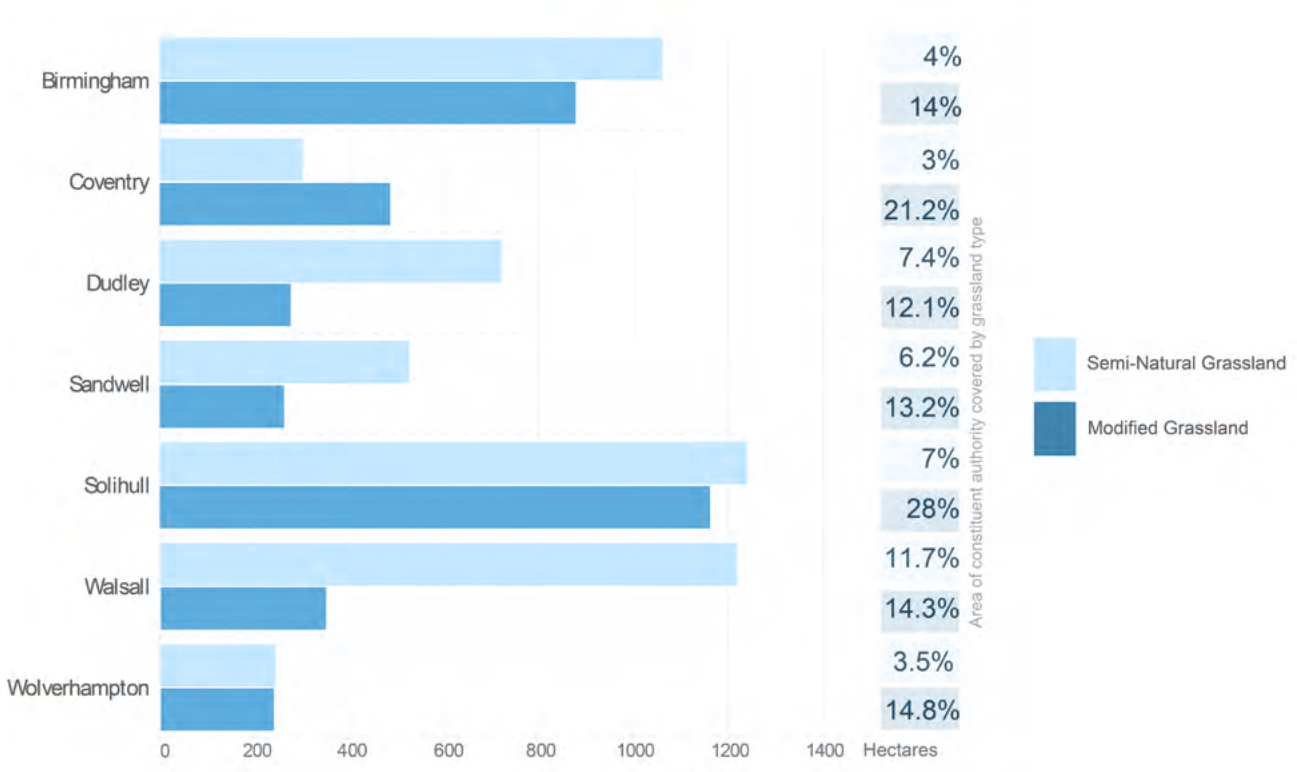


Figure 2-10: Grassland habitat across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

Semi Natural Grasslands

Habitat description

Semi-natural grasslands are any habitats that are dominated by grass species, but exclude areas that are highly modified, such as amenity grass, lawns in domestic gardens, and intensively managed grasslands for agriculture (such as temporary leys). Semi-natural grasslands can be found within pastoral farms, supporting grazing animals like sheep, cattle or horses. Grassland meadows can also be cut for hay or silage.

A variety of grassland types occur in the West Midlands. Neutral grasslands develop on soils with a neutral pH whereas calcareous grasslands develop on soils with a higher pH, typically overlying limestone geology which creates lime- rich soils. Calcareous grasslands can occur in areas where limestone has been excavated. Acid grasslands tend to develop on nutrient poor, acidic soils with poor drainage, and can occur in close association with other habitat types such as heathlands. Poorly drained or wet habitats can also result in wet grassland types, dominated more by rushes and sedges, and can include purple moor grass and rush pastures, wet heathlands, scrubs or swamps, or along floodplain meadows by rivers.

Grasslands require some level of management to maintain them, or they are at risk of being colonised by scrub species and through the process of succession, trend towards woodland habitats. Typical management includes grazing by large animals. Overgrazing however can result in a short sward that is species poor, containing only the most tolerant species which are often the least ecologically valuable.

Conservation status and importance of habitat

Within the UK, there are several classifications of priority habitat for grasslands and numerous UK BAPs. Across the WMCA, there are five grassland types which are designated as priority habitat, these include coastal and floodplain grazing marsh, lowland calcareous grassland, lowland dry acid grassland, lowland meadows, and purple moor grass and rush pastures. In total, priority grasslands cover 499 ha over the WMCA.

Grasslands can contain a variety of herbaceous and grassy species, dependent on the soil type. Flora species found on semi-natural grasslands are often indicative of the soil conditions and as such are called “indicator species”, such as heath bedstraw and sheep’s sorrel for acid grasslands, common knapweed and common sorrel for neutral grasslands and common bird’s foot trefoil and wild thyme for calcareous grasslands.

Grasslands are important habitats for a variety of ground nesting birds, including skylark and lapwing, and also provide an abundance of nectar and pollen sources for invertebrate species. Grasslands are also home to reptiles, and special grassland types even support a diversity of fungal species, such as wax- cap mushrooms.

Across the UK, many traditionally managed meadows have been lost over the last century, particularly in the latter half of

the 20th century. Fertiliser, herbicide and pesticide inputs dramatically increased across the UK following the second world war, and resulted in a dramatic reduction in species-rich grasslands, as slower growing, less tolerant species were replaced by fast-growing grass species due to the drive for more productive land. Other threats to grasslands include the direct conversion to different land use types, including croplands, woodlands via tree planting schemes, or to development.

Today either remnant meadows or newly created species rich grassland meadows need careful management to survive, including a sensitive grazing regime or a yearly cut with cutting removal, to ensure nutrient inputs are minimal.

Occurrence and trends in the West Midlands

Approximately 13,000 ha of grassland was recorded in the Birmingham and Black Country region in the early 1980s[16]. Amenity grassland such as in playing fields or urban parks was excluded from this amount. Trends in subsequent years typically point to a greatly reduced grassland cover, with few areas that have been restored, when compared to the amount of woodland replanting that occurred in the region during the same time period.

Semi-natural grasslands now cover 5,309 ha of the West Midlands. Most of the grasslands in the region are neutral grasslands, growing on soil with a neutral pH. Examples of high-quality meadows and grasslands include Monkspath Meadow SSSI in Solihull, Stonebridge Meadows in Coventry, Illey Pastures SSSI in Dudley, Sandwell Valley, and Northycote Farm in Wolverhampton.

Calcareous grassland is rare across the region comprising of just 16 ha. These regions are typically associated with limestone outcrops or limestone quarries or railway cuttings, as this provided the calcareous soil type. Locations include Wren's Nest NNR and Sedgley Beacon in Dudley. There is a higher abundance of acid grassland, 207 ha, found where both the bedrock geology and superficial geology result in sandy, gravelly or pebbly soils. Sutton Park and Barr Beacon contain areas of acid grassland, and Dudley in the 1980s had a cover of approximately 223 ha.

Smaller regions of purple moor grass and rush pasture occur at Brownhills Common and Clayhanger in Walsall, and Sutton Park also contains areas of this habitat. Flood meadows are found at Park Hall Nature Reserve in Birmingham. Remnants of this habitat may exist along watercourses today that are managed in a more amenity grassland style, such as in regular mowing, and there could be opportunity to restore habitat type based on a changed mowing regime.

In the 1980s, marshy or wet grassland covered 91 ha of Birmingham and the Black Country.

Studies on grasslands in Birmingham and the Black Country found that over 1,000 ha of grassland (either improved or semi-improved types) was lost to development between 1983 and 2001 in Birmingham and the Black Country, which at the time represented over 8% of the total coverage of

16 Trueman, Poulton & Reade (2013) Flora of Birmingham and the Black Country. Pisces Publications, on behalf of Ecorecord, the Wildlife Trust for Birmingham and the Black Country and Birmingham and the Black Country Botanical Society

this habitat type. A study that analysed aerial imagery in the Sandwell Valley are showed an increase in scrub and woodland habitats between 1977 and 2004, but this occurred due to succession on grassland habitats and resulted in a loss in the total area of grassland in this region.

Modified Grasslands

Habitat description

Modified grasslands include areas managed intensively for farming, improved grasslands, and amenity grassland areas typically found in towns and cities, such as public parks or gardens. Amenity grasslands can be found on playing fields, open spaces in urban parks or small regions in towns, and on golf courses and tennis or other sports courts. They are often mown frequently and to a very short sward height, and may have been seeded with a seed mix. Herbicide and fertiliser applications may also occur.

Such grasslands are typified by poor species diversity, an abundance of fast- growing species tolerant of disturbance and fertile, nutrient-rich conditions, and are managed intensively.

Conservation status and importance of habitat

Modified grassland is not designated as a priority habitat as it has a lower conservation value than semi-natural grassland types., This is because the ability for species to survive in the heavily modified and often high-footfall environments is low. For example, rarer plant species are often not tolerant of excessive trampling, mowing or nutrient rich soils typical of park grassland.

However, under improved management modified grassland can be restored to other grassland types, even in some high-use environments. This will typically require methods of reducing the amount of nutrients in the soil to encourage a higher plant species diversity. Some grassland seed mixes that comprise a higher proportion of native wildflowers than a typical lawn, use species that are tolerant of trampling and mowing yet still flower and provide important nectar and pollen sources for a variety of invertebrate life, which then attracts other wildlife such as birds and small mammals.

Plantlife International run a yearly campaign of “No-mow May”, encouraging the public to not mow lawns for the month, which allows many herbaceous species to flower and set seed. More urban open spaces are altering mowing regimes on road verges and in urban parks, to provide more areas of grassland that is allowed to reach a higher sward height and flower, with mown pathways through still allowing access.

Occurrence and trends in the West Midlands

Modified grassland is the largest natural habitat type in the West Midlands at a total of 15,708 ha, three times higher than the amount of semi-natural grassland in the region. Therefore, there is a key opportunity to enhance these areas of modified grassland back to more semi-natural grassland types, and increase their value for wildlife, as well as increasing their ability to provide ecosystem services like pollination and carbon storage.

Wetlands

Habitat description

Wetlands are a broad habitat type, although they only normally make up a small proportion of habitat area. This is because they are restricted in their range by only occurring in places where the water level remains high or close to ground level for much of the year. Wetland habitats are often called “swamps” and “marshes”, and can occur at the margins of waterbodies, ditches, around springs at the head of streams and often occur in close proximity to other habitats such as marshy grasslands and wet woodlands.

Wetland habitat types can include reedbeds, bogs, fens, flushes and aquatic marginal vegetation. Reedbeds are a type of wetland habitat, that are dominated by common reed. They can occupy large proportions of lake or pond margins, rivers and ditches. Reedbeds are important for a number of bird species, some of which, e.g. reed warbler, nest high up within the reed stems, and swallows and martins roost in reedbeds. The dry margins of reedbeds can also be home to water voles and otters.

Conservation status and importance of habitat

Within the UK, there are several classifications of priority habitat for wetland across the WMCA, the only wetland priority habitat present is lowland fen, which covers 40 ha. Lowland Fen is also recognised as an ‘irreplaceable habitat’. Wetlands are very important habitats and are especially important when considering “nature-based solutions”, as they assist in reducing water flows, which is useful in flood management, as well as helping to improve water quality by filtering out pollutants and nutrients. Wetlands also store carbon, particularly where peat soils can develop in the anaerobic conditions, and they support a diversity of plant, amphibian and invertebrate species in particular.

However, good management of wetland habitats is important. As wetland habitats are reliant on high groundwater tables, they can be sensitive to water quality, chemistry, level of pollutants and potential changes to hydrological regimes due to climate change, such as particular regions

experiencing drier conditions. In addition, some wetland habitat types represent early successional communities and if unmanaged or neglected, can be overtaken by scrub encroachment or willow and birch growth, eventually drying up and succeeding into woodland habitat types. Wetland habitats transition into other important habitats, such as wet woodland, which is important for species such as willow tit.

Occurrence and trends in the West Midlands

Wetlands habitats are the smallest habitat type by area in the West Midlands, with only an estimated 125 ha in total across the region and miniscule or no records of this habitat occurring in Wolverhampton and Dudley (Figure 2-11).

Many areas of wetland habitats in the West Midlands are on former extraction and quarrying sites, as these sites often reached at or below the groundwater table levels. The habitats that develop can vary hugely from site to site as they are highly sensitive to hydrology, water quality and chemistry, the previous land use, as well as levels of existing management and surrounding land use.

Lady Pool in Walsall has significant stands of reedbeds. Herald Way Marsh, located north of Brandon Marsh on the outskirts of Coventry, contains a small area of wetland habitat types, including reedbed, swamps and emergent vegetation.

Lowland fen is a particular wetland habitat type, which has a very rare occurrence in the West Midlands. It is only found around Bracebridge Pool in Sutton Park. The specialist wetland plant species recorded here include marsh pennywort, bogbean, marsh cinquefoil and marsh valerian.

Stubbers Green is protected as a SSSI and consists of a shallow pool which developed in a hollow that is believed to be caused by mining subsidence. The site consists of moderately thick peat, with a carpet of bog moss and common cottongrass. It received protection after being damaged in the 1980s and is managed by Walsall Council. In recent years it has reported to have become dominated by willow scrub, which can quickly colonise over the bog habitat and could cause the loss of this rare habitat type if not managed carefully.

The Tame Valley Wetlands are the first designated Nature Improvement Area (NIA) in Warwickshire, Coventry and Solihull. The area has historically been impacted by drainage, deforestation, and pollution, however recent efforts to transform the site has resulted in cleaner water and the development of interconnected wetlands on former industrial sites. The Tame Valley Wetlands sit between Birmingham and Tamworth and serve nearly 2 million residents, making its regeneration important as we seek to improve accessibility of green and blue spaces in the region.

As most of the wetland habitat in the West Midlands is small in size and restricted to springs, watercourses and flushes as opposed to large scale areas of peat bog, they can be vulnerable to isolation and degradation if not appreciated and valued. The isolated nature can mean species diversity is limited, as they are unable to be colonised from adjacent wetlands. In addition, smaller wetlands are more susceptible to alterations to hydrology, such as drought, or one-off pollution incidents. Susceptibility to drought means that wetlands are particularly vulnerable to the effects of climate change.

On a positive side, the importance of wetlands as nature-based solutions means that they are being created across the UK in natural flood management schemes or as sustainable urban drainage features (SuDS).

The ‘Love Your River Stour’ project received funding from the WMCA Community Green Grants to restore the River Stour and its tributaries which have historically had high levels of pollution. The project involves community engagement, fostering stewardship for the river and its surrounding habitats and enhancing the overall ecological status of the river.

The Trent Rivers Trust delivered a river restoration a river restoration project at the Hatchford Brook in Sheldon Country Park, to south-east of Birmingham. Two weirs have been removed, riverbanks have been reshaped and wetland areas have been created. Local volunteers from the Waterside Care Group participated in the restoration.

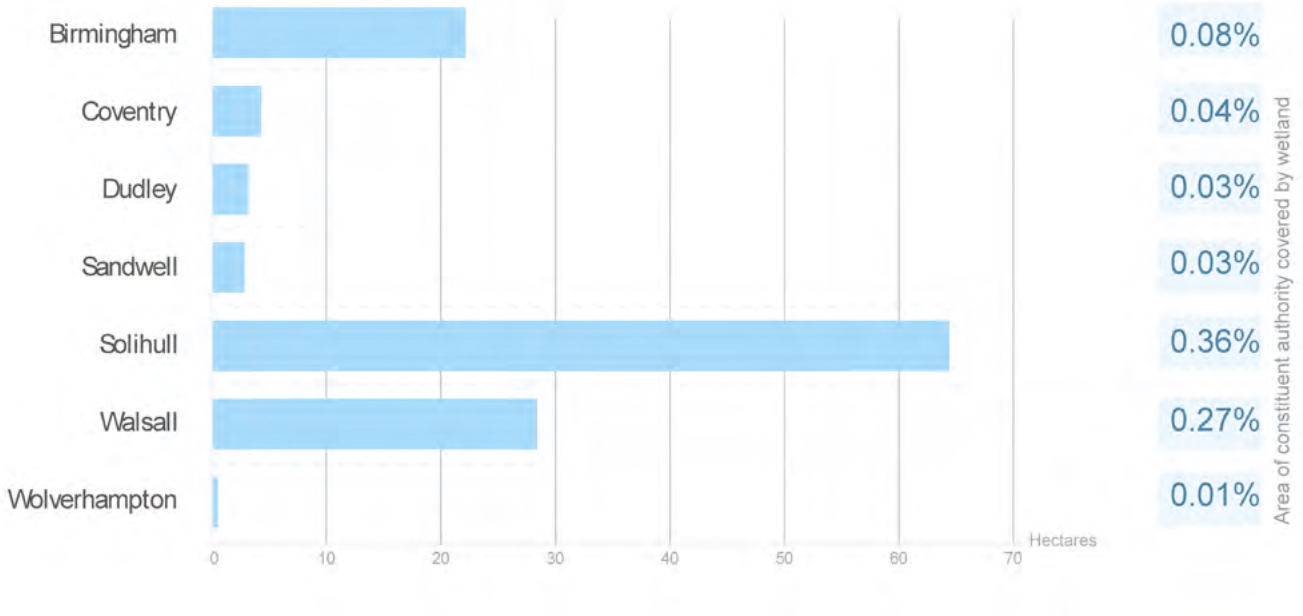


Figure 2-11: Wetland habitat across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

Standing and Running Water

Lakes, Ponds and Reservoirs

Habitat description

Lakes, ponds and reservoirs are classed as “standing water”, as opposed to watercourses where water flows. Typically, lakes are larger than ponds (a lake is typically >1-2ha, and ponds smaller than this) and ponds are more likely to have shallow water and margin habitats that can contain an abundance of different plant species across an environmental gradient from dry slopes to deep water. Lakes tend to have distinct open-water regions where algae and submerged plants persist.

Many of these waterbodies are artificial in origin – reservoirs are for water storage, lakes may form from flooded gravel pits and quarries, and ponds may be created for ornamental features or as drainage features (such as SuDS).

Conservation status and importance of habitat

Some lakes, ponds, rivers and streams may be classified as a priority habitat if they meet a certain criterion. Reservoirs are not classified as priority habitats.

The diversity of plants that can grow on waterbody margins include reeds, pondweeds, rushes and reed-mace. Waterbodies are important to many iconic insect species such as dragonflies, damselflies and water beetles, which in turn attract larger animals like herons, frogs, great crested newts and grass snakes.

Excessive nutrients that enter lakes can result in them becoming “eutrophic”, i.e. high in organic nutrients and minerals such as phosphates and nitrates. Algal blooms can create oxygen-starved environments in the lakes, which is detrimental to several wildlife groups, such as fish.

Run off from roads, pollution from industrial sites and farm run-off can contribute to waterbodies becoming eutrophic. Buffers of natural vegetation around waterbody margins can help to intercept pollutants in runoff and ensure water quality remains high.

The margins of vegetation around waterbodies are of high value for wildlife, and especially in the case of lakes and reservoirs, are the area that contains the highest diversity of species. Wetland birds that use waterbodies for resting, foraging and nesting include herons, egrets, Cetti’s warblers and reed warblers, and many invertebrates complete some aspect of their life cycles at water margins in mud or gravel substrates.

INNS are those which have been introduced to a region by humans, deliberately or accidently, and whose growth and spread cause damage to the local environment, economy or people’s health and lifestyles.

There are numerous species of INNS that are aquatic plants and spread quickly across waterbodies and watercourses. These include New Zealand pygmyweed and water fern, which when growing in waterbodies can outcompete the growth of native plants and choke the surface of waterbodies completely, shading the bottom and contributing to eutrophication.

Occurrence and trends in the West Midlands

In total, an estimated 980 ha of standing water exists across the West Midlands. The largest total is found in Birmingham at 330 ha, whereas Coventry and Wolverhampton have approximately 50 ha each.

Reservoirs and large standing bodies of water occur across the region. Notable examples include Edgbaston Pool in Birmingham which is designated as a SSSI, and Edgbaston Reservoir, which is designated as a LNR and a Site of Nature Conservation Interest.

Lakes in the region are typically ornamental and are found in parks and greenspaces, such as at Brueton Park in Solihull, West Park in Wolverhampton, or Mary Stevens Park in Stourbridge. Lakes and ponds in urban greenspaces or public parks typically contain very high levels of nutrients – this restricts the growth of aquatic plants as typically algal blooms can dominate in the summer months, that starve the lakes of oxygen and prevent sunlight reaching the lake floor.

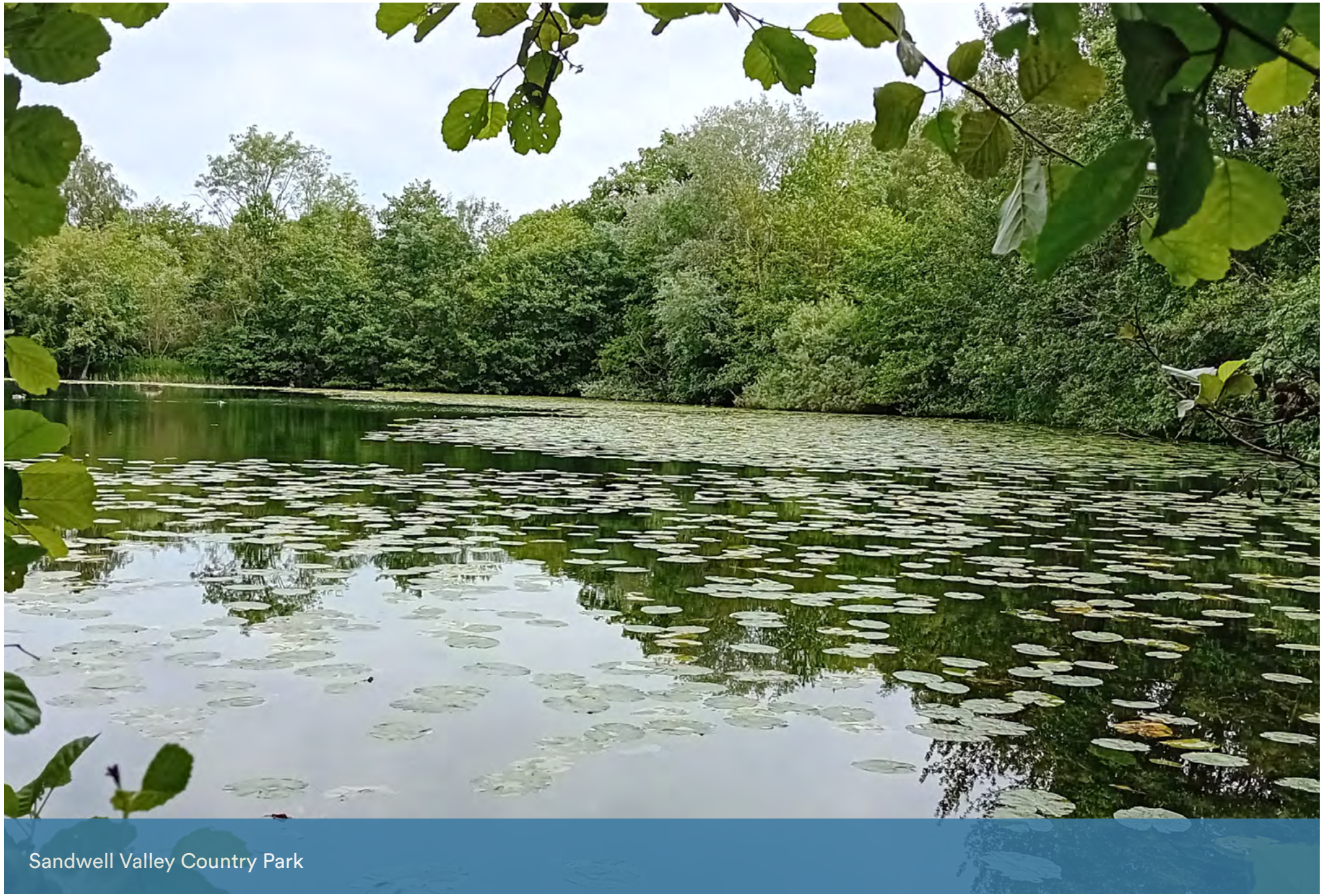
Although no published data exists, a certain proportion of gardens across the West Midlands contain ponds. These may range from being highly ornamental in nature, thus with limited value for native wildlife, or specifically created wildlife ponds, as the trend towards nature-friendly gardening practices grows. Ponds also exist outside of private gardens: the Birmingham and the Black Country Wildlife Trust identified over 1000 ponds through a variety of sources (excluding garden ponds)[17], with approximately 5% meeting Priority Habitat criteria as they may contain Red Data Book or protected and rare species. The study covered the Birmingham and Black Country area and examples of these ponds include Elm Road Pool (Birmingham), Clayhanger (Walsall), and Fens Pools, Dudley. Fens Pools is designated as a SAC for its population of great crested newts and swamp and wetland habitats.

Smaller ponds though are threatened by loss due to development or due to poor management – succession can mean reedbeds take over ponds, dry them out, and allow scrub and young trees such as willow and birch to grow, meaning small ponds can be lost in a matter of years.

A comparison of data collected in 1982 and 2001 in Walsall showed a loss of nearly 40% of the borough's area of ponds[18].

17 Birmingham And The Black Country Biodiversity Action Plan (bbcwildlife.org.uk)

18 Trueman, Poulton & Reade (2013) Flora of Birmingham and the Black Country. Pisces Publications, on behalf of Ecorecord, the Wildlife Trust for Birmingham and the Black Country and Birmingham and the Black Country Botanical Society



Sandwell Valley Country Park

Species Spotlight: Great Crested Newt

The great crested newt is the UK's largest newt (up to 20 cm long) and can be identified by its black body, spotted flanks and orange underbelly. They have an average lifespan of 15 years, breeding in ponds surrounded by woodland, hedgerows, marshes and grassland.

The great crested newt is protected under a number of wildlife protection laws such as Annex IV of the European Habitats Directive and the Wildlife and Countryside Act 1981 (as amended). Their populations can be found across lowland England and Wales and great crested newts are species of international importance. UK populations are in decline, mostly as a result of the loss of breeding ponds since 1900 from neglect, drainage, infilling, eutrophication from fertilisers and the introduction of fish.

Great crested newt populations are widely distributed across the West Midlands. In the north of the region, nearly one quarter of ponds hosted the species. The species is present in Walsall with a thriving population in Fibbersley LNR. However, they are in decline across some areas of the region, such as in Coventry, where a particularly high proportion of ponds have either been lost or become highly degraded.

Efforts to counteract these declines have been made through dredging and scrub removal, which have successfully restored some populations. The West Midlands is actively involved in the Million Ponds Project, spearheaded by the Freshwater Habitats Trust (FHT), which focuses on creating and maintaining new ponds annually.

Local conservation organisations such as the Warwickshire Amphibian and Reptile Team (WART) and Warwickshire Wildlife Trust (WWT) have also played a crucial role restoring the species. WART has organised the restoration of existing ponds and the creation of new ones, with successful newt breeding populations observed in newly established sites. In addition, WWT have overseen the construction of new ponds and collaborated on district licensing schemes to enhance habitats.

Great Crested Newt © Natural England Peter Wakely

Rivers and Streams

Habitat description

Rivers and streams are classed as “running water”, with large areas of surrounding land collecting water known as catchments. Rivers and streams transport rainwater and water from springs from high to low altitudes, flowing into each other as tributaries before reaching the sea. Rivers vary depending on the local geology, amount of rainfall, and degree of human modification they have experienced. This in turn affects the diversity of plant and animal communities they support.

Rivers and streams are important elements in floods and their management. Run-off on artificial surfaces like tarmac can mean large volumes of rainwater quickly flow to rivers and streams, overwhelming them and leading to burst banks and flooding. Suitable and sustainable management of rivers and streams in their upper reaches is important in dictating the level of flood risk further downstream.

Conservation status and importance of habitat

Within the UK, rivers and streams can be classified as priority habitats. Watercourses are very important natural corridors, not only for aquatic species such as fish, but also for numerous bird species such as kingfishers and grey wagtails. They also serve as a key commuting route for bat species, and foraging resource for bats that hunt over watercourses and waterbodies such as Daubenton’s bat. White clawed crayfish, a rare and threatened species, remains present within the Midlands region and requires good quality freshwater streams, rivers and canals to survive, burrowing under submerged tree roots, woody debris and earth bank burrows. These crayfish are prone to competition for their ecological niche by the INNS signal crayfish, which spread a fungal pathogen that is lethal to the native species.

Rivers and streams are important for such a variety of wildlife because they contain many different features at small and large scales. They can vary between small brooks with gravel beds that support invertebrates such as stonefly and mayfly nymphs, to large, slow-flowing rivers with shallow meandering banks surrounded by floodplains with species such as black poplar or floodplain meadows.

Rivers and streams have been heavily modified by humans, which has damaged their value for nature as well as their ability to transport water in times of flood. Culverting, channel straightening and concreting channel beds and or fortifying banks with artificial structures and walls destroys natural habitats along watercourses and channels water more quickly through, leading to downstream flooding. Migratory species such as trout cannot pass over manmade barriers like weirs and dams without provision of fish passes or other suitable bypasses. Pollution from agricultural runoff and road runoff reduce the water quality in rivers and streams, reducing the diversity of plant species that can grow on their margins. Additionally, rivers in the region face pressures from point source pollution originating from wastewater

treatment plants, septic tanks, and industrial activities. These sources can introduce contaminants and nutrients

into watercourses, impacting water quality and aquatic ecosystems which is a major issue within urban catchments, where the problem is exacerbated by the high density of potential pollution sources.

Like in standing water habitats, INNS are a significant threat to river and stream habitats too. Himalayan balsam, lesser pondweed, Australian swamp stonecrop and floating pennywort can all spread rapidly in rivers and streams, as currents can wash plant matter and seeds downstream.

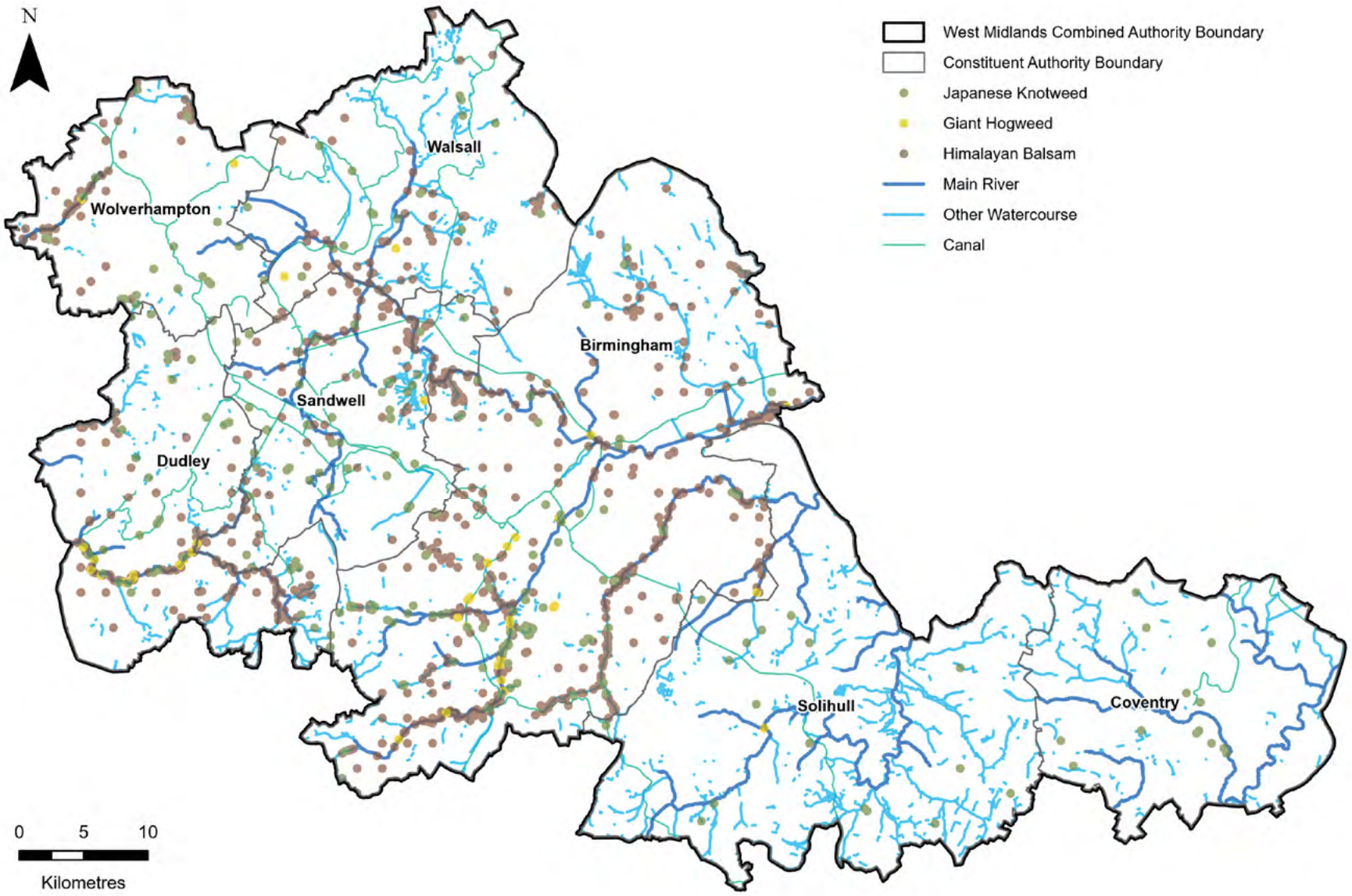


Figure 2-12: Invasive non-native species records along watercourses in WMCA area.

Invasive Species data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024. © Environment Agency copyright and/or database right. Contains OS data © Crown copyright and database right (2024)

Occurrence and trends in the West Midands

Rivers and streams are shown in Figure 2-12 alongside three key invasive non- native species records which are heavily associated with these watercourses.

The WMCA hosts nearly 768 km of rivers and streams. Over 185 km of water flows through Brimingham, 246 km through Solihull, and only 16 km of rivers and streams are located in Wolverhampton (Figure 2-13). The Environment Agency has determined that 37% of the total length of waterbodies within the WMCA area are in good ecological condition; however, 21% are in poor condition and a total length of 1.4 km are in bad condition (Figure 2-14). Of these waterbodies only 106 km out of a total length of 537 km are not artificial or heavily modified watercourses.

The River Blythe is designated as a SSSI as a particularly fine example of a lowland clay river with a wide range of natural structural features which support diverse plant communities. The Warwickshire Wildlife Trust have been overseeing a restoration project on over 140 ha within the SSSI to improve the river for wildlife,

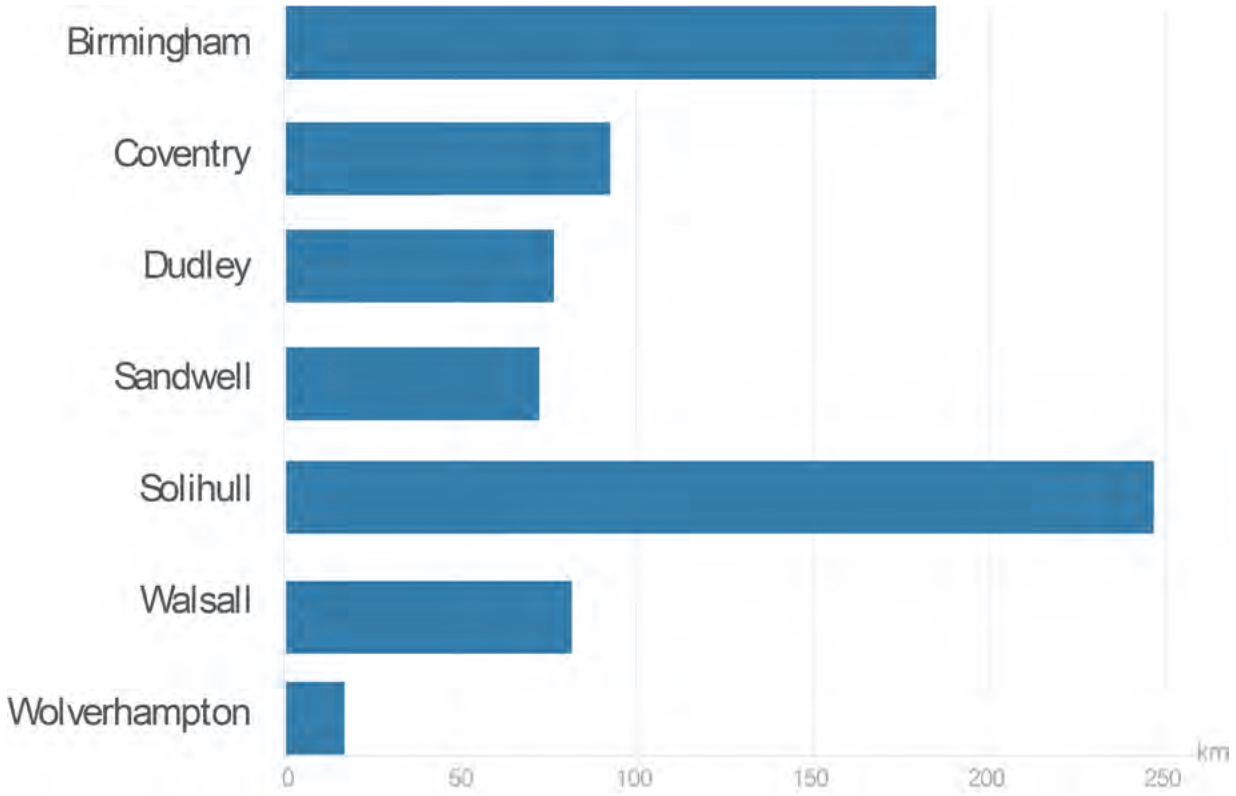


Figure 2-13: River habitat across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

including invertebrates, fish, mammals and amphibians, as part of the Tame Valley Wetlands Team[19].

The Midlands Crayfish Partnership have launched a project to map and restore white-clawed crayfish habitat across Birmingham, Dudley, Sandwell and Wolverhampton. The project involves a captive breeding programme with the Sealife Centre in Birmingham, along with a variety of awareness raising activities and workshops.

Trent Rivers Trust and the Environment Agency are currently undertaking feasibility studies into weir removal and wetland enhancement of former wastewater treatment lakes at Lea Marston. This project would aim to provide additional wetland, woodland and grassland habitats through river restoration alongside community engagement opportunities, such as bird hides and interpretation boards.

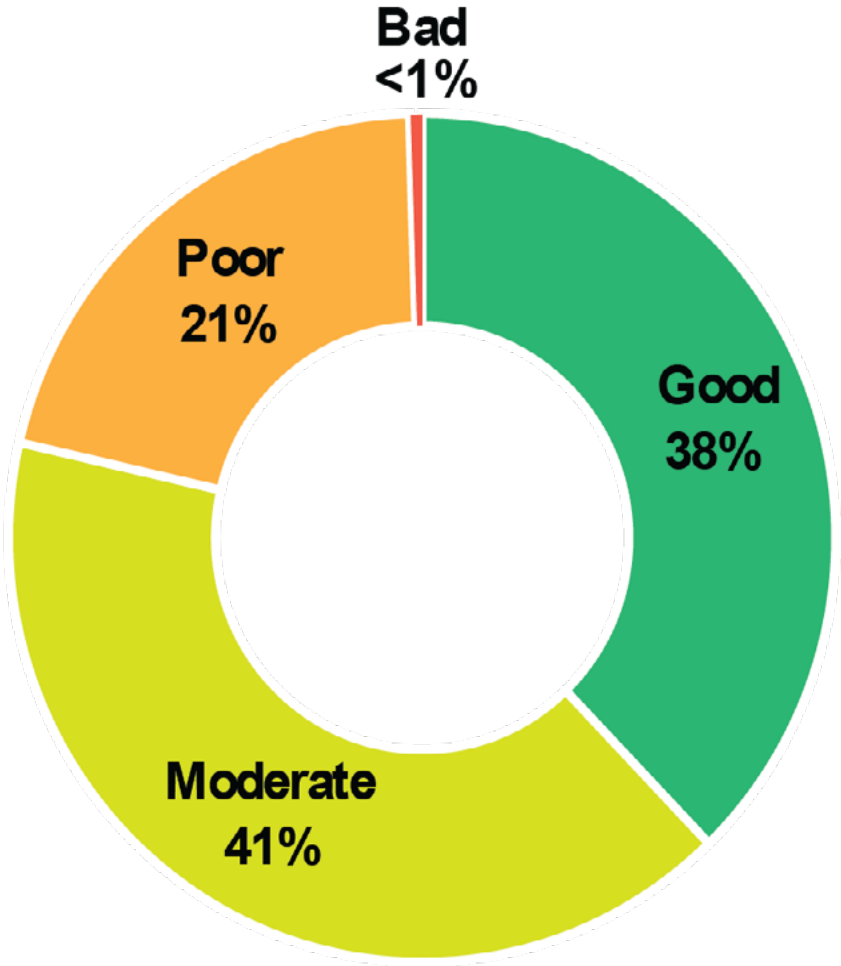


Figure 2-14: Condition of rivers across WMCA area. © Environment Agency

19 River Blythe to be restored in highly ambitious new project | Warwickshire Wildlife Trust

River Blythe at Brueton Park © SLR

Species Spotlight: White-Clawed Crayfish

The white-clawed crayfish is a native freshwater crustacean distinguished by its bronze coloration and pale cream or rose undersides on its claws. This species typically inhabits small, shallow freshwater streams. Although it has a lifespan of 8 to 12 years, the white-clawed crayfish faces significant threats from the INNS North American signal crayfish, which carries a disease to which the native species is highly susceptible. This invasive species has contributed to the decline of the white-clawed crayfish, which is now listed as endangered on the global IUCN Red List of Threatened Species and is protected under the UK's Wildlife and Countryside Act, 1981. Despite being widespread in England and Wales, the white-clawed crayfish remains rare, and its population is under severe pressure. Approximately one quarter of the world population of this species is estimated to occur in the UK.

The Midlands Crayfish Partnership, covering Birmingham, Dudley, Sandwell, and Wolverhampton, has received £59,430 from the WMCA's Community Environment Fund. This shall support its efforts in mapping native and non-native crayfish populations, coordinating conservation initiatives, and collaborating with the Sealife Centre in Birmingham on a breeding program to bolster declining native species. To achieve this, ark sites will be identified to provide safe havens for new populations and donor populations that can be used to populate these sites. The project will also host walks, talks, workshops, and family activities to raise awareness about the importance of crayfish in maintaining healthy watercourses and their role as a food source for fish, birds, and mammals.

Efforts to conserve and increase the white-clawed Crayfish population in Warwickshire involve regular surveys by the Environment Agency and partners, collaborative planning to mitigate development impacts, and consideration of new refuges like Terry's Pool pending environmental DNA results. Habitat management, policies, and improved biosecurity measures are in place to conserve habitats, enhance water quality, and prevent invasive species. Educational initiatives further support these conservation efforts.

© Natural England Paul Glendell

Species Spotlight: Black Poplar

The black poplar is a large, native tree found primarily in floodplains, gravel pits, and ditches across England, notable for its cultural and historical significance. Standing 20-25 meters tall, it features deeply fissured bark, knobbly bosses on its trunk, and red catkins. Once a common part of the landscape, the black poplar has seen a dramatic decline, with only about 7,000 individuals remaining in the UK, including just 600 females. This decline is largely due to habitat loss from agricultural drainage, limited natural reproduction, and the prevalence of genetically similar clones. Conservation efforts are crucial, as the tree's ability to reproduce relies on the proximity of male and female specimens, which has become increasingly rare.

In the West Midlands, the black poplar has seen significant distribution changes due to historical agricultural practices and hybrid replacements over the past 200 years. Several conservation groups and local councils such as the WWT have sought to protect and conserve the species. These organisations are involved in propagating black poplar cuttings for replanting in community parks. Conservation efforts in and around Warwickshire include the "Big Tree Hunt" initiated by Steven Falk in 2005 which significantly increased recorded specimens from 30 to nearly 600 by 2011.

Key locations for black poplars include floodplains along rivers such as the Blythe, Tame, Alne, Avon, and Dene, alongside municipal plantings in parks and gardens. Despite their historical presence, many of the existing trees have been deliberately planted for aesthetic and functional purposes, leading to a population lacking genetic diversity. Finally, the West Midlands Interchange is actively working to conserve the species by tackling specific challenges to their viability such as control of the pests which affect root development.

Black Poplar © SLR

Canals

Habitat description

Canals are artificial waterbodies created for transport, typically have very little flow, and thus share more similarities with standing waterbodies like ponds and lakes, than watercourses like rivers or streams. Canals characteristically have a towpath next to them from their previous transport function, and this often comprises a grassland verge and hedgerow or tree line. Canals are still used to move water supplies around the country and have an important recreational function.

Conservation status and importance of habitat

Whilst canals are highly modified habitats, the bridges, tunnels, locks and weirs can also provide valuable habitat for wildlife. In a similar way to rivers and streams provide a vital corridor for a variety of floral and faunal species including bats, invertebrates and birds, through what can be large tracts of urban landscape. The towpath habitat can provide a green corridor adjacent to the blue canal corridor, and thus be of benefit for a variety of floral and faunal species bats, invertebrates and birds. A diversity of marginal vegetation can grow along canal banks, including reedbeds and neutral grassland, of value to amphibian species such as newts and frogs as well as water vole and otter. Within the WMCA area, the Canal & River Trust manages 223 ha of area habitats and 137 km of hedgerow habitats alongside the Trust's canals and rivers.

Whilst the spotlight can often fall on trees, peatlands or wetlands in their potential for climate change mitigation, canals can also help in a societal transition to a low-carbon future and help achieve net zero goals. For example, active travel routes along canal towpaths can reduce the use of cars; hydropower schemes on canals can generate electricity, and canal water can also be used to heat and cool buildings[20].

Some canals suffer from poor water quality, through polluted runoff from roads or agriculture, whereas others may have lost their valuable towpath habitat or be separated from other canals or watercourses by artificial barriers. Restoration efforts can seek to improve these factors, as well as improving their accessibility for people. However, it would be important to ensure that active travel routes are designed sensitively to nature, (for example by using permeable or natural pathways rather than tarmac paths) so that canals can still be of benefit to both people and wildlife.

Occurrence and trends in the West Midlands

Canals increased drastically in extent in the late 18th and early 19th centuries when they were essential for the transport of materials across the country. Many canals fell into neglect with the advent of railways and then roads negated the need to transport goods via canals. Nowadays, canals are seen as important recreational areas and vital green

20 Fighting climate change on the canal | Canal & River Trust (canalrivertrust.org.uk)

and blue corridors for wildlife and for people as active travel routes.

The West Midlands includes a total length of 240 km of canals, with distribution across the local authorities shown in Figure 2-15 below.

In Birmingham and the Black Country, in 2013 an estimated 220 km of canals still remain, such as the Dudley Canal, Birmingham Main Line Canal and Rushall Canal. In terms of vegetation, canals in active use tend to be cleared to allow canal barges to pass through, however submerged and emergent vegetation can grow in the canal margins and in canals that are no longer in active use for boat transport.

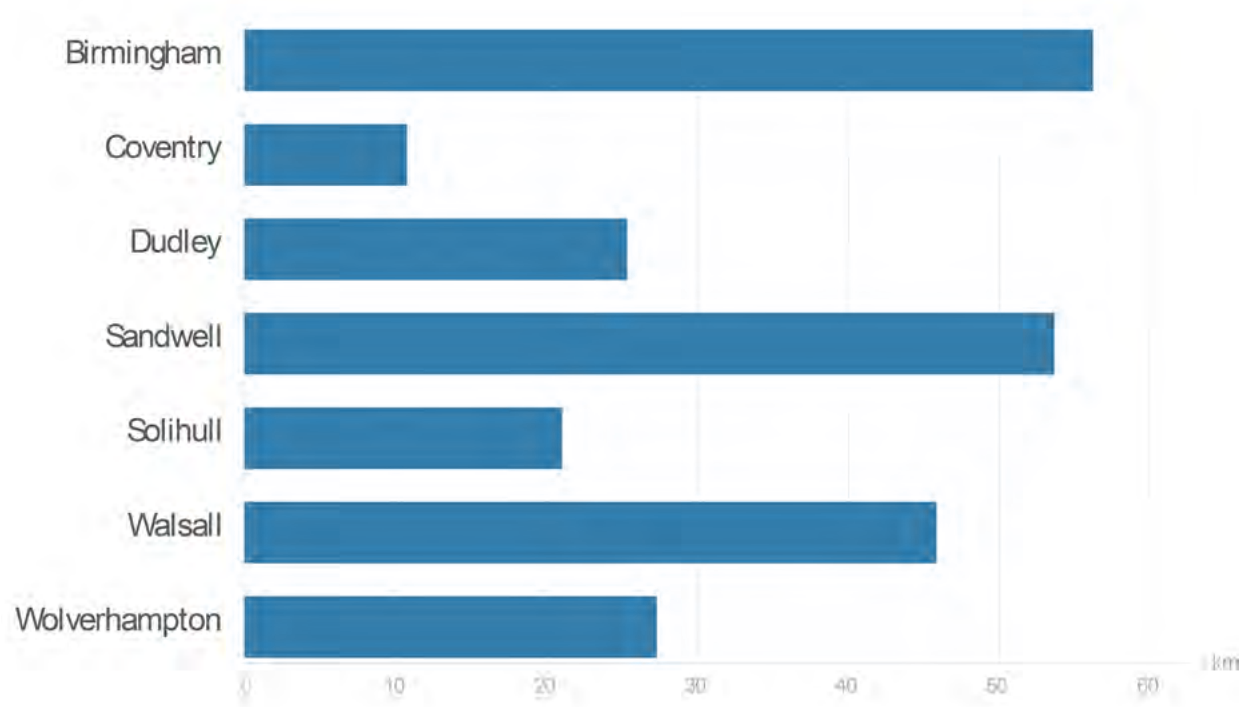


Figure 2-15: Length of canals across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024.

Canals in the West Midlands are and can be of international significance for nature. The Cannock Extension Canal SAC is designated for its population of floating water-plantain, as well as its diverse array of dragonfly species.

The canal network across the West Midlands presents a key opportunity for nature recovery that results in multiple "wins": creating biodiverse, high-quality canal networks facilitates the movement of key species, assists with urban cooling, improves peoples' access to nature as well as creating active travel routes across the region. The Canal & River Trust is undertaking a suite of canal improvement measures in its "Wild in Birmingham"[21] project, to benefit the natural environment and the local communities.

Canal at Small Heath, Birmingham (© SLR)

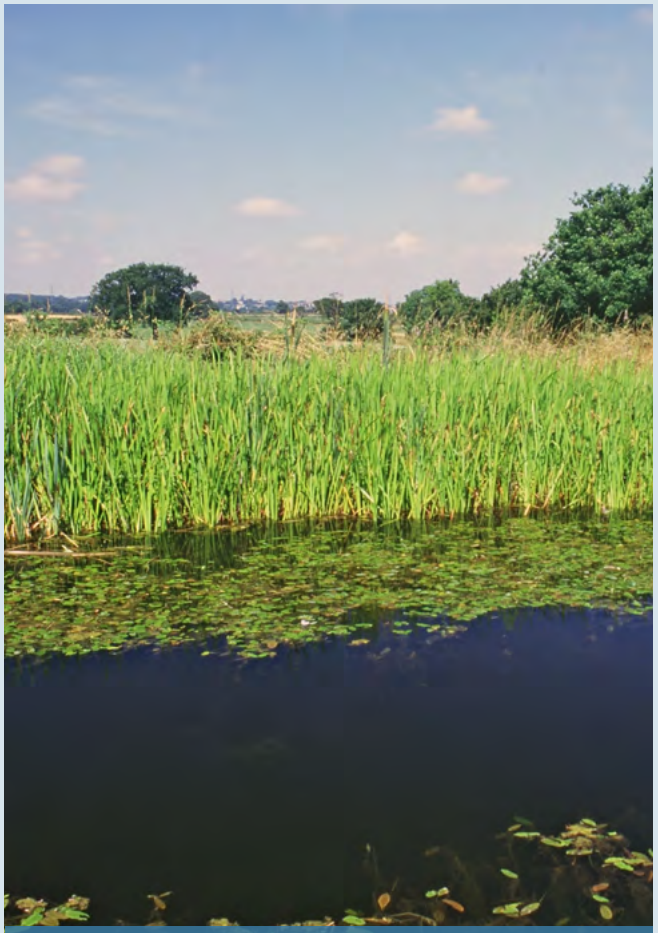
21 Green Recovery Challenge Fund | Canal & River Trust (canalrivertrust.org.uk)

Species Spotlight: Floating Water-Plantain

The floating water-plantain is an aquatic plant found in diverse freshwater environments, including nutrient-poor upland lakes and moderately nutrient- rich lowland rivers, pools, and canals. It has two forms: floating oval leaves in shallow water and submerged narrow leaves in deeper water. Preferring open areas with moderate disturbance, its populations fluctuate significantly, often thriving when water levels drop. Although more stable in natural habitats, it has become more common in artificial settings like canals. In the UK, it has a long-standing presence in Snowdonia and mid-Wales, with historical spread along canal systems, but is absent from Northern Ireland and found only as introductions in parts of Scotland and Ireland. Conservation efforts focus on sites with stable, natural populations across varied ecological conditions.

The West Midlands hosts one of few locations in the UK where this species is present and thriving. The Cannock Extension Canal SAC represents an anthropogenic, lowland habitat that supports the floating water-plantain, which is found at the eastern edge of its natural range in England. This canal hosts

a substantial population of the species and features a diverse aquatic flora alongside a rich dragonfly community, all indicators of high-water quality. The limited boat traffic on this branch of the Wyrley and Essington Canal has facilitated the thriving growth of open-water plants such as the floating water- plantain, while limiting the proliferation of emergent vegetation.



Cannock Extension Canal SAC, designated for its population of floating water plantain (© Natural England)

Arable, Horticulture and Orchards

Habitat description

Land classified as cropland in this context includes cultivated agricultural and horticultural land and also includes land which may be used for hay, temporary leys or silage crops. Intensively managed pastures used for grazing have been discussed in the modified grassland habitat. Horticulture refers to growing commercial vegetables and flowers in plots and in nurseries. Orchards can be intensively managed, with a ground cover treated with herbicide and heavily mown, and often with young trees which may be specialist varieties. Or they may be traditional in variety, these are characterised by a different habitat structure – they are open grown trees set within herbaceous vegetation, such as meadows, that are less intensively managed and may include community orchards and abandoned or overgrown orchards that retain fruit trees.

Modern farming can use a variety of artificial chemicals such as fertilisers and herbicides, which can be damaging to wildlife. However, the identification of numerous methods of sympathetic farm management can demonstrate that native plants and animals can thrive on active working farms that are still able to turn a profit[22]. In an urban context, community growing spaces are also important for local food production.

Arable field margins are an important habitat, that denote typically small strips of land that surround arable fields. They can often form part of Countryside Stewardship schemes or other farm grants to provide additional income, and as such they may be sown with a seed mix for invertebrates, pollinators, game birds or set aside near watercourses to promote natural flood management.

Conservation status and importance of habitat

The majority of agricultural land is not classified as priority habitats, with the exception of traditional orchards. Within a farmland landscape, there are features that are of high importance for wildlife, such as hedgerows, field margins on arable land, flower-rich grasslands, ponds in fields, ditches and mature and veteran trees. Numerous bird species are farmland specialists, feeding on the insect life within crop fields and along their margins, and include linnet, skylark, corn bunting and yellowhammer.

Arable flora are a group of plants that can grow on cultivated land. Once a more common feature of our farmed landscapes, widespread herbicide and fertiliser use has decimated their populations, because they are outcompeted by hardier and more tolerant crop plants or other weeds, such as common nettle. Arable plants support a diversity of invertebrate life which in turn

22 https://www.plantlife.org.uk/our-work/the-grassland-gap/

supports farmland bird species, which are often ground nesting species.

Across England, there has been a sustained and worrying decline in the distribution and abundance of arable plant species since the end of the Second World War. Key threats to the habitats where these species survive include:

- Intensification of agricultural practices in the latter half of the 20th century, with a drive for high productivity that comes with high environmental costs;
- Conversion of agricultural land for other land uses, such as housing provision; and
- A trend towards larger fields and removal of hedgerows and connected habitats leads to smaller and more disconnected refuges for these species, meaning natural colonisation and spread is much more difficult.

Numerous farming grants, such as through the new Environmental Land Management (ELM) scheme to replace the direct payments scheme, promote opportunities for farmers to protect, restore or create arable field margins with wildflower seed mixes to support insect pollinators and farmland birds.

Having a biodiverse and nature-friendly farmed landscape relies on farmers changing attitudes and 20th century farming practices, but will bring wider environmental benefits too. Whilst a justifiable concern is the ability to still generate income and livelihoods, many nature-friendly farming grants are now available and resources such as the Farm Carbon Toolkit[23] can be used to support transition to more sustainable farming practices. The Countryside Stewardship Facilitation Fund supports Defra's Environmental Improvement Plan by focusing on net zero, air quality, increasing biodiversity and supporting priority species, and water management.

Orchards © SLR

23 https://farmcarbontoolkit.org.uk/

Occurrence and trends in the West Midlands

Across the West Midlands, there is a total of approximately 6,646 ha of arable land – with the vast majority occurring in Solihull (3,202 ha) followed by Birmingham (1,197 ha) (Figure 2-16). The percentage cover of arable land across the WMCA ranges from 0.5% to 18%, with Sandwell having the smallest percentage cover and Solihull having the largest. Orchards make up 17 ha of the region, with a further 23 ha recognised as priority habitat traditional orchard, which is present in Birmingham, Coventry, Dudley, Solihull and Walsall.

In the West Midlands, key farmland areas include the Staffordshire border with north Birmingham and north Walsall, and the Meriden Gap between Solihull and Coventry. (Figure 2-17) Areas of importance for their arable field margins occur in specific locations too, such as Lime Pits Farm in Rushall, Walsall, with records of corn buttercup, a rare arable plant.

Traditional orchards are a very rare habitat type in the region; with orchards showing just south of Birmingham Airport at Elmdon Manor, where efforts by Warwickshire Wildlife Trust have restored the original fruit orchard and walled garden. Community orchards are a feature across the region, including at Harvest Fields Park in Sutton Roughley, Cotteridge Park and Bournville Park. Whilst not a traditional orchard, the Canal & River Trust are planting a community "great canal orchard[24] stretching over 50 miles from Wolverhampton to Worcester.

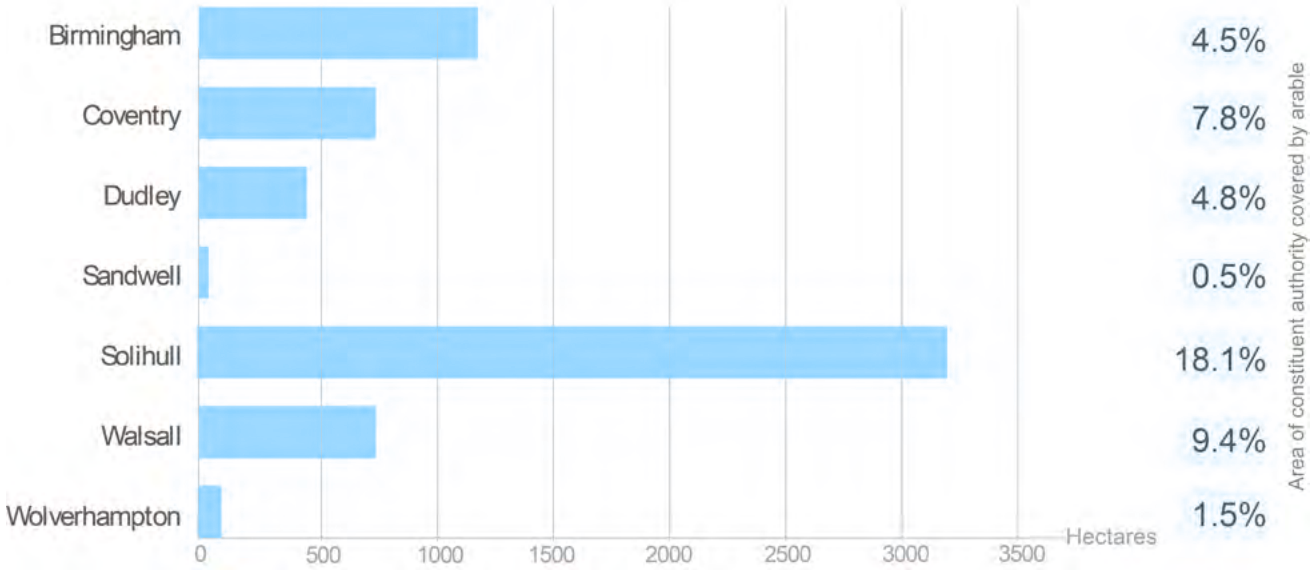


Figure 2-16: Arable habitat across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

24 Great Canal Orchard | Canal & River Trust (canalrivertrust.org.uk)

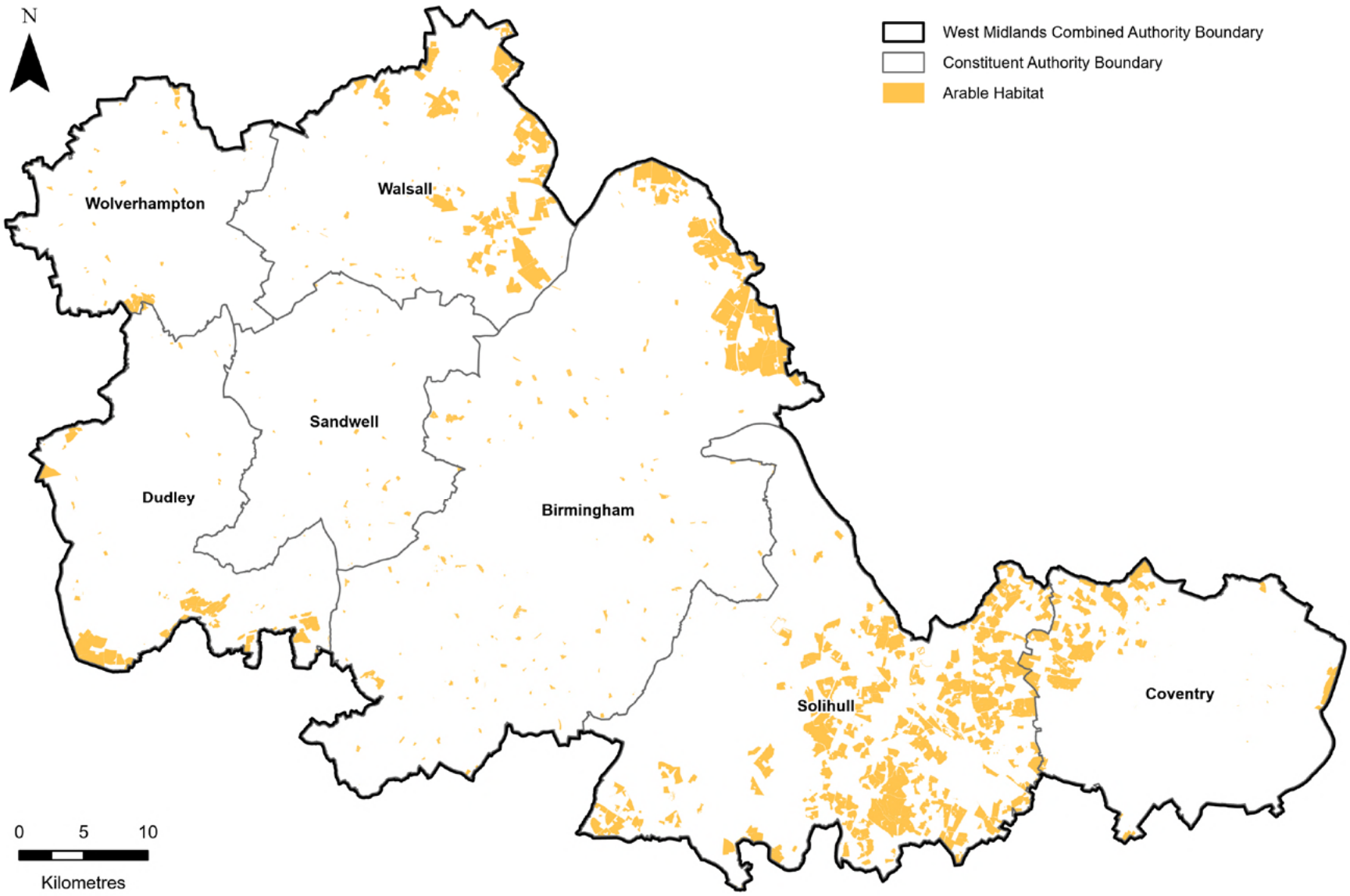


Figure 2-17: Arable habitat within the WMCA area.

Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024. Contains OS data © Crown copyright and database right (2024)

Urban

The urban landscape dominates a large proportion of the West Midlands region, as it is home to 2.9 million people, with the largest portion of the population living in Birmingham (39%) and the smallest portion (7%) living in Solihull. (Figure 2-18) The urban landscape contains within it a variety of semi-natural or modified habitat types that can have varying degrees of value for wildlife as well as providing important places for people (see Section 3).

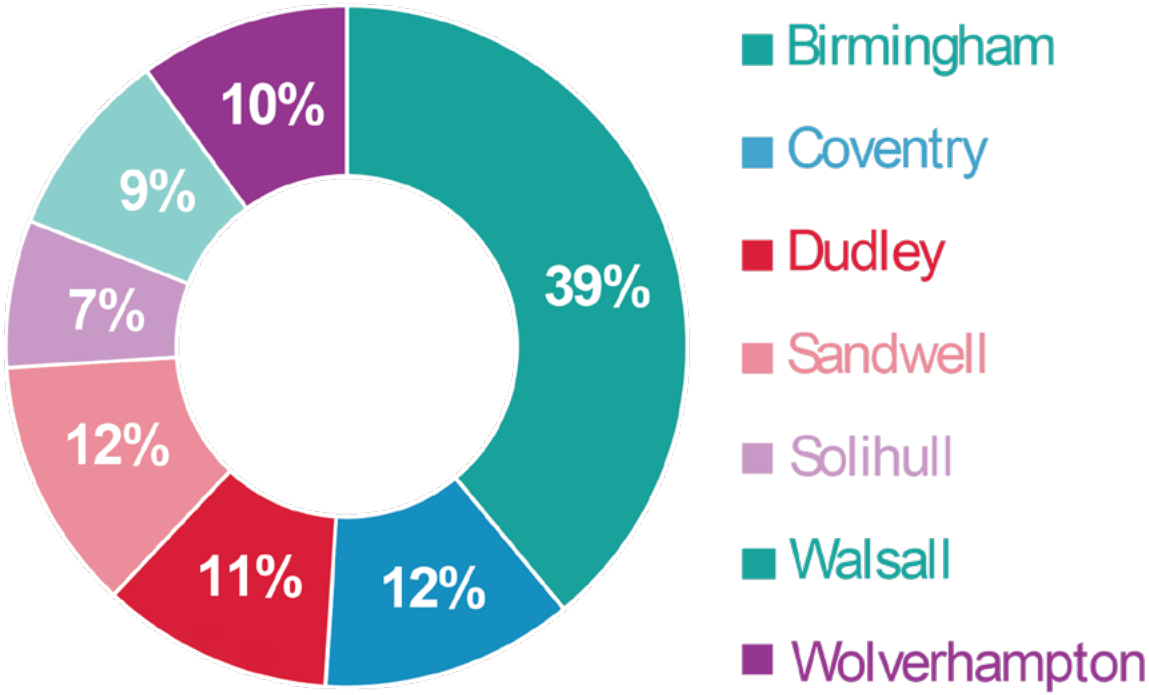


Figure 2-18: Population across WMCA area.

Eastside City Park and the Birmingham Skyline

Road Verges

Habitat description

Road verges typically comprise grassland habitats that are found adjacent to roads, junctions and roundabouts. They are a common feature across the landscape and in the UK, cover an area equivalent to the size of Dorset[25]. Typically, road verges are mown to a short sward height and cuttings are left in situ – this promotes a fertile, nutrient rich environment which favours fast- growing species at the expense of slower-growing, nutrient sensitive plant species which contribute to a biodiverse grassland habitat.

There have been recent movements to re-seed or plant road verges with wildflower-rich seed mixes to boost biodiversity. In addition, road verges can benefit from a reduced mowing regime in places that do not compromise road safety and road visibility.

Conservation status and importance of habitat

Road networks are not a priority habitat and can act as barriers to wildlife, but enhancing road verges can restore connectivity in the landscape and promote botanical and animal diversity across significant areas. Wildflower-rich meadows have been lost from the British landscape in the 20th century, and restoring road verge habitats can be a key measure to help improve the distribution of this habitat.

Across the UK, over 700 different species of wildflowers could grow on road verges managed for nature, which is equivalent to approximately 45% of total plant diversity.

Some barriers exist to adopting wildflower-rich road verges more widely. These include procuring the machinery necessary to collect grass cuttings

Occurrence and trends in the West Midlands

The West Midlands includes over 1,800 ha of road verges, which could be managed in line with the growing trend towards a reduced mowing regime and other nature-friendly management practices for road verges (Figure 2-19). Numerous verges in Solihull have been planted with wildflower rich turf and planting blubs as part of the Wildlife Ways[26] project , and in 2023 Walsall adopted an amended grass cutting schedule to support biodiversity.

Following the trial of “No Mow May”, Birmingham City Council launched a new initiative, entitled A to Bee Roads, to increase biodiversity, reduce the council’s carbon footprint and mitigate climate change effects through changes to the frequency of mowing across 100 km of central road reservations[27].

25 https://www.plantlife.org.uk/our-work/road-verges/
26 https://wildlifeways.co.uk/area/
27 A to Bee Roads – reducing mowing and helping the city’s ecology

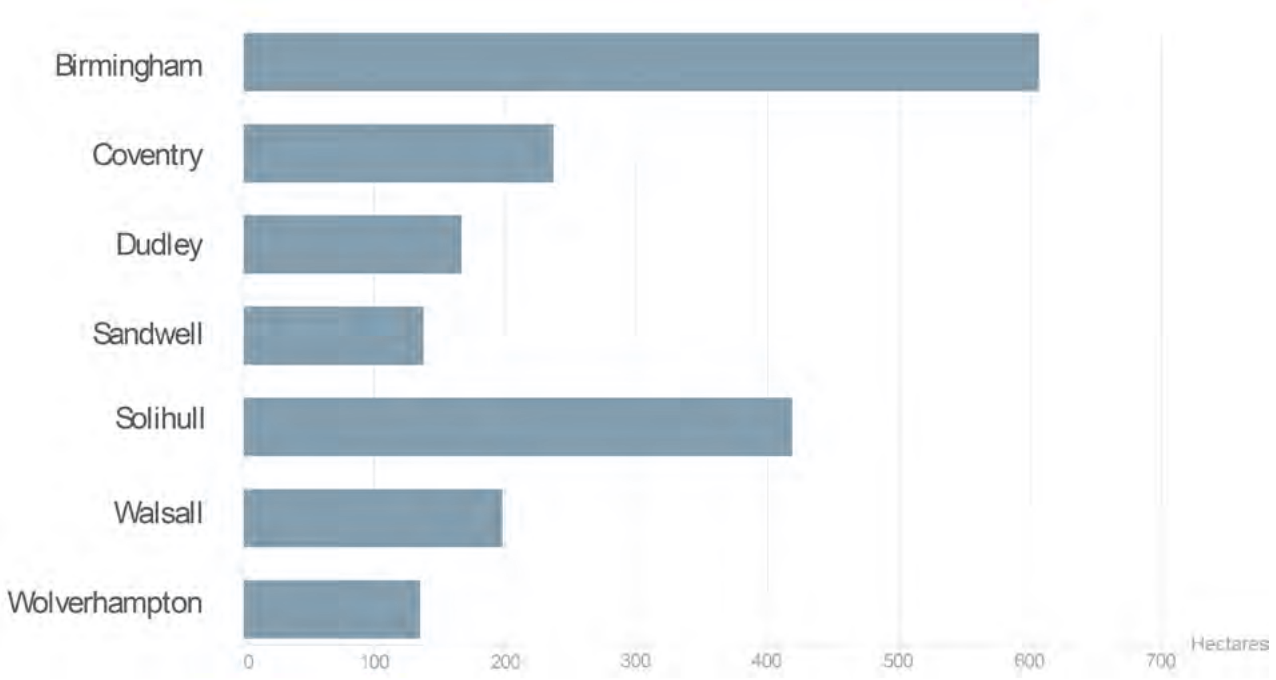


Figure 2-19: Road verges across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024.

Urban Parks, Green Infrastructure and Public Greenspace

Habitat description

Municipal parks and public greenspace provide important areas of semi-natural habitat in urban landscapes. These regions can be referred to as “green infrastructure” and are important places for people to have access to natural spaces in close proximity to where they live.

Parks and greenspaces can be managed in a variety of ways. Typically, parks are likely to contain areas of amenity grassland, mown short to provide recreational spaces such as football pitches or areas for play and picnics. Parks may also contain trees, including lines of trees along pathways, and some areas with less footfall could be managed as scrub habitats or woodland. Parks may also occur alongside watercourses like rivers or streams, and contain areas planted as formal gardens or with introduced shrubs.

Conservation status and importance of habitat

Green infrastructure is not classified as a priority habitat, however, green infrastructure creates connections for wildlife through urban landscapes that may otherwise be impermeable. The song thrush is a species of bird frequently found in woodlands, hedgerows, parks, and gardens throughout the UK. When parks are managed well, they can provide important places for both wildlife and people, thus improving biodiversity in urban areas and ensuring people access natural spaces for their own well-being and recreational use.

B-lines are a series of ‘insect pathways’ running through the countryside and towns, along which habitat stepping stones are being created and restored. B-lines link existing wildlife areas together, creating a network which insects, pollinators and animals can travel safely across. The National Pollinator Strategy for England 2014 sets out a 10-year plan to help pollinating insects survive and thrive across England. B-lines are present within the WMCA, with corridors spanning most constituent authority areas, including Birmingham, Solihull and Walsall.

Occurrence and trends in the West Midlands

Formal parks as well as areas of public open space that serve multiple functions are present across much of the built-up areas of the West Midlands. Parks may conjure up images of extensive manicured grasslands, but other habitats are also present. Walsall Arboretum contains wooded walks, grassland and lakes across 32 ha. Some parks are more typical such as West Park

in Wolverhampton, Pype Hayes Park or Shirley Park, consisting of amenity grassland,

ornamental planting and some mature trees, typically along pathways. These parks also serve as important recreational spaces with the provision of tennis courts, skate parks or car parking for people travelling by vehicle.

In Solihull, a three-year “Habitat and Nature Improvements” project was completed in 2019, that aimed to enhance habitats across over 20 parks

and publicly accessible green spaces. In total, 100 ha of habitat restoration

and enhancement was carried out, across woodland, grassland and wetland habitat types. These enhancements also increased the capacity of these public greenspaces to provide other ecosystem services, as well as benefit local communities.

Jennens Road, Birmingham

Species Spotlight: Song Thrush

The song thrush's adaptability to urban and suburban environments makes it a good indicator of gardens which support abundant wildlife. It is distinguished by its loud song, characterised by the repetition of phrases three times. It is brown with a white belly covered in black, drop-shaped spots.

Classified as Amber on the Birds of Conservation Concern Red List (2021), the song thrush is protected in the UK under the Wildlife and Countryside Act 1981 (as amended) and is a Priority Species under the UK BAP. While northern populations are migratory, UK song thrushes are generally resident year-round.

In the West Midlands, song thrush conservation efforts have been particularly successful. Between 1994 and 2012, their numbers increased by 43%, outpacing both regional and national averages. This increase is attributed to effective local conservation efforts, including habitat management and monitoring by organisations such as the WWT and WART. In Warwickshire, breeding surveys have consistently indicated song thrush presence across all 10km squares, with a 52% growth observed since the mid-1990s.

© Natural England Allan Drewitt

Allotments, Gardens, Cemeteries and Churchyards

Habitat description

Allotments, gardens, cemeteries and churchyards are not classified as priority habitats, however, they constitute important spaces that often occur within the urban environment, that provide important spaces for wildlife. Allotments are community spaces available for individuals to rent parcels and are typically used for small scale gardening for food plants. Across the West Midlands, numerous urban community gardens also exist as spaces for communities to grow fresh produce in a similar style to allotments.

Gardens are private outdoor spaces for households, and as such there is little data on what our gardens contain and how they are managed, because they are private and each household has free reign to design and manage their gardens however they like. The Horticultural Trade Association estimate that the total area of UK gardens is nearly equivalent in size to Somerset, and that seven out of eight households have access to a garden.

Cemeteries and churchyards are special places in the urban environment, as they have typically existed relatively unchanged for hundreds of years, with typical habitats including grassland, both mown and unmown, with mature trees such as yew and oak typically around the border.

Conservation status and importance of habitat

Whilst gardens can vary hugely in their composition, some studies[28] have drawn generalisations about important garden characteristics, which include:

- Gardens typically have a high number of different species in them, of native and non-native or exotic species, compared to natural habitats.

  Both native or non-native species planted in gardens may be able to propagate and spread easily, both through gardens and out into semi- natural habitats or the wider urban landscape;

28 For example, Urban domestic gardens (XII): The richness and composition of the flora in five UK cities - Loram - 2008 - Journal of Vegetation Science - Wiley Online Library

- Gardens can experience variability on far faster or slower timescales than natural habitats (e.g. areas in early succession may be maintained, such as sparsely vegetated borders, or areas may be planted more densely); and

- Gardens that may experience ultra-management are situated in close proximity to gardens that may be "neglected", meaning on a very small scale there is a great variation in habitat types and different habitat patches.

These factors play into the importance of gardens in providing semi-natural habitats for wildlife and for different plant species. Garden trees are also an important factor; these can often be identified by satellite and remote observation.

Gardens are also under threat, both in terms of their area and their characteristics. A study[29] completed in the early 2000s compared gardens from long-established/old/mature residential areas with gardens in new residential areas. The newer gardens had less structural complexity, such as mature trees, ponds, compost heaps or deadwood, and were thus potentially less valuable to wildlife. In addition, on a national scale the conversion of large gardens in suburban areas into additional dwellings has been taking place in the last few decades. Thus mature, large gardens with a diversity of different micro-habitats and connectivity to the wider natural landscape may get converted to smaller, newer and less mature habitats. There is also a growing trend towards replacing front gardens with paved parking areas and the use of astro or plastic turf to replace garden lawns.

Similarly for gardens, allotments can vary in size and type of land use, but they again have value in providing semi-natural habitat linkages and may provide a habitat for plant species more typical of arable field margins or ruderal plant species, as they may struggle to survive in intensive agricultural environments where herbicide use is still high.

An important factor for churchyards is that they are often long-continuity habitats, that is, they may have existed for several centuries without huge amendments. Grassland present in churchyards may comprise a higher species diversity due to their age and protection from damaging activities, such as fertiliser or herbicide inputs. Gravestones themselves can be important surfaces for lichens and mosses to establish, which are important in assessing levels of air pollution as they act as indicator species.

Churches may provide suitable roosting opportunities for bat species and birds such as swifts. Mature trees in churchyards such as yews, may reach veteran or ancient tree status and provide value for invertebrate and other species.

In a similar manner to urban parks, churchyards in urban environments can represent core greenspaces that act as refuges for a variety of wildlife.

29 For example, Urban domestic gardens (XII): The richness and composition of the flora in five UK cities - Loram - 2008 - Journal of Vegetation Science - Wiley Online Library

Occurrence and trends in the West Midlands

Gardens are the second most common habitat type, behind urban, comprising of 22,101 ha across the West Midlands, with coverage ranging from 15% (Solihull) to 31% (Wolverhampton) (Figure 2-20 and 2-21). There are 267 allotment sites in the West Midlands, however these are not evenly distributed across the region. For example, there are 113 sites in Birmingham, 40 in Sandwell and 20 in Solihull. There is a total of 109 ha of allotments present within Coventry and Solihull. An example includes the Pereira Road Allotments, which comprises a rockery, grassed and mixed planting areas, and a pond, and provides an important connection to the bordering Harborne Nature Reserve, managed by the West Midland Bird Club, which comprises more mature oak woodland and grassy slopes along a disused railway track in the valley of Chad Brook.

A number of allotment-based community initiatives are present in the West Midlands, emerging as a result of Community Green Grant funding provided by the WMCA. In Birmingham, £7,200 of funding was provided to Marsh Hill Allotments to develop redundant land into accessible green space, including a wildlife pond and wildflower meadow. In Smethwick, the Dorothy Parkes Centre has expanded its community allotment at Bearwood Allotments to provide access to safe green space which is used by local residents, schools and mental health support groups. offers weekly gardening sessions at their allotment. Solihull has over 20 allotments across the borough, and a project commissioned by The Pod and Food Union followed the journeys of people in Coventry who took on allotment plots during the pandemic, with the aim of highlighting the benefits of growing food and spending time outdoors. The Deelands Community Garden in Rubery is run by a local community group (the “Rubery Wombles”) to grow fresh produce for the local community, and also support volunteers in managing local woodland in the area.

There is little local data on churchyards in the region, but the National Cemetery Map[30] aims to consolidate a national dataset of cemeteries and crematoriums. Whilst this does not show information about the extent or quality of natural habitats present in the cemeteries, it can give high level information as to the location of burial grounds. Kings Norton Cemetery in Birmingham contains the Primrose Meadow Natural Burial Glade and other land parcels that are managed as wildflower meadows, as well as providing bug hotels, bird feeders and bird nest boxes. They have created a wildlife guide to inform visitors about the biodiversity values that churchyards can bring.

London Road Cemetery in Coventry has a diversity of mature tree species, including some exotic varieties, vegetated areas and grassland areas, having been designed by Joseph Paxton, who also landscaped parts of the Chatsworth estate. In Solihull, several churches signed up to the “Ecocentres” initiative, helping to promote wildlife-friendly practices in churchyards across the UK.

Trends in garden design can have significant impacts on the provision of habitats for wildlife. For example, the use of artificial grass or astroturf in domestic gardens has increased in recent years – a 2022 survey found that approximately 10% of homeowners across the UK had replaced some or all of their garden’s lawn with artificial grass. Some gardens may also be paved over or have decked areas. However there has also been a recent increase in wildlife-friendly gardening and higher

30 https://www.iccm-uk.com/iccm/national-cemetery-map

awareness of how wildlife may use gardens – a 2021 YouGov study found that almost half of gardeners in the UK use their gardens to feed, watch or encourage wildlife.

Whilst there is huge variation in the appearance of gardens, in suburban landscapes they can form a huge proportion of land area and join up to form large habitat patches of considerable significance. Gardens may also back onto semi-natural habitats or border agricultural land on the urban fringe or green belt, thus providing a further linkage to the wider habitat network.

Gardens hold a key opportunity to provide additional spaces for nature in otherwise urban landscapes. Whilst some people may appreciate the importance or desire to practice wildlife-friendly gardening, not all people may have the awareness, understanding, resources or time to implement change in gardens. Educational and awareness-raising activities can assist in driving societal shifts towards nature-positive practices.

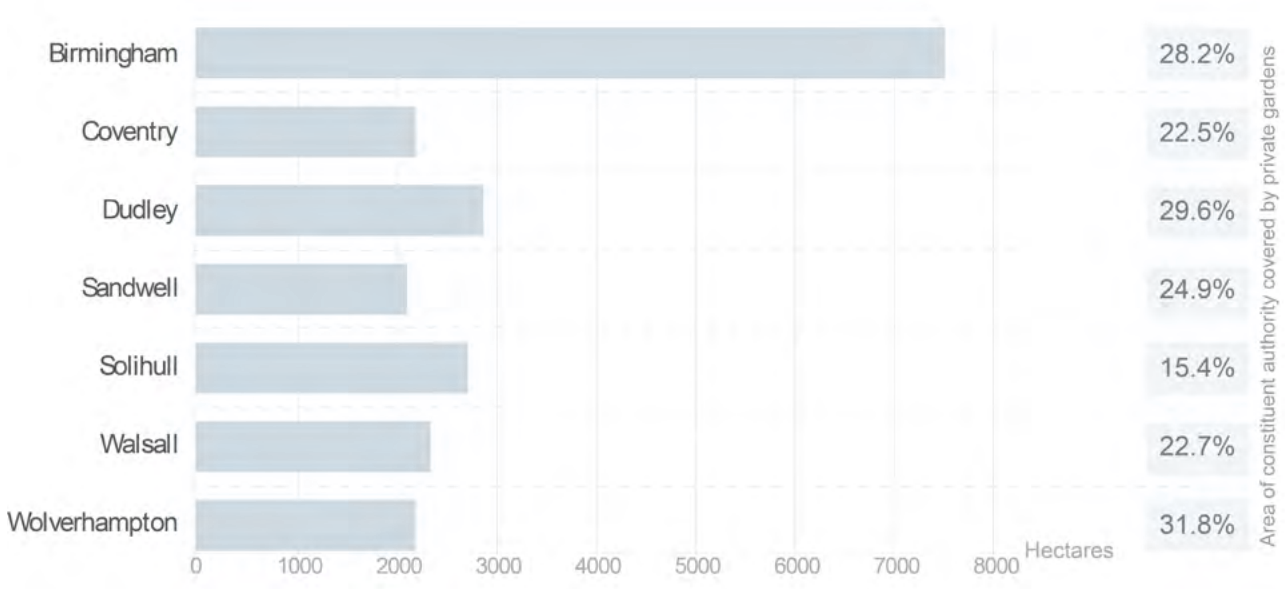


Figure: 2-21: Private gardens across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

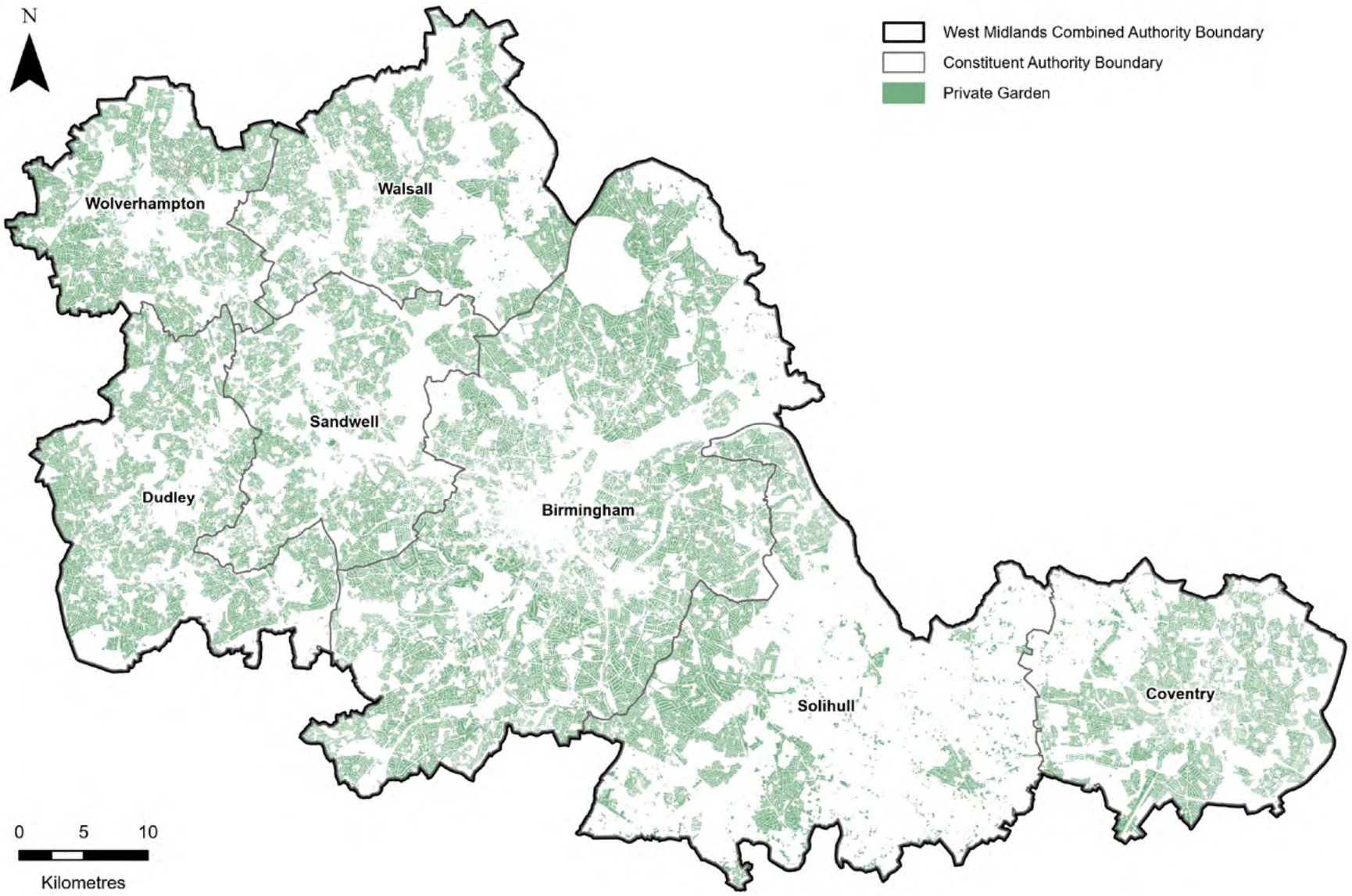


Figure 2-20: Private gardens within the WMCA area.

Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024. Contains OS data © Crown copyright and dat abase right (2024)

Brownfield Land and Exposed Rock Habitats

Habitat description

Sites where there has been previous industrial activity can be important for wildlife. Such areas, if left neglected (even for only a few years), can develop a mosaic of bare ground, patchy grass, small temporary pools and ponds and areas of scrub all occurring in a small space. These habitats are typically called “open mosaic habitats on previously developed ground” (OMH). Examples include former industrial sites which have lain abandoned, former railway routes with their sidings and former quarries or extraction pits that have been left instead of restored. Rare plants often occur in these locations, typically because heavy metals from industrial waste or spoil heaps leach into the soil meaning that only specially adapted plants can survive. Sometimes these habitats are short lived as they quickly transition from bare ground and sparsely vegetated locations, followed by grassland and scrub establishment – this typically occurs in the years following clearance of buildings if the ground is left untouched.

Similarly, brownfield sites can be important habitats for a range of species. Whilst not all brownfield sites are biodiversity-rich, some sites that have been revegetated have been recognised as areas of unique urban wilderness. In many cases, vegetated brownfield sites are the last remnants of unmanaged urban ‘wildspace’, they offer species structural diversity (mounds, tussocks and bare areas) and bare or sparsely vegetated ground for nesting and basking.

Inland rock outcrops are also habitats that are important to early successional plant species and wildlife such as invertebrates. These types of habitats typically occur in modified environments in the West Midlands, such as in quarries that have exposed rock faces.

Conservation status and importance of habitat

OMH habitats are included as priority habitats. Conserving industrial heritage sites is important in maintaining a sense of place and pride in local history

and heritage, as well as preserving habitats and biodiversity. There is also the significant opportunity for education and enjoyment across generations. OMH habitats can support an incredible diversity of plant species. However, due to their transient nature these regions, which are typically species-rich grasslands that develop on the bare substrates, can be easily overtaken by scrub growth. These grasslands often support scarce and rare invertebrates, such as the bloody nosed beetle, the common glow worm, dingy skipper and small blue. Invertebrate life in turn attracts birds, and species such as the black redstart will use these sites for foraging.

To preserve OMH, management and maintenance is often necessary – this can involve “re-disturbing” the sites to create bare ground patches again. Preserving or restoring

the mosaic of habitats may not create a space that is aesthetically pleasing, or appear "tidy", to the general public. However, this presents an opportunity for education to highlight the importance of these habitats, as well as showcase their heritage value.

Occurrence and trends in the West Midlands

The West Midlands' rich industrial heritage means that there are several post- industrial sites that hold importance for biodiversity. In the Black Country, sites that fall under the UNESCO Geopark that contain OMH or similar habitats include Moorcroft Wood Local Nature Reserve, which is home to the abandoned Moorcroft Old Colliery, containing collapsed mine shafts within secondary developing woodland. Brownfield habitats were not able to be distinguished within the EcoRecord dataset. These habitats are present within every constituent authority of the WMCA, with an uneven distribution and the highest concentrations of brownfield sites in Wolverhampton and Birmingham. Exposed rock habitats cover 56 ha in Dudley and 21 ha in Sandwell, with a total coverage across the region of nearly 260 ha (Figure 2-22). The percentage cover of this habitat type is minimal across the WMCA, with none of the constituent authorities exceeding 1% cover for this habitat.

Examples of important brownfield sites in the West Midlands includes Pelsall North Common, a former iron works, which is now designated as a LNR and SINC. The reserve is an area of wet lowland heath which supports a variety of wildlife, including the tormentil mining bee and beewolf.

Important bare rock and sparsely vegetated habitats occur at Pinfold Lane Quarry (also known as Barr Beacon Quarry) and Shire Oak Quarry, both former sand and gravel extraction sites in Walsall, which promote the formation of habitat mosaics and early successional plant communities.

As many OMH sites can also be classified as "brownfield" locations due to their previously developed nature, they are sites

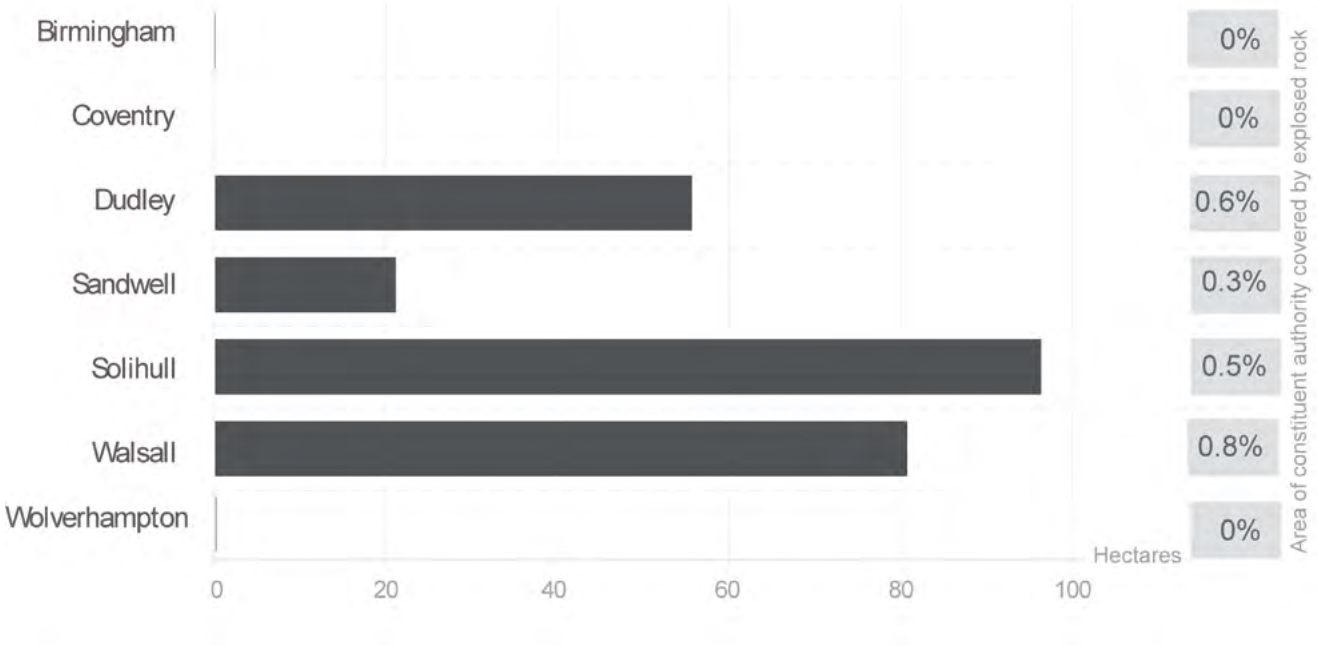


Figure 2-22: Exposed rock habitats across WMCA area. Habitat data provided by Birmingham and Black Country Wildlife Trust EcoRecord 2024

that can be earmarked for development, as a more preferable site compared to releasing greenbelt land for example. This represents a potential threat to the distribution of OMH across the region. In addition, the successional nature of these habitat types means that if post-industrial sites are left with no management for several decades, OMH will gradually be lost to grassland, scrub and woodland habitat types.

Cobb's Engine House, Dudley © Sandwell Council

Species Spotlight: Dingy Skipper

The dingy skipper is a small butterfly found in Britain and Ireland, but it is becoming increasingly rare. It has grey-brown wings with mottled markings and small white spots, and it is often mistaken for the grizzled skipper, Mother Shipton moth, or Burnet Companion moth. The dingy skipper is known for its low, darting flight and unique moth-like perching behaviour on dead flowerheads. It inhabits open, sunny habitats like chalk downland, woodland clearings, and coastal dunes, preferring areas with sparse vegetation and patches of bare ground. Its caterpillars feed mainly on common bird's-foot- trefoil, with other plants used in specific conditions. Despite being categorised as Least Concern in Europe, the species has seen a significant decline in abundance and distribution in recent decades.

In the West Midlands, the dingy skipper has experienced significant declines since the 20th century. Despite this, recent conservation efforts have led to a notable recovery and several organisations and projects have been responsible for their conservation, including the Purple Horizons nature recovery project.

The dingy skipper thrives in wasteland habitats, such as former industrial sites and neglected areas, which are prevalent in the West Midlands; these post-industrial environments provide essential conditions for the butterfly's survival and recovery, however these habitats are often favoured for development projects, presenting a risk to the continued survival of this species in the West Midlands.

Dingy Skipper butterfly © Natural England Allan Drewitt

Section 3: People & Nature

The WMCA area is one of the most densely populated regions of the UK and is home to people from a diverse range of backgrounds and experiences. The relationship between people and nature is deeply intertwined, especially in regions like the West Midlands where nature in urban environments is vital for physical and mental wellbeing.

The combined authority area is the second-most ethnically diverse area in the country (after London). Ethnic diversity within the region also varies greatly between constituent authority areas, with Birmingham having the highest proportion of ethnic minority groups (57.1% of the population) and Dudley having the lowest percentage (17.6%) in the region.

There are a number of inequalities within the region which influence the ability of residents to access nature, and the vulnerability of residents to the effects of climate change. It is the case in the West Midlands that densely populated areas such as central Birmingham and Coventry are more vulnerable to surface water flooding and heat waves during summer and are further from green and blue spaces. In addition, there is a correlation in the WMCA between densely populated areas and higher levels of deprivation.

There is now a growing wealth of evidence linking peoples' wellbeing to spending time in natural spaces and engaging with nature. This section addresses the inequalities present in how people are able to access nature, discusses the ways in which people perceive nature, and explores the topic of natural capital and how evaluating nature can assist in highlighting its value in a socio-economic context.

Aston University, Birmingham

The Role of Nature-Based Solutions

More and more attention is now turning to "nature-based solutions" – these are actions that help address societal issues that also benefit people, promote adaptation, achieve climate resilience, and act positively for nature by increasing and protecting stocks of natural capital. Natural capital refers to the planet's stock of natural assets such as soil, air, geology, water and biodiversity. The concept of natural capital acknowledges the benefits of nature to individuals, society and the economy. Natural capital recognises essential ecosystem services such as climate regulation, food, raw materials and energy. Pressures on nature result in societal and economic costs. Nature-based solutions are now widely placed at the forefront of climate policy, with governments deeming them essential for both climate change mitigation and adaptation.

An example of nature-based solutions in action is in addressing the inequality of tree cover across the West Midlands. Tree cover in the region varies greatly, as exemplified by looking at the difference in canopy cover for two wards in Birmingham: Edgbaston benefits from a 36% cover whilst Lozells only has an estimated 4%. Urban trees provide a wealth of societal benefits, including providing shade which cools localised areas, and reduces the urban heat-island effect, storing carbon from the atmosphere, and creating important wildlife habitats. Having a high density of urban trees has been linked to reducing the number of heat-related deaths in cities. The West Midlands Virtual Forest initiative aimed to promote the benefits that urban trees bring and recorded the planting of over 600,000 trees and involved 38 community groups.

Warwickshire Wildlife Trust are also working with the nature-based solutions concept, delivering a variety of Natural Flood Management (NFM) projects in Solihull and Coventry[31]. These include "leaky barriers", which help reduce the flow of water especially in flood periods and can also trap pollutants and nutrients like nitrogen and phosphate, thus improving water quality. In addition, creating shallow pools, planting trees and hedges all help to intercept and collect rainwater, slowing down its passage downstream, and thus reducing flood risk.

WMCA's Community Environment Fund, building on the success of its previous Community Green Grants programme, gave grants to projects that improve both the environment and people's lives, thus supporting the nature-based solutions concept. Some of these have been mentioned in the section above in the context of the habitats they are seeking to restore and enhance as part of delivering nature-based solutions that also benefit communities.

Figure 3-1: "Leaky barriers" help to reduce flow and capture pollutants, and are simple nature-based solutions (© The Wildlife Trusts)

31 https://www.wildlifetrusts.org/sites/default/files/2023-07/The%20Wildlife%20Trusts%E2%80%99%20Nature-based%20Solutions%20Showcase%202023.pdf

Access to Nature, Nature Connectedness and Wellbeing

As well as the clear physical environmental benefits that restoring and protecting nature brings, it is also important to acknowledge the less tangible, social impact that connecting to nature can bring people. People's connection with nature, or their "nature connectedness", is considered from a natural capital perspective because nature is thought to provide "cultural" ecosystem services. Some studies have attempted to financially quantify the benefits of nature on health, for example the UK National Ecosystem Assessment (NEA), which estimated the health benefits of living with a view of a green space are worth up to £300 per person per year.

It is important to consider the social value of nature when implementing environmental management schemes. If properly managed, these schemes can provide benefits to people and the environment. For example, natural flood management schemes could deliver new walking and cycling routes, and habitat restoration activities could bring together local volunteer community groups, to foster better connections to the local area and instil a sense of pride or ownership over newly created habitats.

Figure 3-2: Social benefits provided by the natural world

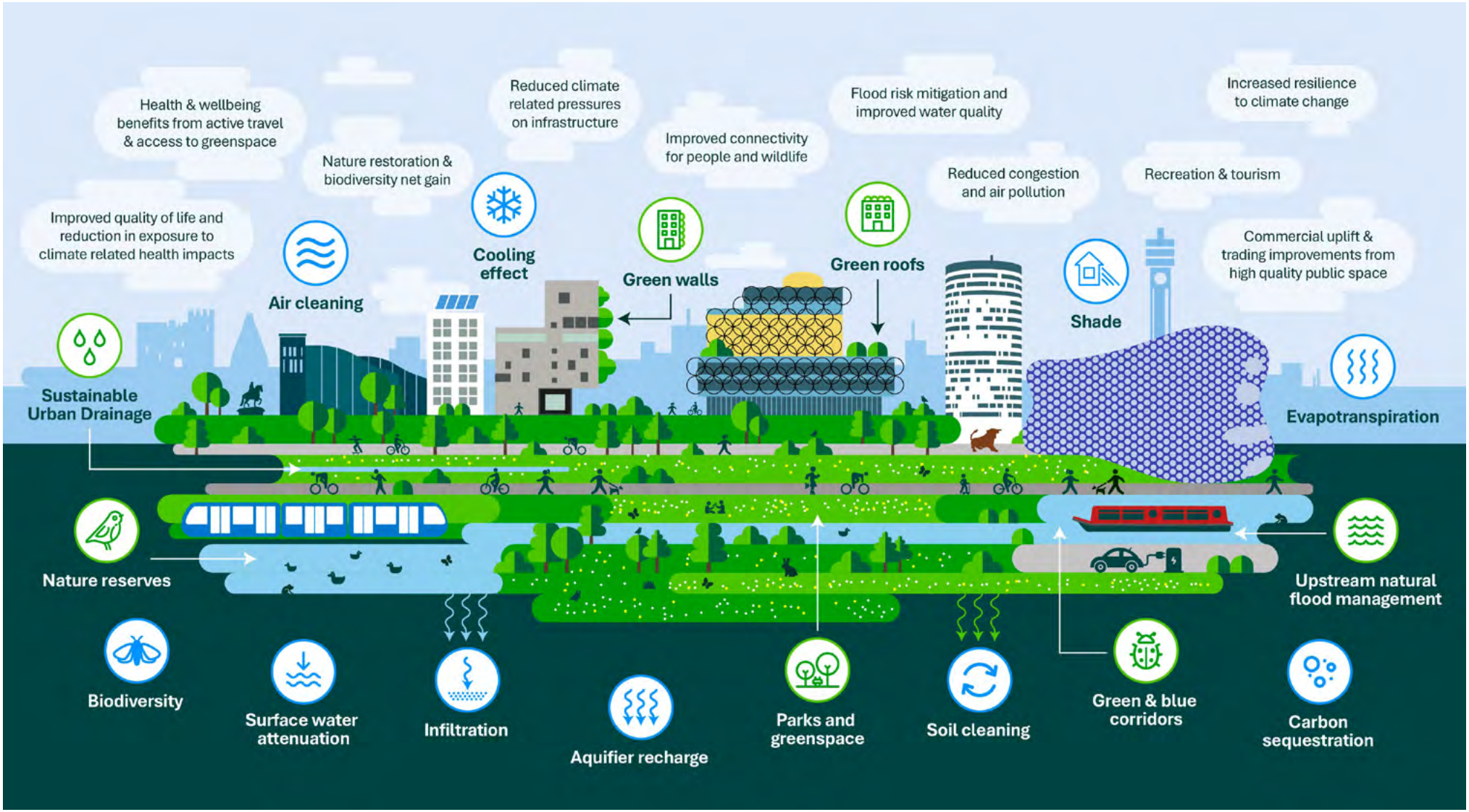


Figure 3-3: West Midlands Local Investment in Natural Capital - The social and economic value of natural capital[32]

32 https://www.wmca.org.uk/what-we-do/environment-energy/natural-environment/local-investment-in-natural-capital/

Ease of access to both green and blue spaces is essential for people to receive the physical and mental health benefits of nature, however access to nature is not equally distributed across the West Midlands. The region is home to a wide range of different natural spaces, however, barriers still stand in the way of some communities who struggle to access these spaces due to lack of proximity to local spaces and financial challenges associated with transport to these spaces. In addition, people's understanding of the importance of connecting with nature varies, for example, those who have not been given the opportunity to spend time in nature may not consider it to be a priority, or may feel uncomfortable spending time in nature as they are not familiar with it A Natural England[33] report identified several key issues that act as barriers to equality of access to nature including the need for diverse and inclusive green spaces, the importance of providing amenities and activities that cater to different needs and preferences, and the need to address feelings of uncertainty when accessing nature, which links into feelings of inclusion in local communities. It also highlights the need for accessible and well-maintained green spaces if access levels are to increase. It is as important to protect the wildlife within these spaces.

In the West Midlands, a study[34] found that many areas in the combined authority area are in the 20% of UK areas worst affected by 'green deprivation', with the worst affected areas being inner city Birmingham and Coventry, and parts of Wolverhampton, Dudley, Sandwell and Walsall. Within these areas, some communities are impacted more than others, for example, it was found that racialised communities (a term used as defined by WMCA's Race Equalities Taskforce) had greater population pressure on green spaces than other ethnic groups. These statistics are consistent with national figures. Natural England's People and Nature Survey 2023[34] found that Black or Black British adults, as well as those with a disability or health condition, are typically less likely to visit outdoor spaces.

WMCA commissioned a study on environmental attitudes across the region, with the first of three "waves" occurring in January – June 2024. The results of this initial survey showed that over 60% considered that green spaces in the West Midlands were important to them, however, only one third of respondents thought that the provision and access to local green spaces in their area was good.

In the West Midlands Natural Environment Plan: 2021-2016, widening access to green and blue spaces for all communities was listed as a key priority. A number of projects are already underway to address this target, for example the restoration of the Tame Valley Wetlands (with the aim of the site being a high quality, biodiversity rich landscape by 2030), achieving UNESCO Geopark status in the Black Country, and the potential for the Duddeston Viaduct in Digbeth to be turned into a public green walkway.

In order to drive nature recovery forward, people must be at the heart of this to ensure that there is an understanding of nature and the key issues it faces. Actions that are taken can then be focused to bring about the widest benefits for West Midlands, its biodiversity and the people that live, work and enjoy the region.

33 https://publications.naturalengland.org.uk/publication/6365792116146176
34 https://governance.wmca.org.uk/documents/s5365/Appendix%201.pdf

Appendices

Appendix A

Table 1: Summary of habitats present within the WMCA area, corresponding designated and protected habitat types and national climate change sensitivity classification.

Broad Habitat Type	Habitat Types	UK Biodiversity Action Plan Habitat Type[1]	Irreplaceable Habitat[2] (Y/N)	National Climate Change Sensitivity[3]
Arable	Field margins	Arable field margins	N	Low
	Traditional orchards	Traditional orchards	N	-
Urban	Gardens	-	N	-
	Built Environment	-	N	-
	Road verges	-	N	-
	Parks and public open space	-	N	-
	Allotments, cemeteries and churchyards	-	N	-
Brownfield and Exposed Rock	Open Mosaic Habitat	Open mosaic habitats on previously developed land	N	-
	Quarries, gravel pits and exposed rock	Inland rock outcrop and scree habitats	N	-
Heathland	Lowland heathland	Lowland heath	N	Medium
Scrub	-	-	N	-
Hedgerows	-	Hedgerows	N	Low (ancient/species-rich)

1 https://jncc.gov.uk/our-work/uk-bap-priority-habitats/#list-of-uk-bap-priority-habitats

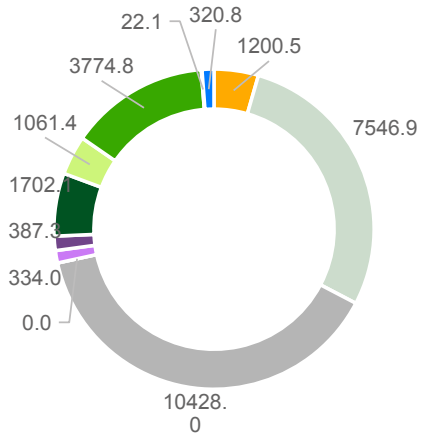
2 as defined by the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024: https://www.legislation.gov.uk/uksi/2024/48/schedule/made

3 https://publications.naturalengland.org.uk/publication/5679197848862720

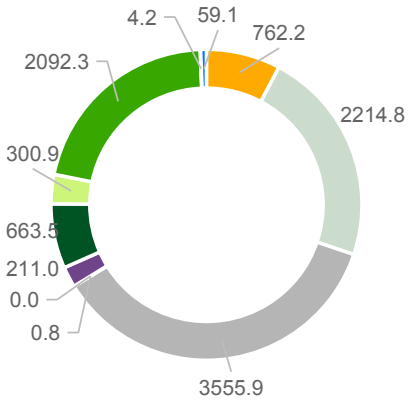
Broad Habitat Type	Habitat Types	UK Biodiversity Action Plan Habitat Type[1]	Irreplaceable Habitat[2] (Y/N)	National Climate Change Sensitivity[3]
Woodland	Ancient woodland, ancient and veteran trees	-	Y	-
	Wood pasture and parkland	Wood-pasture and parkland	N	Low
	Broadleaved woodland	Lowland beech and yew woodland Lowland mixed deciduous woodland	N	Medium
	Coniferous woodland	-	N	-
	Mixed woodland	-	N	-
	Wet woodland	Wet woodland	N	-
	Urban trees	-	N	-
Grassland	Acid grassland	Lowland dry acid grassland	N	Low
	Calcareous grassland	Lowland calcareous grassland	N	Low
	Neutral grassland	Lowland meadows	N	Medium (wet) and Low (dry)
	Floodplain meadows	Coastal and floodplain grazing marsh	N	Medium
	Modified grassland		N	-
Wetland	Lowland Fen	Lowland fen	Y	High
	Rush pasture	Purple moor grass and rush pasture	N	Medium
	Reedbed	Reedbed	N	Medium
Watercourses and Waterbodies	Rivers and streams	Rivers	N	High
	Canals	-	N	-
	Lakes and reservoirs	Oligotrophic and dystrophic lakes Mesotrophic lakes Eutrophic standing waters Aquifer fed naturally fluctuating water bodies	N	High
	Ponds	Ponds	N	High

Appendix B

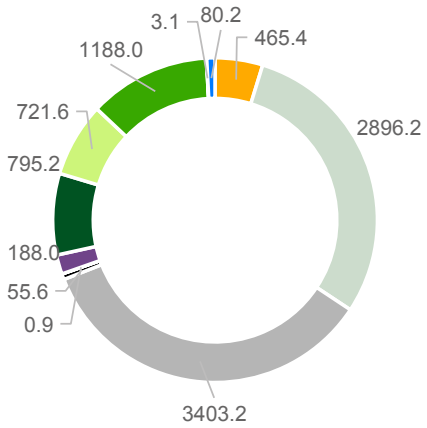
Birmingham (ha)



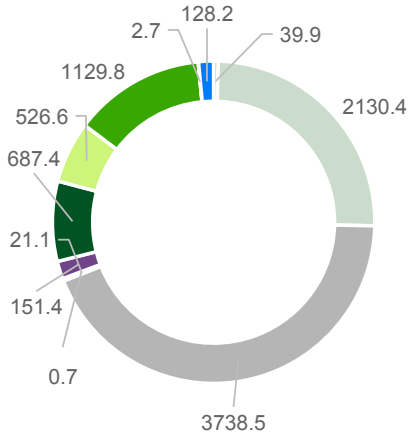
Coventry (ha)



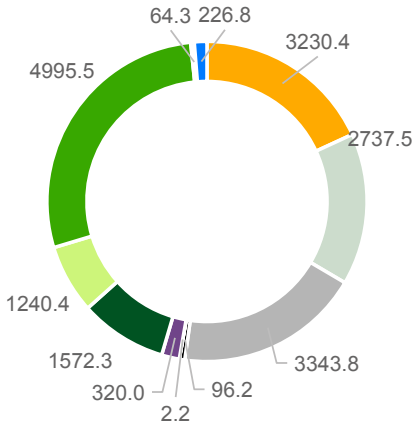
Dudley (ha)



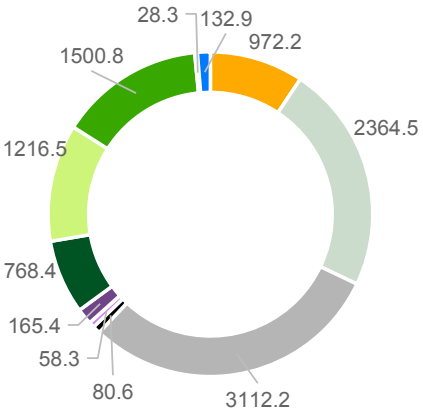
Sandwell (ha)



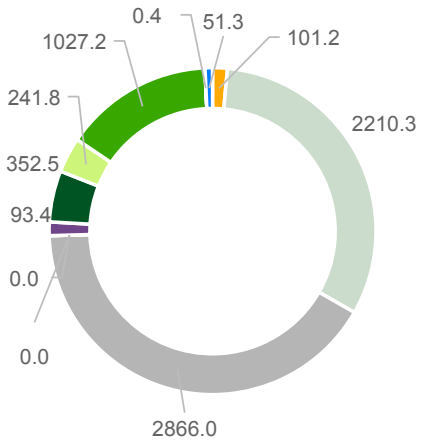
Solihull (ha)



Walsall (ha)



Wolverhampton (ha)



Key

Habitat	Area (ha)						
	Birmingham	Coventry	Dudley	Sandwell	Solihull	Walsall	Wolverhampton
Arable	1200.5	762.2	465.4	39.9	3230.4	972.2	101.2
Garden	7546.9	2214.8	2896.2	2130.4	2737.5	2364.5	2210.3
Built Environment	10428.0	3555.9	3403.2	3738.5	3343.8	3112.2	2866.0
Exposed Rock	0.0	0.0	55.6	21.1	96.2	80.6	0.0
Heathland	334.0	0.8	0.9	0.7	2.2	58.3	0.0
Scrub	387.3	211.0	188.0	151.4	320.0	165.4	93.4
Woodland	1702.1	663.5	795.2	687.4	1572.3	768.4	352.5
Semi-Natural Grassland	1061.4	300.9	721.6	526.6	1240.4	1216.5	241.8
Modified Grassland	3774.8	2092.3	1188.0	1129.8	4995.5	1500.8	1027.2
Wetland	22.1	4.2	3.1	2.7	64.3	28.3	0.4
Standing and running water	320.8	59.1	80.2	128.2	226.8	132.9	51.3
Total	**26777.8**	**26777.8**	**9864.8**	**9797.3**	**8556.7**	**17829.5**	**6944.0**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