MAYOR OF LONDON

Annex 2: Description of the Strategy Area

Copyright

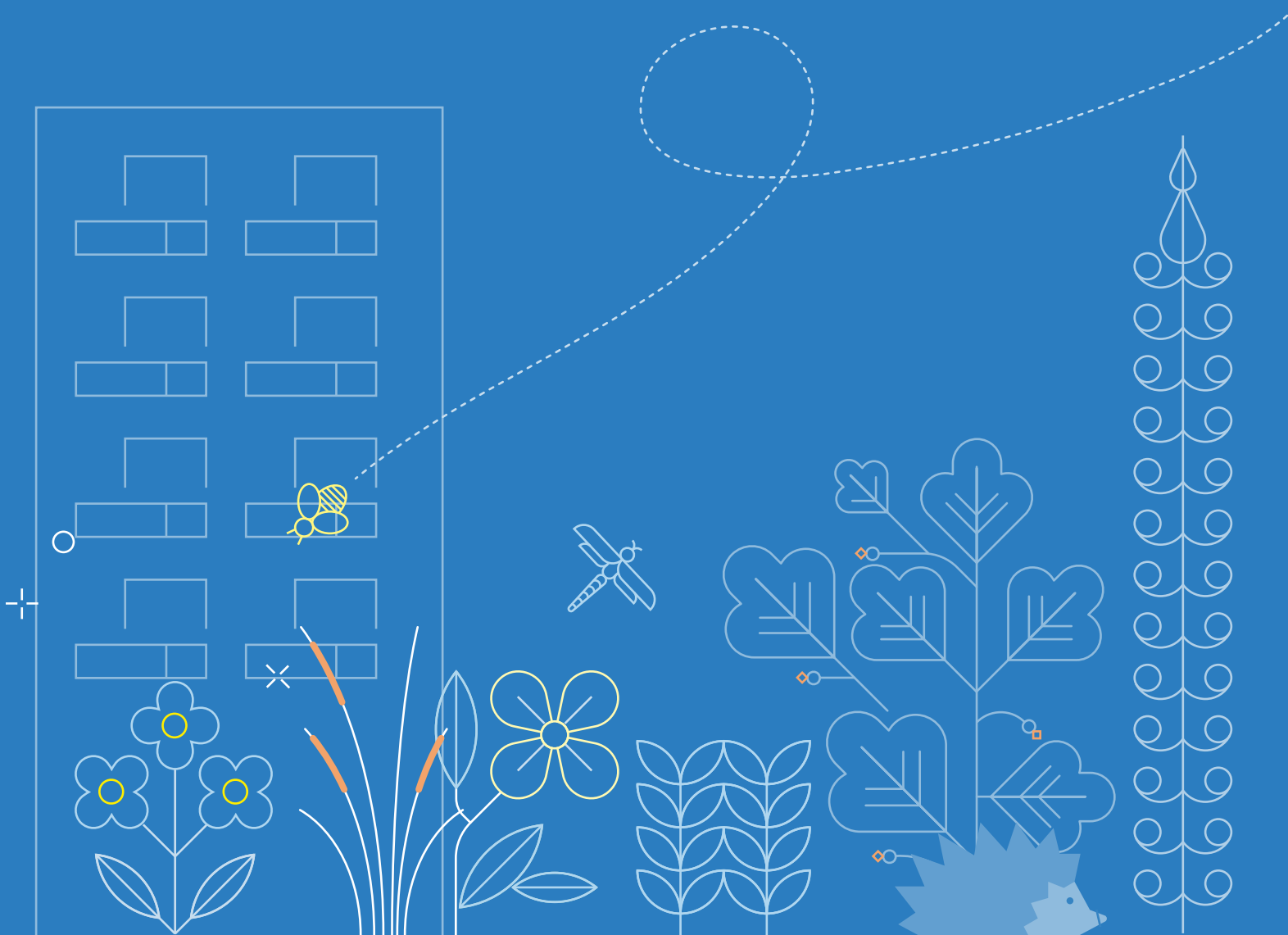
Greater London Authority
September 2025

Published by
Greater London Authority
City Hall,
Kamal Chunchie Way,
London, E16 1ZE
london.gov.uk

Enquiries: 020 7983 4000
Minicom: 020 7983 4458

Photographs:
© Greater London Authority

Copies of this report are
available from **london.gov.uk**



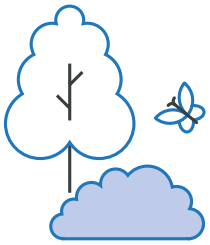
2.1 Protecting London's nature

There are various designations in place to protect nature in London. Existing designated sites are shown on the Local Habitat Map.

Statutory nature designations

Special Areas of Conservation (SACs) are internationally important areas for nature. Special Protection Areas (SPAs) are designated for internationally important populations of birds, and Ramsar sites are internationally important wetlands. There are three SACs, two SPAs and two Ramsar sites in London.

London also has nationally important nature conservation sites. These include three National Nature Reserves and 37 Sites of Special Scientific Interest (SSSI), 30 of which are designated for their biological interest. At a local level, London has 154 Local Nature Reserves, covering a variety of habitats and species[1].



154

London has 154 Local Nature Reserves, covering a variety of habitats and species.

London's SINC network (non-statutory nature designations)

Other valuable places for nature in London are recognised by the Mayor and London boroughs as Sites of Importance for Nature Conservation (SINCs). These are known more widely in England as Local Wildlife Sites. This system was first developed in London and remains one of the most comprehensive in the country. Some SINCs overlap with the statutory designations explained above.

The London Plan defines SINCs as 'areas of land chosen to represent the best wildlife habitats in London and areas of land where people can experience nature close to where they live and work'. SINCs are also a key part of London's heritage and cultural identity. As the key nodes of London's nature recovery network, maintaining and, where possible, expanding the SINC network is vital to the overall ecological health of the city's green infrastructure network. The SINC network also provides London's residents and visitors with access and connection to nature so that they can enjoy its many benefits.

More than 1,600 SINCs cover almost 20 per cent of the city's surface area. These are divided into three grades[2,3]:

- **Sites of Metropolitan Importance** are SINCs containing the best examples of London's habitats. These sites host rare species, rare assemblages of species or important populations of species, or are of significance in otherwise heavily built-up areas. There are over 140 Metropolitan sites, covering nearly 10 per cent of London.
- **Sites of Borough Importance** are SINCs that are important for a borough. There are almost 800 Borough sites, covering nearly eight per cent of London.
- **Sites of Local Importance** are SINCs that are, or may be, of value to people nearby (such as residents or schools). There are around 460 Local sites, covering just over one per cent of London.

The London Plan and borough Local Plans include protection of the SINC network. London boroughs can designate, change, and remove designations through the Local Plan process. The London Wildlife Sites Board provides guidance and recommendations to London Boroughs for their review process. This helps to maintain consistency of approach to London Plan policy.

2.2 London's geodiversity

London's biodiversity is underpinned and influenced by its geodiversity (rocks, minerals, landform and soil diversity). Greater London lies within the London basin, a large geological 'dish' that dominates the geology of the Home Counties. It is bounded to the south by the chalk of the North Downs and to the north by the chalk outcrop of the Chiltern Hills[4].

London's main bedrocks are chalk and London Clay, with much of the surface geology made up of sands and gravels. The London Clay Formation produces heavy acidic soils, often prone to waterlogging in winter months and to shrinking and cracking in summer. The soils formed from this surface geology produce a complex mosaic of different habitats with distinct plants and wildlife[5].

The Thames and its tributaries form a broad, shallow valley[6]. The main tributaries of the Thames within London are the Hogsmill, Beverley Brook, Wandle, Ravensbourne, Roding, Ingrebourne, Beam, Lea, Brent, Crane, and Colne.

2.3 London's nature and the historic environment

The historic environment encompasses 'all aspects of the environment resulting from the interaction between people and places through time'[7]. The natural environment across the whole of London has been, and continues to be, influenced by people. For example, nearly all woodlands were or are currently managed in some way. This could be for biodiversity, aesthetics or productive purposes[8]. Similarly, most ponds and lakes are human-made, often for aesthetic purposes. However, these can still be an important part of habitat networks.

Many green spaces in London are recognised for their historic value and have cultural significance. The Thames is an example of an iconic feature today, but also the focus for historic waterside development and transport of people and goods. London also has 168 registered parks and gardens, and more than 2,000 green spaces on the Greater London Historic Environment Record.

Nature recovery has potential to help protect and enhance the historic environment. For example, the Thames and London's wetlands contain well-preserved archaeological remains. Conserving these habitats helps avoid damage to such archaeology. Nature recovery can also enhance and restore historic landscapes, for example by reinstating habitats such as wood pasture and traditional orchards. However, there may be instances where nature recovery projects could negatively affect the historic environment. For example, a project could change the character and setting of a heritage asset or disturb archaeological remains. As such, the historic environment should be considered at the project planning stage. This will maximise win-wins for nature and the historic environment, while avoiding or minimising any potential negative effects.

2.4 London's landscape character

The following eleven London LNRS landscape area descriptions are based on those identified in the 2012 All London Green Grid (ALGG)[9]. These descriptions bring together the 22 landscape character zones, known as 'Natural Signatures' set out by Natural England in 2011[10]. They consider a range of landscapes, bringing blue and green infrastructure together. The landscape areas are shown in **Figure 2.1**.

Figure 2.1: Map of London's LNRS landscape areas

Produced by Greenspace Information for Greater London CIC (GiGL), April 2025. Landscape Area data from GLA.

Lea Valley and Finchley Ridge

The Lea Valley has a tidal and freshwater marshland character of wetlands, marshes and meadows, patches of rough grassland, scrubland, and woodland.

Finchley Ridge is largely suburban and broken into a series of hills by streams such as Pymmes Brook, Salmons Brook and Turkey Brook which flow east to the River Lea, and others flowing south to the Brent River.

The Lea Valley and Finchley Ridge includes parts of the boroughs of Barnet, Enfield, Hackney, Haringey, Newham, Islington, Tower Hamlets and Waltham Forest. The area includes four of the natural signatures:

- **Finchley Ridge** – Ridgetop blocks of ancient woodland on former common land.
- **Hampstead Ridge** – A mosaic of ancient woodland, scrub and acid grassland along ridgetop summits with panoramic views.
- **Lea River Valley** – Braided tributary streams flowing across wide open marshes to join the River Lea and its sequence of reservoirs.
- **North Thames Terrace** – Flat, open grassland, stepping up from the Thames, with narrow sinuous strips of woodland marking the alignment of tributary creeks.

Epping Forest and River Roding

Epping Forest includes ancient remnants of the former Royal Hunting Forest. At almost 2,500 ha it is the largest open space in London. The Roding Valley is a diverse riverside and human-influenced landscape. Its upper course is narrow and winding with willow-lined riverbanks. The Lower Roding / Barking Creek is the semi tidal stretch of the river, largely canalised (in a human-made channel) but still has mudbanks exposed at low tide and large reed beds.

Epping Forest and Roding Valley includes parts of the boroughs of Barking and Dagenham, Newham, Redbridge and Waltham Forest. The area includes four of the natural signatures:

- **Essex Plateau** – Mosaics of ancient woodland, wood pasture and acid grassland within the former royal hunting ‘forests’ at Epping Forest and Havering.
- **Roding River Valley** – The narrow, sinuous course of the upper River Roding where the riverbanks are lined with willows.
- **North Thames Terraces** – Flat, open grassland, stepping up from the Thames, with narrow sinuous strips of woodland marking the alignment of tributary creeks.
- **Lower Thames Floodplain** – A vast, flat riverside zone of grazed saltmarshes grading to reedswamp, mudflats and the wide tidal Thames – the most striking and immediately visible natural element in London.

© Francis Castro, Long horned cattle grazing in Epping Forest

2,500 ha

Epping Forest includes ancient remnants of the former Royal Hunting Forest. At almost 2,500 ha it is the largest open space in London.

Thames Chase, Beam and Ingrebourne

This varied landscape is interspersed with relatively unspoilt farmland, marshland, and floodplain, including regionally important areas for wildlife, such as Fairlop Plain, Eastbrookend, Hornchurch and Thames Chase Community Forest. Rainham, Wennington and Aveley Marshes in the southeast of the area form the Inner Thames Marshes SSSI. This area comprises flat grazing marshes of grassland and reed beds, intersected by a network of ditches. The Thames Chase, Beam and Ingrebourne includes parts of the boroughs of Barking and Dagenham, Redbridge and Havering. The area includes three of the natural signatures:

- **Essex Plateau** – Mosaics of ancient woodland, wood pasture and acid grassland within the former royal hunting 'forests' at Epping Forest and Havering.
- **North Thames Terraces** – Flat, open grassland, stepping up from the Thames, with narrow sinuous strips of woodland marking the alignment of tributary creeks.
- **Lower Thames Floodplain** – A vast, flat riverside zone of grazed saltmarshes grading to reed swamp, mudflats and the wide tidal Thames – the most striking and immediately visible natural element in London.

© Francis Castro, Crossness nature reserve

River Cray and Southern Marshes

The River Cray and Southern Marshes includes major bands of chalk that rise close to the surface and defines much of the flora and fauna of the river valleys. The local Green Belt includes the slopes of the North Downs, which contain ancient woodland connected by hedgerows surrounded by open farmland.

The north of the valley features extensive woodland, grazed water meadow, horse paddocks and arable fields. Towards the River Darent, there are tidal mudflats and reedbeds extending to the tidal flood barrier marking the outfall to the Thames. The River Cray and Southern Marshes include parts of the boroughs of Bexley and Bromley. The area includes four of the natural signatures:

- **Lower Thames Floodplain** – A vast, flat riverside zone of grazed saltmarshes grading to reed swamp, mudflats and the wide tidal Thames – the most striking and immediately visible natural element in London.
- **South London Pebbly Sands** – Historic heathy commons and extensive woodland on elevated land with views over the Thames Basin from ridgetops and summits.
- **River Cray Valley** – Chalk River with a natural profile which flows through a sequence of floodplain meadows and wet woodlands.
- **Lower North Downs Dip Slope** – A diverse landscape with a transition from heath, scrub and woodland on the lower slopes to more open farmland and scattered ancient woodland on the rising chalklands to the south.

South East London Green Chain Plus

The South East London Green Chain Plus includes areas of ancient woodland, meadows and commons, sitting alongside formal gardens and playing fields. Tidal creeks and rivers, with their associated wetlands, parks and green corridors, are also characteristic of this area, including the River Thames and rivers Pool, Quaggy, Ravensbourne and Shuttle. The eastern marshlands stretch into the southern ridge towards Thamesmead. The South East London Green Chain Plus includes parts of the boroughs of Bexley, Bromley, Croydon, Greenwich, Lewisham and Southwark. The area includes four of the natural signatures:

- **Lower Thames Floodplain** – A vast, flat riverside zone of grazed saltmarshes grading to reedswamp, mudflats and the wide tidal Thames – the most striking and immediately visible natural element in London.
- **South London Clays and Gravels** – Small hedged meadows and large heathy commons set against a backdrop of extensive woodlands on higher land.
- **Ravensbourne River Valley** – A network of small rivers, bounded by gravel terraces, which flow through water meadows and tidal flood meadows before reaching the Thames as a navigable channel, bordered by working wharves.
- **South London Pebbly Sands** – Historic heathy commons and extensive woodland on elevated land with views over the Thames Basin from ridgetops and summits.

London's Downlands

This area contains most of London's woodlands, trees, hedgerows, and chalk grasslands, with a mosaic of small mixed farming and arable fields. The Surrey Hills Area of Outstanding Natural Beauty (AONB) and the Kent Downs AONB adjoin the Green Belt and overlap the edge of this area, which makes access into open countryside feasible from the London's Downlands. Large accessible and nature rich open spaces, such as Farthing Downs, Happy Valley and Coulsdon Common, form part of the South London Downs National Nature Reserve and create green corridors that extend into the more urban parts of this area. The London's Downlands Area includes the boroughs of Bromley, Croydon and Sutton. The area includes six of the natural signatures:

- **South London Clays and Gravels** – Small hedged meadows and large heathy commons set against a backdrop of extensive woodlands on higher land.
- **Ravensbourne River Valley** – A network of small rivers, bounded by gravel terraces, which flow through water meadows and tidal flood meadows before reaching the Thames as a navigable channel, bordered by working wharves.

- **River Cray Valley** – Chalk river with a natural profile which flows through a sequence of floodplain meadows and wet woodlands.
- **South London Pebbly Sands** – Historic heathy commons and extensive woodland on elevated land with views over the Thames Basin from ridgetops and summits.
- **Lower North Downs Dip Slope** – A diverse landscape with a transition from heath, scrub and woodland on the lower slopes to more open farmland and scattered ancient woodland on the rising chalklands to the south.
- **Upper North Downs Dip Slope** – Ancient woodland and chalk grassland on steep valley slopes emphasise the striking, sculpted chalkland relief.

© Steven Lofting, Keston Bog, Bromley

Wandle Valley

The River Wandle emerges through the North Downs chalk and flows through the Wandle Valley, joining the Thames nearly 20 miles to the north. Now largely in an underground channel, there remain in places natural banks, wet woodlands, large commons, and water meadows. The Wandle Valley Area includes parts of the boroughs of Croydon, Lambeth, Merton, Sutton and Wandsworth. The area includes four of the natural signatures:

- **South Thames Heaths and Commons** – Mosaic of heathland, grassland and ancient wood pastures with groups of veteran trees.
- **Wandle River Valley** – Water meadows following the meandering course of the river, with bands of wet woodland.
- **South London Clays and Gravels** – Small hedged meadows and large heathy commons set against a backdrop of extensive woodlands on higher land.
- **Lower North Downs Dip Slope** – A diverse landscape with a transition from heath, scrub and woodland on the lower slopes to more open farmland and scattered ancient woodland on the rising chalklands to the south.

Arcadian Thames

The broad floodplain of the meandering Upper Thames is flanked by gravel terraces and tributary side valleys, with the large open spaces of Richmond Park through to Wimbledon Common and Putney Heath provide a rich mosaic of heath, common, ancient woodland and parkland. To the south, towards Kingston, Tolworth and Chessington, pockets of amenity spaces, grassland and woodland lead from the built up area into the urban fringe countryside where a network of woodlands, hedgerows and small meadows can be found. The Arcadian Thames includes parts of the boroughs of Hounslow, Kingston, Merton, Richmond, Sutton and Wandsworth. The area includes three of the natural signatures:

- **Upper Thames** – The meandering River Thames, together with the transitional mudflats, shingle beaches, islands and flood meadows alongside.
- **South Thames Heaths and Commons** – Mosaic of heathland, grassland and ancient wood pastures with groups of veteran trees.
- **South London Clays and Gravels** – Small hedged meadows and large heathy commons set against a backdrop of extensive woodlands on higher land.

River Colne and Crane

Colne Valley Regional Park stretches in a three-mile-wide band, some 15 miles from Rickmansworth in the north to the River Thames and Staines in the south. The Crane is a lowland river system that flows through west London (rising in Harrow as the Yeading Brook). Alongside the ancient woodlands of the Ruislip Plateau (Ruislip Woods) and reservoirs of the Thames floodplain, it creates a mosaic of farmland, hedgerows, heath, acid grassland, scrub, woodland, ponds and lakes.

The River Colne and Crane includes parts of the boroughs of Ealing, Hillingdon, Hounslow, Harrow and Richmond. The area includes seven of the natural signatures:

- **Colne Valley** – Fast-flowing, clean rivers set within floodplain meadows bordered by damp woodland.
- **Ruislip Plateau** – Field hedgerows dotted with oaks and bluebells beneath hornbeam coppice echoing the ancient trees of Ruislip Woods.
- **Barnet Plateau** – Long views from remnant heathy commons.
- **Hampstead Ridge** – A mosaic of ancient woodland, scrub and acid grassland along ridgetop summits with panoramic views.

- **Hayes Gravels** – Small-scale, enclosed landscape of meadows bordered by tall hedgerows, with woodlands, copses and hedgerow trees.
- **Brent River Valley** – Meandering, shallow river bordered by diverse floodplain meadows and winding strips of damp woodland.
- **Hounslow Gravels** – A large scale mosaic of heathy grassland, scrub and secondary woodland, traversed by narrow, lush stream corridors.

© Francis Castro, A large mural outside Tolworth station

Brent Valley and Barnet Plateau

The northern part of the area retains a farmland character on the urban fringe, with a mosaic of golf courses, heathland, commons and woodland. There are large accessible open spaces in the Green Belt including Moat Mount Open Space, Scratchwood Country Park, Stanmore Common and Harrow Weald Common, including Watling Chase Community Forest.

Hampstead Heath forms the principal large open space, within the Finchley and Hampstead Ridges, which has a unique mix of semi-natural and formal habitats. The Brent Valley and Barnet Plateau includes parts of the boroughs of Barnet, Brent, Camden, Ealing, Harrow and Hounslow. The area includes six of the natural signatures:

- **Ruislip Plateau** – Field hedgerows dotted with oaks and bluebells beneath hornbeam coppice echoing the ancient trees of Ruislip Woods.
- **Barnet Plateau** – Long views from remnant heathy commons.
- **Finchley Ridge** – Ridgetop blocks of ancient woodland on former common land.
- **Hampstead Ridge** – A mosaic of ancient woodland, scrub and acid grassland along ridgetop summits with panoramic views.
- **Hayes Gravels** – Small-scale, enclosed landscape of meadows bordered by tall hedgerows, with woodlands, copses and hedgerow trees.
- **Brent River Valley** – Meandering, shallow river bordered by diverse floodplain meadows and winding strips of damp woodland.

Central London

Central London includes parts of the boroughs of Camden, Islington, Hackney, Hammersmith and Fulham, Kensington and Chelsea, Lambeth, Southwark, Tower Hamlets, Wandsworth, Westminster, and the City of London. The area is the most urbanised part of London, which presents unique challenges in implementing green infrastructure interventions. However, it is also the place where new and improved green infrastructure could provide significant benefits in relation to surface water flood management, mitigating the urban heat island effect and increasing access to open space.

The area includes six of the natural signatures:

- **Hampstead Ridge** – Small-scale, enclosed landscape of meadows bordered by tall hedgerows, with woodlands, copses and hedgerow trees.
- **North Thames Terraces** – Flat, open grassland, stepping up from the Thames, with narrow sinuous strips of woodland marking the alignment of tributary creeks.

- **Hayes Gravels** – Meandering, shallow river bordered by diverse floodplain meadows and winding strips of damp woodland.
- **Upper Thames** – The meandering River Thames, together with the transitional mudflats, shingle beaches, islands and flood meadows alongside.
- **Lower Thames Floodplain** – A vast, flat riverside zone of grazed saltmarshes grading to reedswamp, mudflats and the wide tidal Thames – the most immediately visible natural element in London.
- **South London** – Small hedged meadows and large heathy commons set against a backdrop of extensive woodlands on higher land.

© Francis Castro, Tower of London Wildflower Meadow

2.5 London's habitats

A habitat is the physical environment that sustains living things, such as rivers, woodland, or grassland. It includes both living and non-living parts of the environment. This section focuses on semi-natural ('green' and 'blue') habitats, which host most of the biodiversity in London, but some other relevant land uses are also included below.

The **London Environment Strategy**[11] identifies ten priority habitats[12] in London, as set out below. These are the most threatened and in need of restoration:

- Acid grassland
- Chalk grassland
- Lowland meadows
- Rivers and Streams
- Coastal and floodplain grazing marsh
- Fen, marsh, and swamp
- Reedbeds
- Heathland
- Open mosaic habitats on previously developed land
- Orchards.

The maps presented in this section are based on the best available data held by GiGL at the time of LNRS preparation. They only show the data with highest confidence that the habitat exists at that location. The date of this habitat data varies between areas, depending on when habitat surveys were last conducted. Nevertheless, the broad distribution across London is still expected to be accurate.

Grassland

Grassland is the most widespread habitat in London, but not all grassland is of high value to wildlife. Frequently mown areas, such as recreation grounds and golf courses are generally of lesser value to wildlife, although their margins may be used by wildlife. Aside from these areas, London contains around 700 ha of neutral grassland / lowland meadow[13], plus areas of chalk and acid grassland (see below). Most of this is in outer London. However, there are some areas of lowland meadow in more central boroughs, particularly towards the east. **Figure 2.2**, **Figure 2.3**, and **Figure 2.4** show the distribution of different grassland types across London.

Acid grassland, chalk grassland, and lowland meadows are priority habitats for London. The London Environment Strategy includes targets to create 250 ha flower-rich grassland by 2050. Creating an additional 300 ha by 2050 could be achieved using just one per cent of existing public green space[14].

Acid grassland has fewer plant species but supports some characteristic plants that are not found in other grassland types. There are 1,500 ha of acid grassland in London[15], of which almost half is in Richmond (particularly within Richmond Park and Bushy Park). Acid grassland in London is also important for its unique community of invertebrates, including many solitary bees and wasps.

Chalk grassland, by contrast, tends to be rich in flowers, with many colourful orchids. This is a rare habitat in London, with just over 300 ha[16] on the chalk hills around the southern edge of London, in Croydon, Bromley and Sutton. Much of London's chalk grassland is protected as Sites of Special Scientific Interest[17].

Figure 2.2: Distribution of Lowland Meadow in Greater London 2024

Distribution of Lowland Meadow in Greater London

Produced by Greenspace Information for Greater London CIC, Dec 2024

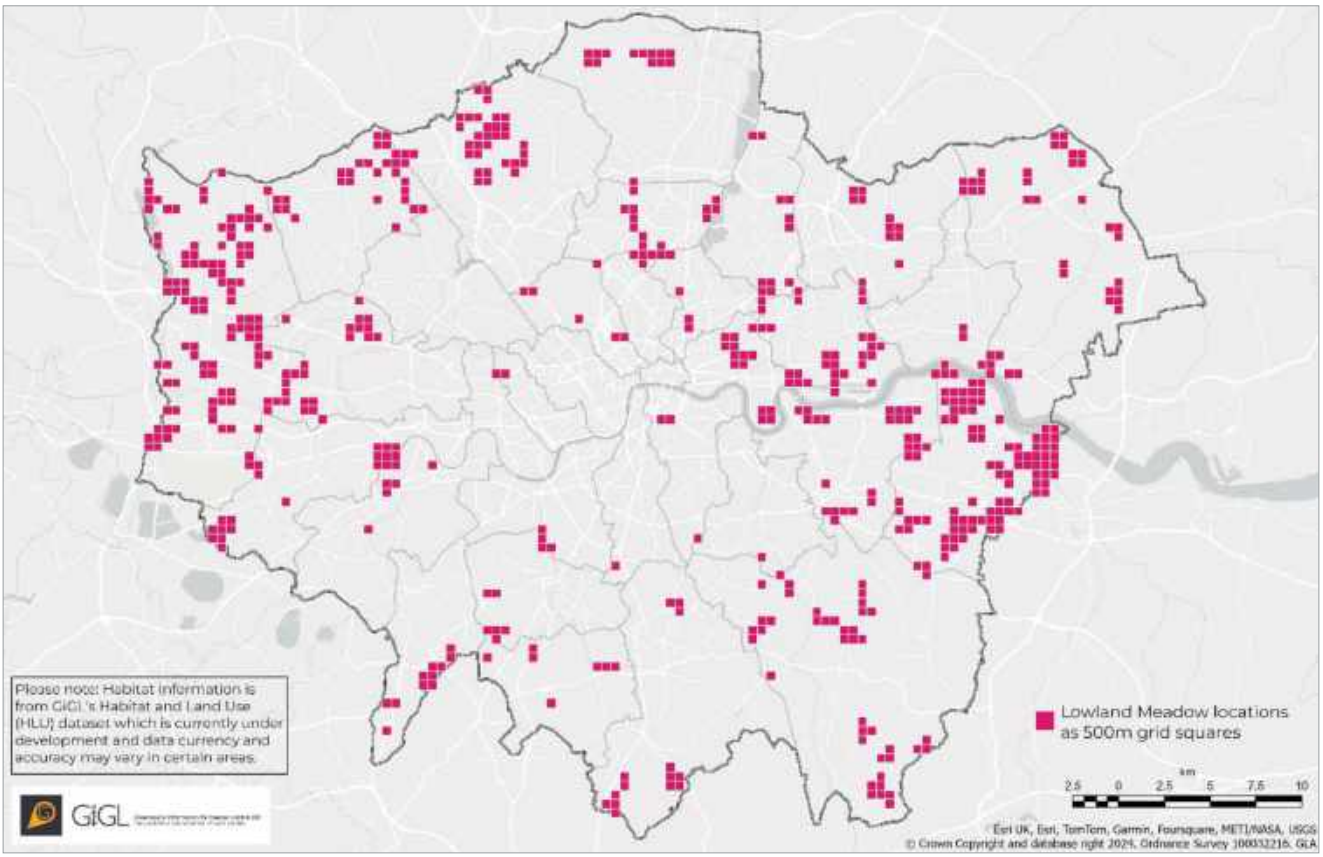


Figure 2.3: Distribution of Acid Grassland in Greater London 2024

Distribution of Acid Grassland in Greater London

Produced by Greenspace Information for Greater London CIC, Dec 2024

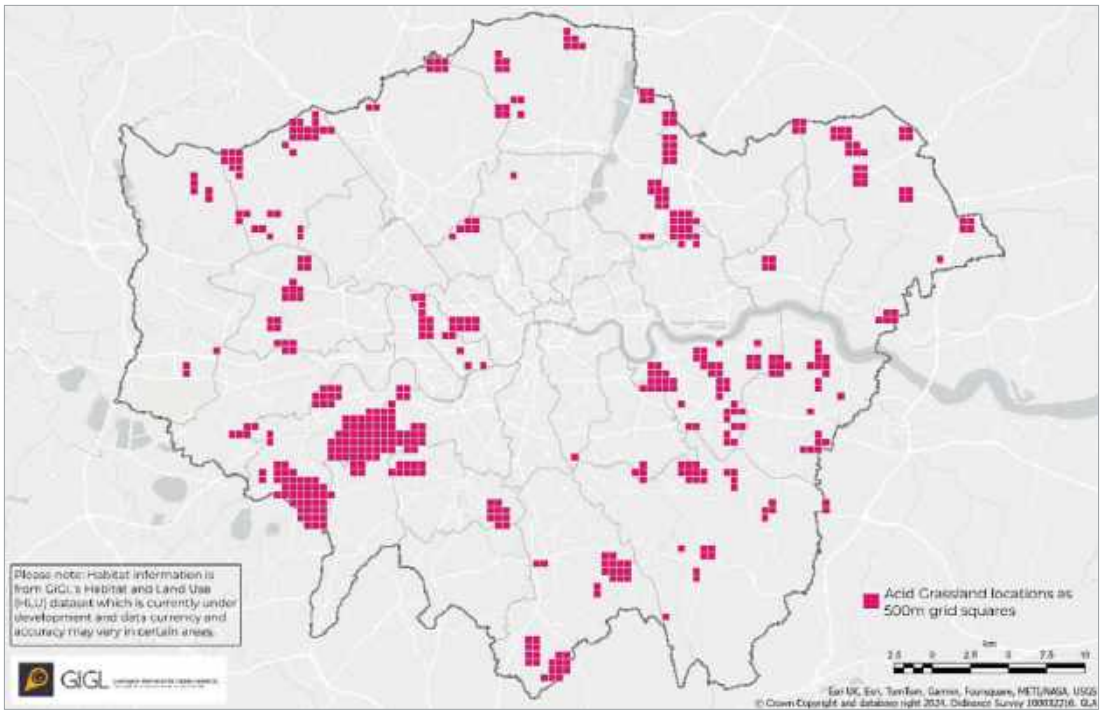
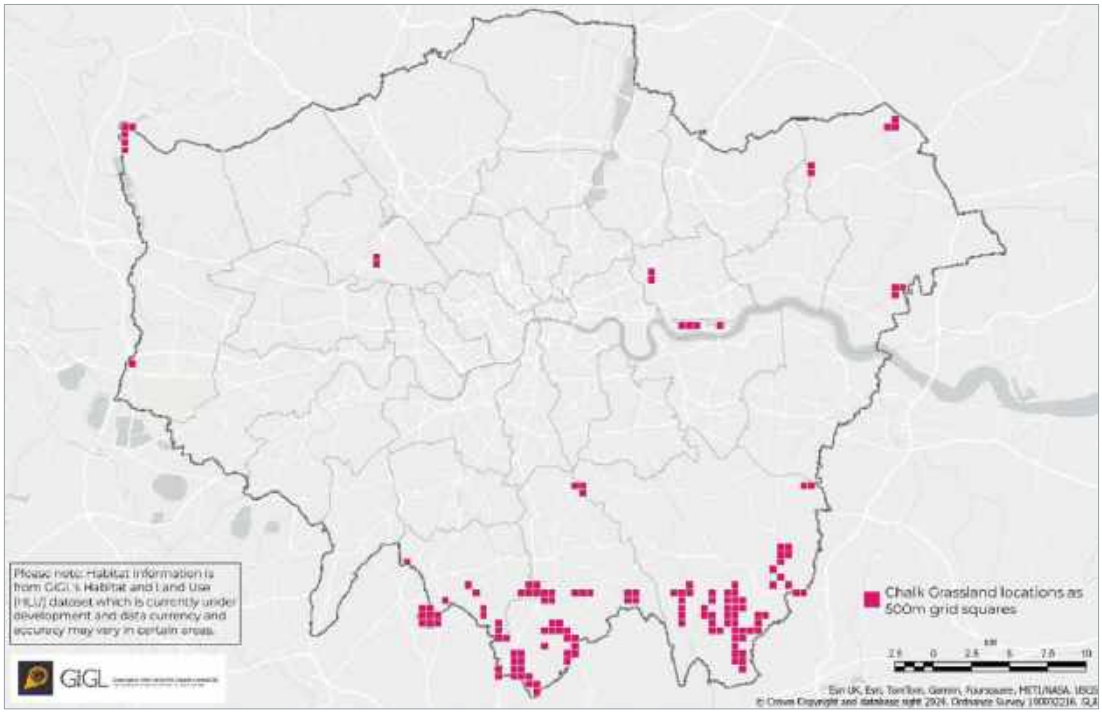


Figure 2.4: Distribution of Chalk Grassland in Greater London 2024

Distribution of Chalk Grassland in Greater London

Produced by Greenspace Information for Greater London CIC, Dec 2024



Waterways and other wetland habitats

Rivers and streams are an important part of London's ecological network. Rivers and waterways provide essential blue corridors for aquatic, wetland and riparian (waterside) plants and wildlife. Waterways and their surroundings often provide valuable green links, and pathways and cycleways. The **London Environment Strategy**[18] sets a target for 40km rivers and streams to be restored by 2050 and the Mayor has pledged to clean up London's rivers[19].

The Thames is an iconic feature of London, occupying 24 square kilometres within Greater London's boundaries. London also has many smaller waterways, with around 600km of rivers and streams flowing through Greater London to the Thames. These are associated with 11 river catchment partnerships, as shown in **Figure 2.5**.

Some 41 of the 47 waterbodies identified in the Thames Basin River Management Plan (2022) have a significant enough proportion in London to be managed under the Water Framework Directive. These waterbodies require planning and monitoring for their quality. Currently, 36 of these rivers are classed as being of 'moderate' condition, three are 'poor', and two are in 'bad' condition[20].

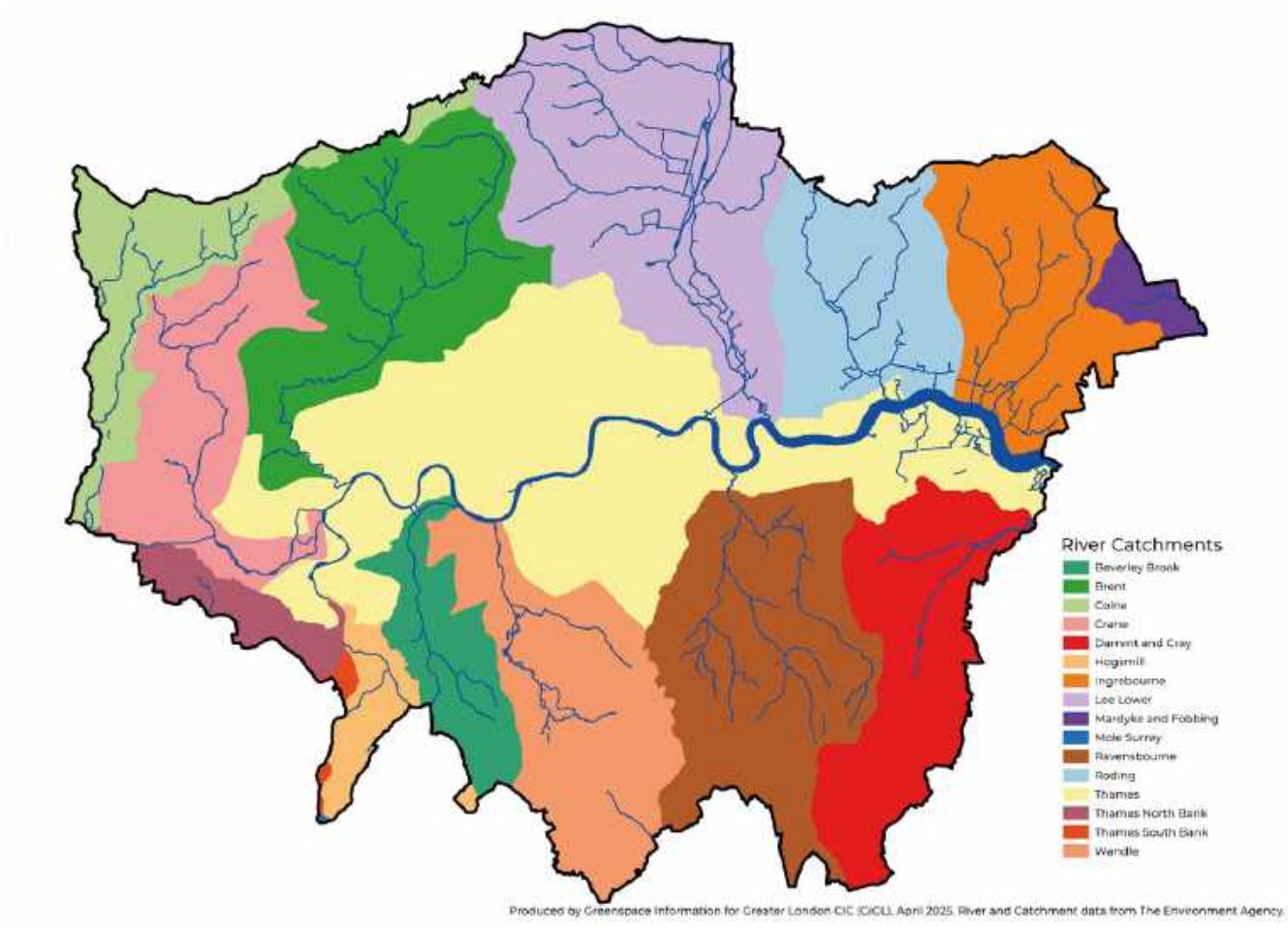
Chalk rivers and streams are watercourses that occur in areas of chalk bedrock. This tends to make the water clear and rich in minerals, with potential to support lots of different species. Some 85 per cent of the world's 200 known chalk streams are in England. Six of these flow through south London.

The Thames and many other rivers in London have been separated from their natural floodplains by flood defences and sewer systems. They have also been modified in other ways, such as the introduction of locks and weirs, being straightened, widened, or lined with concrete[21]. Many rivers in London, particularly smaller rivers, have been culverted (covered or diverted underground) and the exact route of many of these is unknown.

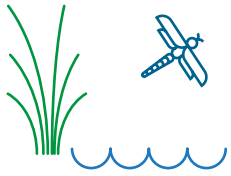
Many species rely on rivers without artificial barriers or low flows to complete their lifecycles. Substantial barriers and modifications to waterways in London, including the Thames Barrier, have impacted species (such as the critically endangered European eel) which were once common upstream. The Thames river basin district river basin management plan (RBMP) discusses the challenges facing the water environment and how these challenges can be managed[22].

London also has a canal network, including the Regents Canal and Grand Union Canal. While human-made, canals can provide habitat for wildlife as well as travel and recreational opportunities.

Figure 2.5: London's Rivers and Catchments (GiGL (2025))



Wetlands are vital to London's ecological network. These habitats are covered by water, either permanently or seasonally. This includes ponds, lakes, and reservoirs, as well as the following London priority habitats: coastal and floodplain grazing marsh; fen, marsh and swamp; and reedbeds. London has some large wetlands that are managed for wildlife, including London Wetland Centre, Walthamstow Wetlands and Woodberry Wetlands. In addition, there are many smaller lakes and ponds in parks and gardens. In the UK, 90 per cent of wetland habitats have been lost over the last 100 years. As a result, many wetland species are threatened with extinction.



90%

In the UK, 90 per cent of wetland habitats have been lost over the last 100 years.

Important areas of seasonally flooded grassland exist in London. These include the grazing marshes associated with the lower Thames floodplain at Rainham, Crayford and Erith[23]. Grazing marsh and floodplain grassland habitat in Greater London is limited in distribution, extent, and quality. This reflects national declines

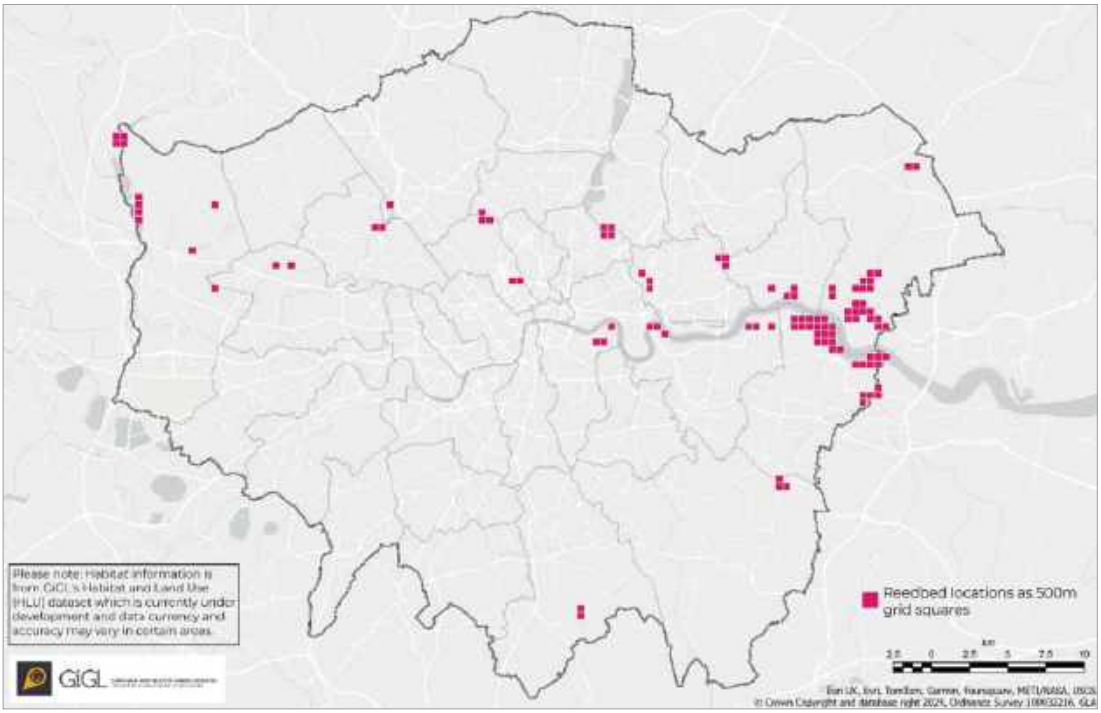
of these habitats. Estuarine grazing marsh is found in three London boroughs: Barking and Dagenham, Bexley, and Havering, the latter boasting over half of London's estuarine grazing marsh. Havering also has the highest total recorded floodplain grassland (135 ha or 31 per cent of the London total), followed by Hillingdon and Richmond upon Thames. These three boroughs host 70 per cent of London's floodplain grassland resource, although floodplain grassland has been recorded in 14 out of 33 London boroughs[24].

Marshland habitat within London is now relatively rare and fragmented and is mostly found in outer London boroughs. There are some small areas of wet marginal vegetation, associated with waterbodies in parts of inner London. There are around 288 ha of coastal and floodplain grazing marsh, and 124 ha of fen, marsh and swamp in Greater London[25]. The Ingrebourne Valley supports the largest and one of the most diverse areas of freshwater marshland in Greater London. This includes extensive areas of reed sweet-grass and common reedswamp, wet neutral grassland, and tall fen.

Figure 2.6: Distribution of Reedbeds in Greater London 2024

Distribution of Reedbeds in Greater London

Produced by Greenspace Information for Greater London CIC, Dec 2024



London includes a small number of bogs, scattered across Greater London. The largest are at Keston and Wimbledon Common. Bogs are wet areas, characterised by the presence of sphagnum moss. Bogs can support rare and specialist plant species, as well as a range of wetland wildlife. This environment also slowly creates peat deposits, which store large amounts of carbon.

Reedbeds are wetlands dominated by stands of common reed (Phragmites australis), where the water table is at or above ground level for most of the year. Reeds are found along waterbodies and waterways across London. However, in many places they occur as a narrow fringe or small patch, rather than a large area of reedbed habitat[26]. The London Environment Strategy sets a target to create 30 ha of reedbeds by 2050.

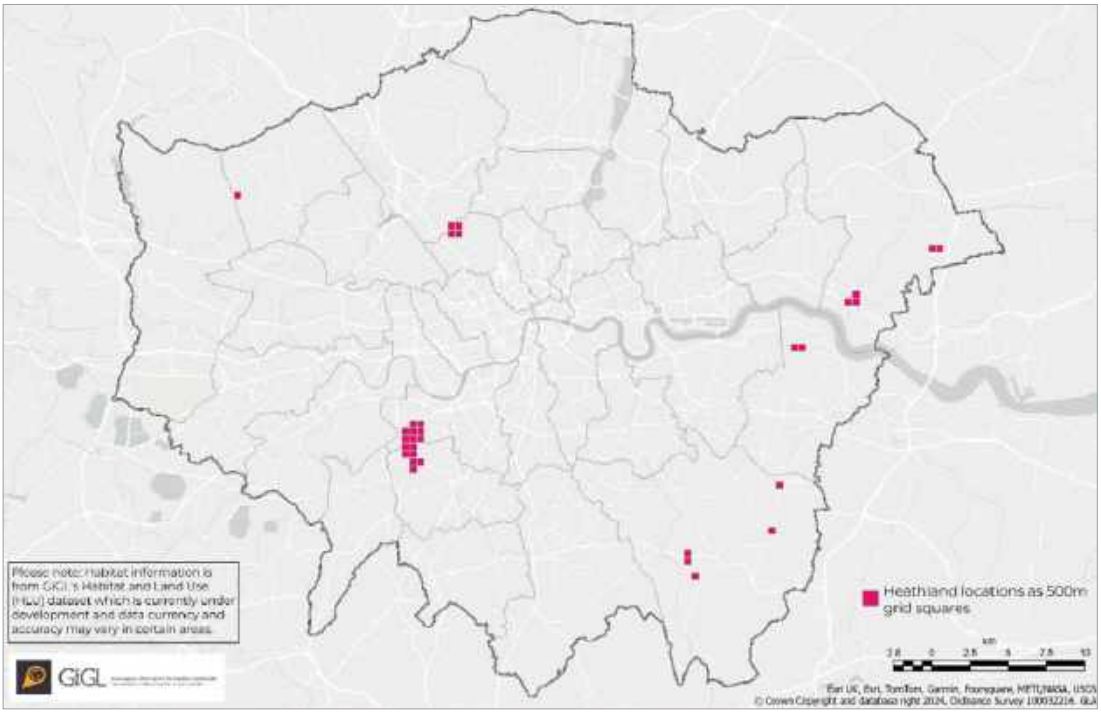
Heathland

Heathland is a priority habitat for London. Traditional heathland forms open landscapes dominated by low-growing shrubs such as heather and dwarf gorse, with acid boggy pools in damper areas. Most of London's historic heathland has been lost through the expansion

Figure 2.7: Distribution of Heathland in Greater London 2024

Distribution of Heathland in Greater London

Produced by Greenspace Information for Greater London CIC, Dec 2024



of suburbia, air pollution, neglect and mismanagement, so that only about 80 ha remain[27]. The largest remaining area of heathland in London is at Wimbledon Common and Putney Heath, between Merton and Wandsworth boroughs. **Figure 2.7** shows the distribution of heathland across London.

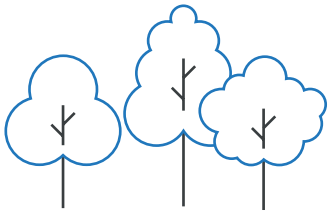
Urban forest

About 20 per cent of London is covered by trees, from street trees to ancient woodlands[28]. Together, these eight million trees[29] and woodlands form London's urban forest. This includes ancient woodland, community orchards, street trees and trees in parks. London's woodlands are mostly broadleaved and cover eight per cent of London's land area (13,300 ha), with 20 per cent of this defined as ancient woodland.

London's trees remove an estimated 2,000 tonnes of pollution from the air each year. This is equivalent to 13 per cent of particulates (PM10) and 14 per cent of Nitrogen Dioxide (NO2) emitted by motor transport[30]. London's urban forest provides at least £133m of value each year[31].

The urban forest consists of a range of species, including native ash, hawthorn, and hornbeam, and a variety of exotics and cultivars. The most common tree species across London are sycamore (7.8 per cent), oak (7.3 per cent) and birch (6.2 per cent). London planes only make up 1.36 per cent overall. However, their size and prime location means they play an important role in the character of London. Many of London's protected and priority wildlife species (including bats, song thrush, spotted flycatcher, stag beetle and orchids) are strongly associated with ancient woodlands, veteran trees, and mature scrub.

London's ancient woods include Epping Forest and remaining fragments of the Great North Wood, echoed in place names such as Forest Hill. Just over 230 ha of ancient woodland in London is Plantation on Ancient Woodland Sites. **Figure 2.8** shows the variation in woodland cover across London. This shows that there is generally higher woodland cover towards outer London, with less in the centre.



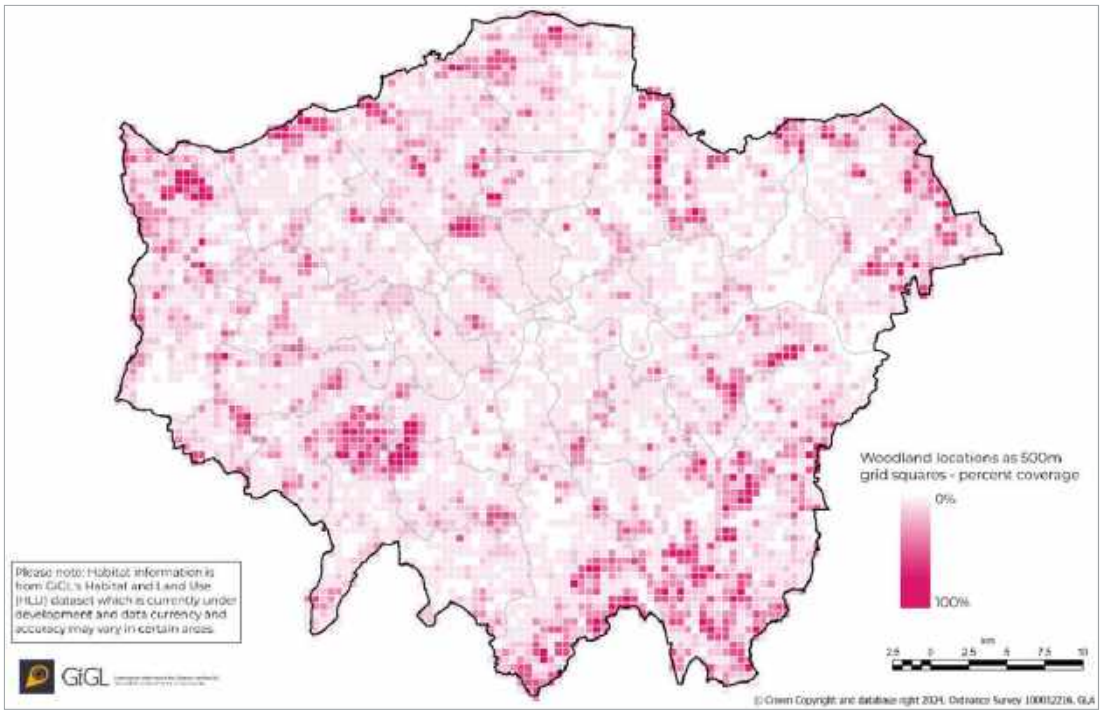
2,000 tons

London's trees remove an estimated 2,000 tonnes of pollution from the air each year.

Figure 2.8: Distribution of Woodland in Greater London 2024

Distribution of Woodland in Greater London

Produced by Greenspace Information for Greater London CIC, Dec 2024



Tree cover is not distributed evenly across London and the percentage canopy cover ranges from 3 per cent at its lowest (in Barking and Dagenham) to 45 per cent in Chislehurst, Bromley[32]. Tree equity is a measure of how easy it is for people to access trees. Whilst much of London has a high tree equity score, there are several neighbourhoods with lower scores, with the lowest in Brent[33].

Scrub and hedgerows are lesser recognised but important features of the urban forest in London. Scrub is a mosaic of small trees and shrubs and provides a home for many birds and butterflies at risk. Hedgerows provide vital links between habitats and provide refuge for species but have been lost to development and field expansion. This reflects the national picture.

Orchards are areas including trees and shrubs planted for food, particularly fruit and nuts, as well as grassland. Many of London's orchards have been lost to urbanisation, but remnants of historic orchards remain in green spaces and gardens around the city[34]. Orchards are a priority habitat in London, as they are a nationally threatened habitat that provides an important refuge for many species. Orchards seem to have increased in recent years to a total of around 50 ha in London[35].

The London Environment Strategy aims to protect and manage the existing urban forest and increase canopy cover by 10 per cent of 2018 levels, providing ~3,300 ha of additional tree cover[36]. The London Urban Forest Plan (2020) and actions update (2025) has 12 goals for

woodland and trees to improve resilience, provide benefits for people and nature, plant new woodlands and trees, engage communities, and recognise potential income from woodland management. The plan calls for creating new woodland, particularly in the greenbelt, and planting trees in parks, greenspaces and on streets, focusing on areas with low existing canopy cover. It also identifies the need to protect woodlands and trees by improving resilience to pests, diseases, and climate change, which can be delivered through improved management.

Open mosaic habitat

Open mosaic habitat on previously developed land is one of London's priority habitats (see above). This habitat is generally a mix of bare ground and vegetation such as grassland, flowers, and scrub. There are around 974 ha of open mosaic habitat on previously developed land in London[37].

Such habitat is often overlooked as it is considered to be 'wasteland', and there is often substantial development pressure on open mosaic habitat on previously developed land. This is due to policy prioritising the use of brownfield land for development to reduce the need for development on greenfield land. However, it can be valuable, particularly for invertebrates and birds such as black redstart.

© Creekside Education Trust, Deptford Creek SINC Link

Other relevant land uses

As a large city, green space can take many forms and provides important refuges for wildlife in the urban area. Additional land uses of value to nature are discussed below.

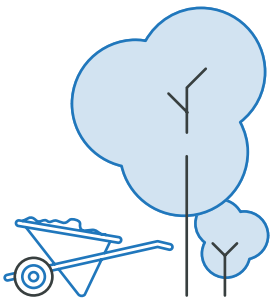
Urban green space

London's green space is made up of a wide range of habitats. As a highly urbanised area, it is important to recognise how these green spaces contribute to London's biodiversity. These spaces are also where most Londoners experience nature. Getting outdoors into leafy green spaces is vital to Londoners' mental health and wellbeing. This was shown during the Covid-19 crisis, when visits increased by 25 per cent compared to 2018, highlighting their critical role[38].

London has several large, historic parks, including eight Royal Parks. Some of the bigger and older parks are of very high biodiversity value. For example, Richmond Park is a National Nature Reserve and a Special Area of Conservation. While parks vary in their wildlife value, most are home to a range of common birds, butterflies, and other animals.

Cemeteries and churchyards often provide a refuge for wildlife, particularly London's large Victorian cemeteries, such as Highgate, Nunhead, Kensal Green and Abney Park. These usually consist of a mix of trees and shrubs, grassland, and bare ground. They are generally less intensively managed than parks. As such, they can be better for biodiversity.

London has over 2,000 community gardens[39], 12 city farms[40], and more than 740 allotments with over 40,000 plots[41]. A recent survey of food growing sites such as community gardens and allotments found that these sites provide significant habitat for nature. They excel in providing pollinator-friendly - often organic - planting, fruit trees and compost heaps. Built interventions such as insect hotels, bird boxes and ponds were also very common, with 50 to 70 per cent of sites including these features. However, the survey found that few sites are monitoring and recording biodiversity. This means that data and trend identification is limited or anecdotal. The results may also be over-representative, as sites most engaged with biodiversity may have been more likely to respond[42].



2,000

community gardens, 12 city farms, and more than 740 allotments with over 40,000 plots exist in London.

Domestic gardens make up 24 per cent of London's land area. Much of this is paved, decked, or covered by sheds or similar buildings and there is a growing trend for replacing vegetation with hard surfaces. Vegetated garden land only makes up around 14 per cent of London's land area[43] but can provide a mixture of habitats. These tend to support birds such as robin, song thrush and various tits, as well as butterflies, such as the speckled wood and holly blue[44]. Garden land varies across London. Sutton has the highest percentage of garden land of all London boroughs at 33 per cent. The City of London has a very small percentage of garden land, reflecting its urban nature and much lower resident population. Gardens can form wildlife corridors and stepping stones, allowing wildlife to move through urban areas[45]. Gardens can contain fragments of important habitats, but their value to nature depends on how they are used and managed. Nevertheless, research suggests that mature trees and vegetation in urban gardens 'could be the best way of enhancing abundance in the widest possible range of taxa'[46].

The installation of green roofs (and other green features in the built environment, like green walls and rain gardens) in London has increased since 2008. This is when urban greening policies were first included in the London Plan. Across London as a whole, there are now thought to be more than 100 ha of green roofs. The LES highlighted that there were more than 700 green roofs just in London's Central Activities Zone (the area including the City of London, the West End and South Bank) in 2017. The green roofs there cover an area of almost 20 ha[47], providing stepping-stone habitats across the urban area. Along with other urban greening interventions, such as 'green' sustainable drainage systems (SuDS), they bring wider benefits, such as urban cooling, to some of the most developed parts of the city. However, urban greening must be well planned and well maintained to provide these wider benefits. Lack of maintenance can lead to loss of vegetation and increased fire risk.

Farmland

Most farmland is in the outer London Green Belt, and much of this is in crops or permanent pasture. The largest areas of farmland are found in the boroughs of Bromley, Havering, Hillingdon, Enfield, and Barnet. Much of London's farmland has experienced agricultural intensification, reflecting a national picture. In parts of London, the earlier landscapes have survived, such as old field patterns and ancient hedgerows. London also has 'hobby' farming, including the keeping of horses[48].

A recent survey of London's peri-urban farmers analysed their engagement with biodiversity. Two thirds of responding farms were providing at least one type of habitat; the most common habitats found on these farms are ponds, wildflower meadows and hedges. Woodland and horticulture provided the richest habitat while arable provided the least. No farms are known to be regularly monitoring and recording wildlife directly[49].

2.6 London's species

London is home to more than 18,000 species, including protected and rare species[50]. London is thought to host around half the British population of greater yellow-rattle and around a quarter of Britain's black redstarts[51]. London has internationally important sites (designated as SACs, see above) for stag beetle (Lucanus cervus) at Epping Forest, Wimbledon Common and Richmond Park. London is also home to internationally important populations of great bittern, gadwall and northern shoveler in SPAs.

Many of London's most treasured species have been lost over time. Work is underway to reintroduce some of these, where appropriate. A recent example includes beavers, which were reintroduced in 2022 after 400 years[52].

Borough Biodiversity Action Plans, Species Action Plans and similar plans and strategies, tell us which species are currently being prioritised for recovery across London. Many plans identify bats and birds as a key focus. The most common birds included in strategies are swift, house sparrow and house martin, with black redstart, peregrine falcon and song thrush also featuring in multiple plans. Pollinators and wild bees are included in several plans, although not usually to a species level, and stag beetle features in 10 of the plans. Hedgehog is the most referenced mammal, and water vole also features in some plans. Many plans reference reptiles and amphibians, with common toad the most frequent. Hounslow Heath has the largest population of adders recorded anywhere in England[53]. These priorities give an indication of species that are valued across London, but it is noted that they are mostly focused on animals. This may be due to the more charismatic nature of animal species, rather than a lack of issues facing plants and fungi, although native black poplar is referenced in multiple plans.

A London-wide Biodiversity Action Plan[54] was prepared in 2000 (then incorporated into the Mayor's Biodiversity Strategy for London in 2002). The London Biodiversity Action Plan included a Priority Species List, which was initially developed by the London Biodiversity Partnership prior to 2000 and updated in 2007. The list included more than 200 priority species considered to be under threat in London. The list was updated in 2018 as the London Priority Species List.

“

Many of London's most treasured species have been lost over time. Work is underway to reintroduce some of these, where appropriate.

18,000

London is home to more than 18,000 species, including protected and rare species.

© Anna MacLaughlin, A common toad

Species Action Plans were prepared for eight species / groups on the Priority Species List: bats, black poplar, house sparrow, mistletoe, reptiles, sand martin, stag beetle, and water vole. Black redstart, common dormouse, grey heron, otter, and peregrine falcon were also recognised as particularly important species[55].

As part of preparing this LNRS, an updated longlist of species in need of recovery action was compiled. This used the London Priority Species List as a starting point. The London LNRS species longlist is available on the GiGL website[56]. This was reduced to the species shortlist, presented in **Annex 1**, which sets out the key species considered in compiling this LNRS. The shortlist focuses on rare and threatened species that could most benefit from habitat creation and enhancement in London. It has been used to ensure that the LNRS includes specific measures that will benefit the shortlisted species. This is because some species need targeted interventions that will not necessarily be covered by general habitat creation and improvement.

The shortlisting process was based on advice from Natural England and Defra. It considered whether what a species needs for recovery is within scope of the LNRS (that is, it relates to habitat creation or improvement). It also considered whether improvement is feasible within the next 10 years (this is the maximum time until the LNRS will be reviewed and updated). More detail is set out in the Method Statement. In line with Natural England's advice, data deficient species or poorly understood species were not included in the shortlist. This does not mean that such species are not important. It means there is not yet enough understanding of their needs to know how to support their recovery.

2.7 Changes in recent decades

There is currently no London-wide monitoring system for nature. Very few information sources include consistent or regular recording. This review of changes is based on the best information available, but in some cases this data is relatively old.

Changes to protected sites

Between 2013 and 2024, the total area of London within a SINC designation has risen slightly from 19.23 per cent to 19.83 per cent, which is a total of just over 950 ha. While the distribution of designations between the different SINC grades (Metropolitan, Borough and Local) has largely stayed the same, there has been a small but notable increase in Local SINCs, which have increased in area by around 10 per cent. Borough SINCs have increased in area by just over five per cent, but there has been less than one per cent increase in Metropolitan SINC coverage[57].

Habitat and land use changes

Between 2000 and 2014, almost 39,000 ha of habitat were reported as having been enhanced in London and over 18,000 ha of habitat restored. Examples include creation of over 600 ha of new woodland in Thames Chase on London's eastern fringe; the creation of reedbeds in the central London Royal Parks; the expansion of 3.5 ha of heathland at Mitcham and West Wickham Commons; and the creation of 45 ha of various biodiversity action plan habitats in the Queen Elizabeth Olympic Park. **Table 2.1** compares data on land cover and habitats between 2002 and 2014, where comparable data exists. The increase in acid grassland and decrease in heathland may be partly due to errors in habitat description. There is no evidence that large areas of heathland have been lost in London[58].

Table 2.1: Area of land covered by habitats and land uses recorded in the London Biodiversity Strategy and GiGL

HABITAT OR LAND USE	LAND COVER RECORDED IN THE LONDON BIODIVERSITY STRATEGY (2002)	LAND COVER DATA FROM GIGL (2014)
Green space	Around 65% London's land area	47% of London's land area[59]
Gardens	Around 22% London's land area	24% (total) – 14% vegetated[60]
Woodland	7,000 ha	7,569 ha (2009-10 data)
Chalk grassland	300 ha	302 ha (2009-10 data)
Reedbed	125 ha	142 ha (2009-10 data)
Acid grassland	1300 ha	1,491 ha (2009-10 data)
Heathland	80 ha	55 ha (2009 – 10 data)

Despite the increase in garden land between 2002 and 2014 shown in **Table 2.1**, data from 2010[61] shows that between 1998-99 and 2006-08, the area of vegetated garden land declined by 12 per cent, a loss of 3,000 ha, whereas the amount of hard surfacing and buildings (such as sheds) increased. The changes in garden cover are mainly due to many small changes to individual gardens by homeowners, rather than large scale changes or housing development on garden land. However, both can lead to significant loss of garden land at a local level.

Changes in species populations

The British Trust for Ornithology calculated population trends for 33 bird species in London and surrounding areas for the period 1994 – 2011. Over that time, 21 of the 33 species increased significantly (blackcap, blue tit, Canada goose, carrion crow, chaffinch, chiffchaff, collared dove, cormorant, goldfinch, great spotted woodpecker, great tit, green woodpecker, greenfinch, magpie, moorhen, pied wagtail, ring-necked parakeet, robin, whitethroat, woodpigeon, and wren). Five species declined significantly in the region during this same period (blackbird, grey heron, house sparrow, mistle thrush, song thrush, starling and swift), generally mirroring national trends. Loss of nest sites in buildings (resulting from the trend to seal buildings for energy efficiency reasons) and the loss of vegetated areas in gardens may help account for the decline is species such as house sparrow, starling, blackbird and swift[62].

Tailored conservation efforts for certain species that have an urban or London affiliation have achieved notable successes. The creation of biodiverse green roofs, for example, in areas where black redstarts are known to breed seems to have maintained the London breeding population (despite redevelopment of many former wasteland sites where they bred). Likewise, the provision of nest boxes and protection of nest sites has resulted in an increase in the number of breeding pairs of peregrine falcons. These are now found in most parts of London[63].

Of 20 butterfly species monitored by the London Natural History Society, half have experienced major declines. This is largely thought to be due to a fall in the quality of grassland sites and the impacts of climate change. Changes in the population of other pollinating insects (such as bees, moths, and hoverflies) are also likely to reflect the trends for butterflies. However, monitoring schemes do not provide enough depth of information to determine trends for London[64].

Butterfly Conservation identified provisional trends for wider countryside butterfly species in Greater London as part of a one-off analysis in 2024. From 2000 to 2022, a combined indicator for 22 wider countryside butterfly species showed an increase of 14 per cent in abundance for London. 'Wider countryside species' refers to relatively

common butterflies with less specialist habitat requirements. The 22 species considered in this analysis include brimstone, common blue, painted lady and peacock butterflies.

2.8 Wider environmental benefits and co-benefits

Nature is inherently valuable but can provide wider benefits for people and the environment too. These benefits are known as ecosystem services. Natural capital analysis in 2017 shows that London's public parks and green spaces provide £5bn worth of services, such as improved health, each year[65]. London's trees provide at least £133m in benefits per year by removing pollution, storing carbon, and reducing surface water flooding[66]. **Chapter 3** identifies the key wider benefit(s) and co-benefit(s) that each priority could bring.

'Wider environmental benefits' are ecosystem services that help improve the environment. For example, managing climate change, improving the water environment, and mitigating flood risk. When nature is used specifically to bring these benefits, it is known as a 'nature-based solution'. The LNRS provides an opportunity to align nature-based solutions for London with nature recovery. For example, wetland and woodland creation, as well as restoration of soils and grasslands, could help absorb carbon dioxide. In addition, creating and restoring wetland habitats in the floodplain can help reduce flood risk downstream. The Environment Agency has prioritised catchments suitable for natural flood management, which could be used alongside the LNRS to support funding bids for relevant projects[67]. Green spaces and healthy soils can also help to reduce flooding, by increasing water infiltration, thus reducing surface water runoff. This can in turn help to reduce pollutants running into waterways from surface water runoff.

Ecosystem services that focus on direct benefits to people are referred to as 'co-benefits' here. These are distinct from wider environmental benefits for the purposes of the LNRS. For example, street planting can improve mental wellbeing by making the local environment more attractive and ensuring Londoners experience nature every day. Larger green spaces, such as parks, provide places for people to exercise and socialise, improving their health and wellbeing. Research suggests that life satisfaction is lower for people living in places that are deficient in access to nature[68].

There is an opportunity for the LNRS to help maximise wider environmental benefits and co-benefits. For instance, by increasing nature in areas that have less green space, and / or have greater levels of deprivation, or providing nature in a way that helps Londoners adapt to climate change. The London Green Infrastructure Framework (LGIF) will explore further opportunities to deliver wider benefits alongside those linked with nature recovery. Wider benefits of nature recovery depend on the right interventions in the right places, which the LGIF will help to identify. It should be noted that green infrastructure also needs to be well maintained to ensure it brings wider benefits and avoids disbenefits, such as adding to fire risk.

London's LNRS draws on the five 'benefit principles' set out in Natural England's green infrastructure (GI) Framework[69]. The first principle is 'nature rich and beautiful places', to which the LNRS contributes directly. The remaining four relate to wider benefits and are:

- **Resilient and climate positive places** – for London this includes managing heat / fire / drought risk and carbon sequestration (absorption) and storage. For example, planting trees and other greening in urban areas provides shading and cooling, as well as absorbing carbon. These are wider environmental benefits.
- **Improved water management** – for London this includes managing flood risk and improving water quality and water supply provision. For example, improving conditions for aquatic vegetation to colonise and natural flood management, such as installing leaky log dams, in a suitable section of a watercourse. This can help to slow and filter water running from land into the water helping to reduce flooding, erosion and improves water quality. These are wider environmental benefits.
- **Active and healthy places** – for London this includes improving air quality, improving physical and mental health, improving equitable access to green and blue space, and providing green and blue active travel links. For example, biodiverse urban greening along public highways and improving the quality of access to existing nature rich spaces can encourage local people to use them for exercise, meeting friends, walking, and cycling. These are co-benefits.
- **Thriving and prosperous communities** – for London this includes increasing green and blue jobs, improving social equity, attracting inward investment, and supporting the visitor economy. For example, well designed and managed biodiverse planting schemes, including street tree planting and can make an area more attractive. Naturalised sustainable drainage systems (SuDS) can bring multiple benefits by improving the attractiveness of an area, while reducing flood risk for nearby

properties. This can encourage higher footfall (and therefore spending at local businesses) and raise property values. These are co-benefits.

2.9 Wider issues and challenges

Nature is influenced by a range of wider issues, which also interlink with and influence each other. An overview of the wider environmental issues and challenges in London that could impact nature recovery, but could also be addressed by improvements to nature is set out below. These have been drawn from existing work and input from participants at LNRS workshops and events.

The climate emergency

The **London Climate Resilience Review (2024)** ('the review') set out the key climate risks to London: heat, drought, rising sea levels, surface water flooding, wildfires, subsidence, cascading risks, and wider climate risks, including the rise of new pests and diseases. All of these have implications for nature in the city, human health, and the options available to us to support nature recovery. The review called for London's adaptation to the climate emergency to prioritise nature-based solutions that consider future climate scenarios.

© LB Hackney, Old Lea River Restoration Project

The climate emergency is already depleting nature in London, for example through increased risk of non-native pests and diseases, changes in species distribution, and increased tree failure (death). The climate emergency has knock-on effects for management and costs, including a shift to more drought-resistant planting, changes to management regimes and increased expenses. In responding to the review, some local authorities noted that insurance claims from tree related subsidence and damages are a significant cost to council budgets[70]. Along with a growing population, the climate emergency continues to exacerbate pressure on water resources. South-East England is an area under water stress, and the urbanised state of many rivers leaves them less resilient to these pressures.

Climate risk is exacerbated in urban areas due to warmer and drier conditions, less permeable surfaces (where water doesn't sink in easily), and disruption to the natural water cycle. London will experience hotter and drier summers under all climate change scenarios. This brings multiple risks to people and nature. Wildfire is a particular risk to some outer London boroughs, particularly Bexley, Havering, and Hounslow[71]. The climate emergency may result in an environment unsuitable for some native species. This would result in loss of native species or a change in their range. In some cases, it may be necessary to consider suitable non-native substitutes, or source stocks of native plants from regions with a hotter, drier climate. However, this increases biosecurity risks. A network of high-quality green and blue space can help to improve resilience to the climate emergency, by providing more moderate micro-climates and refuges, and enabling movement of species, as well as proving wider benefits for people.

Flood risk

London is at particular risk of flooding from five main sources: surface water flooding, tidal, fluvial (from rivers and tributaries), reservoir and groundwater surface (from rainfall)[72]. Sewer flooding is also a risk in London. An increase in flooding is one of the main, immediate climate emergency risks in London, particularly in terms of its effects on people and property. It is also a risk to London's nature. Much of London is protected from some types of flooding by flood defences, such as the Thames Barrier and associated walls and embankments. However, one in eight (13 per cent) of properties in London are in areas at high or medium risk of surface water flooding. This is twice the rate compared to the national total, and a far higher rate than any other region[73].

Fluvial and tidal flooding are an issue along the Thames and its tributaries, and this will be exacerbated by rising sea levels. Pluvial / surface water flood risk (from rain) is an increasing issue in London. Heavy rainstorms in July 2021 led to some parts of the city receiving more than twice the average July rainfall in two hours. This caused

major disruption, and more than 2,000 properties flooded with stormwater and sewage[74]. Flooding from torrential rain threatens 42 per cent of the capital's 301,000 commercial buildings, bringing substantial costs in terms of insurance, safeguarding and remediation[75]. Flooding could also lead to loss of habitats and species, particularly if flood regimes are extreme and unpredictable.

Flood defences are required to protect people and property. These usually involve built structures, such as flood walls, which alter the natural dynamics of a river and result in loss of floodplain habitat. However, nature-based solutions could help manage flooding, for example through reconnecting rivers with their floodplain and improving habitats that slow the flow of water into rivers and streams.

Land use change and competition for space

London consistently experiences a high demand for development space, leading to high levels of regeneration and development. This is intensified by the UK government's current focus on housebuilding. This includes changes to Green Belt policy within the National Planning Policy Framework (NPPF), the **New Towns Taskforce's work**, and encouraging Green Belt reviews via funding. London does not have sufficient land to meet the housing need figures set by government (with 880,000 new homes needed over ten years) without some release of Green Belt land.

13%

one in eight (13 per cent) of properties in London are in areas at high or medium risk of surface water flooding

> Flooding from torrential rain threatens 42 per cent of the capital's 301,000 commercial buildings, bringing substantial costs in terms of insurance, safeguarding and remediation.

The National Planning Policy Framework (NPPF) 2024 includes a new designation of 'Grey Belt' land. This includes parts of the Green Belt that comprise previously developed land. It also includes land that does not strongly perform against specific purposes set out within the NPPF. This change will make it easier to develop these parts of the Green Belt. This could lead to greater competition for open mosaic habitat on previously developed land. This habitat is particularly important for invertebrates, such as beetles and insects.

The competition for space, both above and below ground, can cause habitat loss and fragmentation. It can also increase disturbance through light, noise and vibration and water abstraction. Riverside development can encroach on riverbanks and riverbeds. However, development can also be an opportunity to integrate nature into new developments and bring nature to where people live. Development can also introduce green and blue corridors and links, that can bring cooling and shading benefits.

The **London Plan** sets out an economic, environmental, transport and social framework for development. It identifies areas that will see the most change as Opportunity Areas. These are London's most significant areas of brownfield land with room for new housing, commercial development, and infrastructure. If London is to meet the challenges of the future, all parts of the city will need to embrace and manage change.

Space for large-scale nature recovery is limited in London, particularly inner London, due to its dense, urban character. This is relevant for most habitats, but particularly large-scale rewilding, floodplain reconnection and creation of new woodland.

Pollution

Air, water, soil, light, noise, and vibration pollution all have potential to lead to loss or damage to nature. Most of Greater London has air pollution levels above national air quality objectives[76] and more than 4,000 Londoners' lives end sooner than they should each year because of air pollution[77]. However, air quality is generally improving in London, one reason being the Ultra Low Emission Zone (ULEZ) expansion[78]. Air quality can also affect nature, particularly limiting plant growth. However, vegetation can also help to mitigate air pollution to an extent, by absorbing pollutants.

Light pollution is an issue in London, particularly in more built-up areas. Artificial lighting, particularly along rivers, woodland can disturb nocturnal species including bats and some invertebrates.

Anthropogenic (human-made) noise is known to affect many species, including amphibians, birds, fish, mammals, reptiles and invertebrates, both on land and in water. For example, noise can make it harder for bats to hunt effectively (although this could benefit their prey species)[79]. Anthropogenic background noise is greater in urban areas, due to

presence of people and traffic. Other human-made noises include those from construction work, air traffic, and fireworks. These can all disturb and stress wildlife, in-combination with related effects, such as light pollution.

Of 41 London rivers, 36 are classed as being of 'moderate' condition, three are 'poor', and two are in 'bad' condition[80]. The main causes of poor water quality in London are foul drainage and surface water misconnections; diffuse pollution of chemicals and nutrients (nitrogen and phosphorus) from run-off from roads and other hard surfaces; combined sewer overflows and pollution from wastewater treatment works; and illegal or accidental sewage release[81]. Perfluoroalkylated substances (PFOS) are identified as a risk to the water environment. PFOS were found in all fish sampled by the Environment Agency between 2016 and 2018. These are found in domestic products and fire-fighting foams and are also thought to arise from wastewater treatment and landfill sites[82]. As well as continual pollution, historic pollution has left a legacy of chemicals in riverbed sediments that can cause further impacts in the future.

© Thames 21, Turkey Brook, Enfield, Urban riverfly training,

4,000

Most of Greater London has air pollution levels above national air quality objectives and more than 4,000 Londoners' lives end sooner than they should each year because of air pollution.

Invasive species, pests, and diseases

The Greater London area differs with regards to climate, habitat and overall land use to the rest of England. This difference can lead to species behaving uniquely in London compared to other parts of the country. Some of these species are and have the potential to become a threat to both native wildlife and human health. This includes several invasive plants, as well as a variety of animals. **The London Invasive Species Initiative** (LISI) produces a list of species of concern, specifically for London[83]. Further resources for invasives, pests and diseases can be found in the London urban forest resource hub[84] and the GB non-native species secretariat[85]. Invasive species of concern may change over time for a variety of reasons. This includes the climate emergency, which will increase the spread of invasive species, pests, and diseases. As such, the list of species of concern should be considered as a non-exhaustive guide.

Poor habitat management

Poor management may be down to a lack of funding, knowledge, or skills. Since 2012-13, the percentage of SINCs recorded as being in positive conservation management has been around 65 per cent. It peaked at 69 per cent in 2023-24. It must be noted however that the London average, although low, surpasses the national average of 39 per cent of sites in positive conservation management[86]. However, this data shows that since 2013-14, fewer authorities have been responding to Defra's requests for this information. Under half of London boroughs submitted information for 2023-24[87]. It is likely that this reflects the declining capacity, experience, and specialist skill in local authorities for ecology and nature conservation management, both within London[88] and nationally[89]. Following the Forestry Commission definition, only 31 per cent of London's woodlands are in management, compared to a national average of 56 per cent. However, these indicators are not specifically designed for urban woodlands. That means management done in these areas may not be accounted for.

Sites often lack management plans. Managing land across administrative borders and differing ownership is also important, but coordination is often lacking. The multiple challenges presented by London's urban character can also cause risk-averse management. This can lead to issues such as habitat being removed or not incorporated into urban green infrastructure due to maintenance concerns, safety (including perceptions of safety) and subsidence.

Poorly maintained sites will not provide as well for nature or for people, through wider benefits. Poor maintenance can increase risks to people and increase risk of wildfires.

Human disturbance

Note that, while human disturbance is an issue, people also add significant value to the natural environment and are vital to nature recovery. This includes people working in green and blue jobs, including research, planning, and on the ground delivery, as well as volunteers who support nature projects. Local people can also benefit wildlife through action in their gardens, communities, and contributing to community science projects.

Humans can cause damage to habitats and disruption to wildlife in a variety of ways including deliberate damage or destruction (for example through crime and antisocial behaviour such as fly-tipping, arson, and the leaving of litter), damage through intensive recreational use (for example for sports or walking), and accidental damage or disturbance. Dogs can disturb local wildlife, causing stress; alter the balance of soil nutrients through faeces; and can contaminate watercourses with parasiticides found in flea treatments. Overuse can cause soil compaction and erosion of land and riverbanks; and the lighting of fires and barbeques can cause disturbance from smoke and / or wildfires. Contaminated footwear or angling/paddling/other equipment can transfer invasive species between watercourses/waterbodies and sites. Human disturbance can be mitigated through visitor management, including clear signage and footpaths, fencing the most sensitive areas, and ensuring suitable greenspace provision for people's needs.

© Francis Castro, Hainault Forest with ground nesting birds such as skylark

31%

Following the Forestry Commission definition, only 31 per cent of London's woodlands are in management, compared to a national average of 56 per cent.

Soil degradation

Soils are vital to terrestrial ecosystems. However, they face many risks that degrade the quality or quantity of the soil, including soil sealing, erosion, contamination and compaction. Soil sealing is where soil is covered by an impermeable material, particularly where it is covered by buildings, roads and pavements. As set out in **Section 2.7**, more garden land in London is becoming sealed, as well as areas subject to new development.

Soil erosion and contamination are also particular issues in urban areas. Soil erosion is where soils are washed out by fast-flowing water (for example, during heavy rains). Soil contamination is where pollutants are introduced to the soil, via inconsiderate use and disposal of substances, road run off and air pollution deposition. Some pollutants also add excess nutrients to the soil, which allows certain plant species to dominate and out-compete more specialist plants. This includes nitrogen input from fertilisers and vehicle emissions.

Healthy soils can help to slow the flow of surface water. Poorer, heavily compacted, soils will increase the extent to which pollutants, soils, and sediment wash into waterways. This leads to diffuse water pollution and reduced water quality. Soil compaction can occur through heavy pedestrian and vehicle traffic, affecting soil structure and its ability to absorb water. This can impact the root systems of trees, plants, and wildlife that use soil as their habitat.

! Additional challenges

Several further challenges were identified during LNRS preparation which, whilst outside LNRS scope, are important to acknowledge. These include:

- Lack of continual and consistent funding, particularly for revenue costs associated with maintenance and monitoring.
- Skills and experience shortage in the sector. This includes a reliance on volunteers, for example, for generating species records.
- Lack of data sharing.
- Need for improved and more inclusive communication, education and engagement.
- Conflicting and unclear policies around environment and land use.
- Lack of research and monitoring.
- Unclear and inconsistent governance and leadership.
- Uneven distribution of green space and discrepancies in access to nature.

2.10 Future pressures

Future pressures on the natural environment are likely to worsen the issues listed above. A continued climate emergency will exacerbate changes to weather patterns (hotter and drier summers, warmer and wetter winters, and more extreme weather events). In turn, this will worsen the effects of climate change, including flooding, drought, changes in species composition, and the spread of pests, diseases, and invasive species. Similarly, London's population is growing, further exacerbating human disturbance, land use change (particularly increased development), and water abstraction, required to serve new development.

In addition, replacement of old trees and the age profile of the urban forest will become an increasing concern. Trees decline at old age and may pose a risk to public health from breakages. Ancient and veteran trees support several species. As such, there is a need to manage these to support their longevity and biodiversity value, while protecting public safety.

A continued climate emergency will exacerbate changes to weather patterns (hotter and drier summers, warmer and wetter winters, and more extreme weather events).

2.11 Opportunities for recovering or enhancing biodiversity

London's context provides a range of opportunities for recovering or enhancing nature. These are explained below.

London Urban Forest Plan delivery

The London Urban Forest Plan (LUF Plan) and LUF Plan actions update sets out the London Urban Forest Partnership's aim to improve and grow London's woodland and treescape. The LUF Plan, and 2025 actions update, details how key stakeholders and delivery partners in the London Urban Forest Partnership will deliver the plan. It provides a key opportunity to achieve LNRS priorities for trees and woodlands.

Rewilding delivery

In 2022, the **London Rewilding Taskforce** was brought together by the Mayor of London. It aims to explore opportunities for rewilding in London to support nature recovery, enhance biodiversity, bring benefits to Londoners and address the climate and ecological emergency. The final report of the London Rewilding Taskforce[90] identified three recommendations. These include 11 large-scale rewilding opportunity zones, which it recommended should be included in the LNRS. We have progressed this recommendation, as well as finding opportunities for 'stepping stones' and smaller-scale rewilding through delivery of the LNRS priorities.

Manage rivers and the wider water environment

Restoring rivers, streams, wetlands, and floodplains is a key opportunity for the LNRS to support nature recovery and enhance biodiversity. This would also bring considerable wider environmental and co-benefits to Londoners, helping to address the climate emergency. The new London Clean and Healthy Waterways Plan will set out the Mayor's aspirations towards restoring and enhancing the water environment. This will benefit a wide range of species associated with London's water habitats, lock in carbon and protect downstream communities from flooding by holding back floodwaters. Restored rivers and wetlands also bring London's landscape to life, help improve water quality, and provide opportunities for recreation and healthy outdoor living.

Urban Greening Factor and Biodiversity Net Gain

The London Plan requires all major developments to include urban greening in site and building design. It introduces an Urban Greening Factor (UGF) to evaluate the quantity and quality of urban greening in a development proposal, using a 'UGF calculator'. This required urban greening could help deliver the LNRS priorities.

Biodiversity Net Gain (BNG) is a national requirement for new development to provide a measurable 10 per cent improvement in biodiversity[91]. The LNRS determines the 'strategic significance' multiplier within the BNG biodiversity metric, incentivising developers to align biodiversity improvements with the LNRS. The strategic significance multiplier applies to 'potential measures' locations shown on the Local Habitat Map, providing they are outside of a nationally designated site. In order for the multiplier to apply, at least one of the listed measures must be delivered in that location, in a way that contributes to the identified LNRS priority for that area. 'Potential measures' locations within nationally designated sites may be eligible if they do not relate to the reasons for designation. Further guidance is provided in the **Statutory BNG metric user guide**[92].

Delivering the measures identified by the LNRS in these areas will provide an uplift in biodiversity units for the purposes of BNG. This means that each new 'unit' of biodiversity counts for an extra 15 per cent when calculating how much biodiversity has been created. 'Areas that could become of particular importance' (ACBs), as shown on the Local Habitat Map, could provide a pipeline of new wildlife sites if the relevant measures are successfully delivered through BNG or UGF.

> The LNRS determines the 'strategic significance' multiplier with the BNG biodiversity metric, incentivising developers to align biodiversity improvements with the LNRS.

© Francis Castro, The regents canal with camley street natural park opposite.

Endnotes

1. Greenspace Information for Greater London CIC (2024) Key London Figures [Online], available at: https://www.gigl.org.uk/our-data-holdings/keyfigures/, accessed: 15/11/2024
2. The London Wildlife Sites Board (LWSB) (2019) Advice Note: Process for selecting and confirming Sites of Importance for Nature Conservation (SINCs) in Greater London, available at: **Flowchart of Designation Process for Non-Statutory Wildlife Sites (london.gov.uk)**
3. Mayor of London (2024) Biodiversity web page [online], available at: **Biodiversity | London City Hall**, accessed: 03/12/2024
4. Natural England (2022) Geodiversity and Nature Recovery Resources: Greater London
5. London Natural History Society (2024) Geology of London webpage [online], available at: **London Natural History Society - Geology of London (lnhs.org.uk)**, accessed: 25/11/2024
6. Baxter A. (2009) London's Natural Signatures: The London Landscape Framework, available at: **London's Natural Signatures (naturalengland.org.uk)**, accessed: 25/11/2024
7. Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework, available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf
8. Morris J. K. (date unavailable) Woodland Archaeology in London, available at: https://historicengland.org.uk/content/docs/planning/woodland-archaeology-london-pdf/
9. Mayor of London (2011-12) All London green grid and area frameworks, available at: **https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/all-london-green-grid-and-area-frameworks**, accessed: 25/08/2024
10. Baxter A. (2009) London's Natural Signatures: The London Landscape Framework, available at: **London's Natural Signatures (naturalengland.org.uk)**, accessed: 25/11/2024
11. Mayor of London (2018) London Environment Strategy, available at: https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf
12. As listed on Section 41 of The Natural Environment and Rural Communities (NERC) Act as habitats of principal importance for the conservation of biodiversity in England.
13. Waller Grad M, Frith M, Smith C, Foy A (2017) The London Plan Habitat Targets: a review of progress and forward recommendations, available at: **gla_habitat_targets_report_-_lwt_-_march2017.pdf (london.gov.uk)**
14. Mayor of London (2018) London Environment Strategy, available at: https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf
15. Mayor of London (unpublished) Mayor's Biodiversity Strategy Update
16. Mayor of London (unpublished) Mayor's Biodiversity Strategy Update
17. Mayor of London (2002) Connecting with London's Nature: The Mayor's Biodiversity Strategy
18. Mayor of London (2018) London Environment Strategy, available at: https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf
19. Mayor of London (2024) Mayor brings together partners to clean up London's rivers [online], available at: **Mayor brings together partners to clean up London's rivers | London City Hall**, accessed: 01/12/2024
20. Environment Agency (2024) Personal Communication
21. Mayor of London (2018) London Environment Strategy, available at: **London Environment Strategy**
22. Environment Agency (2022) Thames river basin district river basin management plan: updated 2022, available at: https://www.gov.uk/guidance/thames-river-basin-district-river-basin-management-plan-updated-2022
23. Mayor of London (2002) Connecting with London's Nature: The Mayor's Biodiversity Strategy
24. London Biodiversity Partnership (2001) Grazing Marsh and Floodplain Grassland Habitat Audit [online], available at: **https://www.lbp.org.uk/hagraz1.htm**, accessed: 08/12/2024
25. Waller Grad M, Frith M, Smith C, Foy A (2017) The London Plan Habitat Targets: a review of progress and forward recommendations, available at: **gla_habitat_targets_report_-_lwt_-_march2017.pdf** (london.gov.uk)
26. London Biodiversity Partnership (2001) Reedbed Habitat Audit [online], available at: **https://www.lbp.org.uk/hareed.htm**, available at: h**ttps://www.lbp.org.uk/hareed.htm**, accessed: 08/12/2024
27. Mayor of London (unpublished) Mayor's Biodiversity Strategy Update
28. GLA (2024) Tree Canopy & Green Cover Mapping [online], available at: **https://data.london.gov.uk/dataset/canopy-cover-2024**

29. Treeconomics London (2015). VALUING LONDON'S URBAN FOREST Results of the London i-Tree Eco Project, available at: **valuing_londons_urban_forest_i-tree_report_final.pdf**
30. Treeconomics London (2015) VALUING LONDON'S URBAN FOREST Results of the London i-Tree Eco Project, available at: **valuing_londons_urban_forest_i-tree_report_final.pdf**
31. Greater London Authority (2018) London Environment Strategy, available at: **London Environment Strategy**
32. Sales, K., Walker, H., Sparrow, K., Handley, P., Vaz Monteiro, M., Hand, K.L., Buckland, A., Chambers-Ostler, A. and Doick, K.J. (2023), The canopy cover Webmap of the United Kingdom's towns and cities, Arboricultural Journal, 45(4), pp.258-289.
33. American Forests (2023), Tree Equity Score UK [online], available at: Tree Equity Score UK Map, accessed: 09/02/2024
34. The Orchard Project (date unavailable) Finding London's Hidden Orchards webpage [online], available at: **https://www.theorchardproject.org.uk/blog/finding-londons-hidden-orchards-2/**, accessed 06/12/2024
35. Waller Grad M, Frith M, Smith C, Foy A (2017) The London Plan Habitat Targets: a review of progress and forward recommendations, available at: **gla_habitat_targets_report_-_lwt_-_march2017.pdf (london.gov.uk)**
36. Mayor of London (2018) London Environment Strategy, available at: **London Environment Strategy**
37. Waller Grad M, Frith M, Smith C, Foy A (2017) The London Plan Habitat Targets: a review of progress and forward recommendations, available at: **gla_habitat_targets_report_-_lwt_-_march2017.pdf (london.gov.uk)**
38. London Urban Forest Partnership (2020) London Urban Forest Plan, available at: https://www.london.gov.uk/sites/default/files/londonurbanforestplan_final.pdf
39. Sustain (2024) personal communication
40. London City Farms & Community Gardens (2024) London City Farms webpage [online], available at: **https://londonfarmsandgardens.org.uk/city-farms-in-london/**, accessed 06/12/24
41. Figures from the National Allotment Association London Branch web page (online), available at: **thenas.org.uk/london**, accessed:06/01/25
42. Sustain (2024) Growing for Nature Biodiversity survey for community food growing spaces
43. Smith C. (2010) London: Garden City?, available at: https://www.gigl.org.uk/GiGLFiles/WebDocuments/Garden%20Research%20Full%20report.pdf
44. Mayor of London (2002) Connecting with London's Nature: The Mayor's Biodiversity Strategy
45. Rosie Whicheloe (2022) Sutton's Garden Resource [online], available at: **https://www.gigl.org.uk/2022/07/21/suttons-garden-resource/,** accessed: 19/03/2025
46. Smith R.M., Gaston K.J., Warren P.H. & Thompson, K. (2006) Urban domestic gardens (VIII): environmental correlates of invertebrate abundance, Biodiversity and Conservation 15, 2515-2545
47. Mayor of London (2018) London Environment Strategy, available at: https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf
48. Mayor of London (2002) Connecting with London's Nature: The Mayor's Biodiversity Strategy
49. Sustain (2024) Growing for Nature: Biodiversity survey for farms within Greater London
50. Greenspace Information for Greater London CIC (2025) personal communication
51. Mayor of London (2002) Connecting with London's Nature: The Mayor's Biodiversity Strategy
52. Enfield Council (2022) Beavers are back in Enfield, [online], available at: **https://www.enfield.gov.uk/news-and-events/2022/03/beavers-are-back-in-enfield, accessed: 21/11/2024**
53. London Borough of Hounslow (personal communication)
54. London Biodiversity Partnership (2000) London Biodiversity Action Plan, available at: **London's habitats (lbp.org.uk)**
55. https://www.gigl.org.uk/about-gigl/planning-projects/londons-biodiversity-action-plan/london-bap-priority-species/
56. https://www.gigl.org.uk/our-data-holdings/species-data/species-lists/
57. GiGL (2024) Personal Communication
58. Mayor of London (unpublished) Mayor's Biodiversity Strategy Update
59. Greenspace Information for Greater London CIC (2024) Key London Figures [online] available at: https://www.gigl.org.uk/our-data-holdings/keyfigures/
60. Smith C. (2010) London: Garden City?, available at: https://www.gigl.org.uk/GiGLFiles/WebDocuments/Garden%20Research%20Full%20report.pdf
61. Smith C. (2010) London: Garden City?, available at: https://www.gigl.org.uk/GiGLFiles/WebDocuments/Garden%20Research%20Full%20report.pdf
62. London Natural History Society (2017) The London Bird Atlas

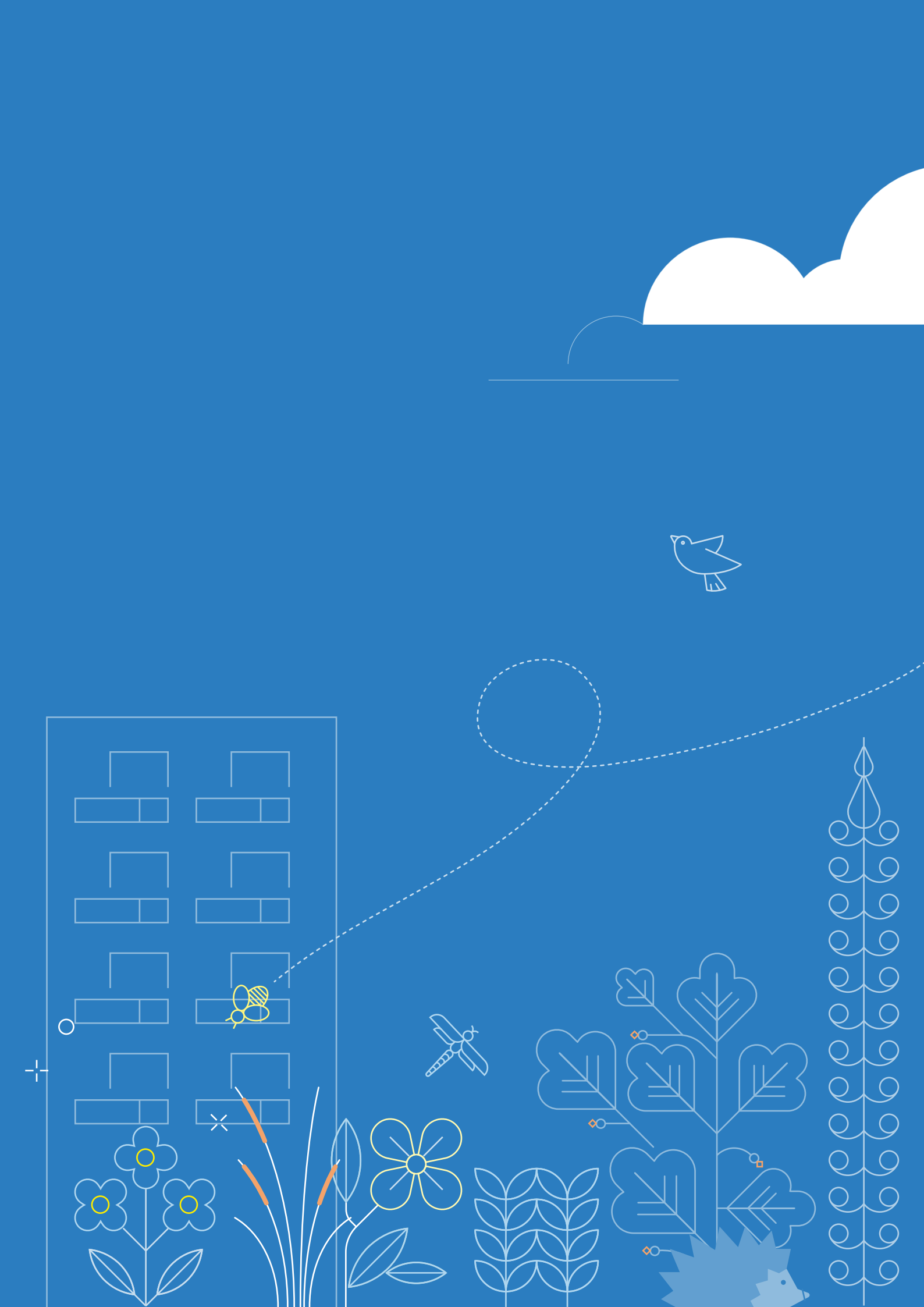
63. Mayor of London (unpublished) Mayor's Biodiversity Strategy Update
64. Mayor of London (2018) London Environment Strategy, available at: **London Environment Strategy**
65. Mayor of London (2017) Natural Capital Account for London's Public Parks and Greenspaces, available at: **https://www.london.gov.uk/what-we-do/environment/parks-green-spaces-and-biodiversity/green-infrastructure/natural-capital?source=vanityurl**
66. Mayor of London (2015) Valuing London's Urban Forest, available at: **https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/valuing-londons-urban-forest**
67. Environment Agency (2024) Spatial prioritisation of catchments suitable for using Natural Flood Management [dataset], available at: https://www.data.gov.uk/dataset/2a4bcf6e-3880-4c0b-9986-6cafbec89faf/spatial-prioritisation-of-catchments-suitable-for-using-natural-flood-management
68. Natural England (2024) Green Infrastructure Principles [online], available at: https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Principles/GIPrinciples.aspx, accessed: 05/06/2024Sarah Knight (2022) The importance of high quality natural spaces for wellbeing, available at: https://www.gigl.org.uk/2022/09/22/the-importance-of-high-quality-natural-spaces-for-well-being/
69. Natural England (2024) Green Infrastructure Principles [online], available at: **https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Principles/GIPrinciples.aspx**, accessed: 05/06/2024
70. Howard Boyd E., Leigh G., Sutton J. (2024) The London Climate Resilience Review, available at: **The London Climate Resilience Review – July 2024**
71. London Assembly (2024) London Assembly research: Bexley, Havering, Hounslow experience most outdoor fires [online], available at: **London Assembly research: Bexley, Havering, Hounslow experience most outdoor fires | London City Hall**, accessed: 23/08/2024
72. Mayor of London (2024) Other sources of flooding web page [online], available at: **https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/climate-change/climate-adaptation/other-sources-flooding**, accessed 10/12/2024
73. Environment Agency (2025) National assessment of flood and coastal erosion risk in England 2024, available at: https://www.gov.uk/government/publications/national-assessment-of-flood-and-coastal-erosion-risk-in-england-2024/national-assessment-of-flood-and-coastal-erosion-risk-in-england-2024
74. Howard Boyd E., Leigh G., Sutton J. (2024) The London Climate Resilience Review, available at: **The London Climate Resilience Review – July 2024**
75. Zurich (2022) Two-fifths of London firms at risk of climate-fuelled flash floods [online], available at: **42% of London firms at risk of climate-fuelled flash floods (zurich.co.uk)**, accessed 21/11/2024
76. Department for Environment, Food and Rural Affairs (2020) UK Air Information Resource, AQMAs interactive map [online], available at: **AQMAs interactive map (defra.gov.uk)**, accessed 21/11/2024
77. Imperial College London (2021) London Health Burden of Current Air Pollution and Future Health Benefits of Mayoral Air Quality Policies, available at: https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/health-burden-air-pollution-london Hall
78. Greater London Authority (2024) LONDON-WIDE ULTRA LOW EMISSION ZONE – SIX MONTH REPORT, available at: https://www.london.gov.uk/sites/default/files/2024-07/London-wide%20ULEZ%20Six%20Month%20Report.pdf
79. Kunc H. P., Schmidt R. (2019) The effects of anthropogenic noise on animals: a meta-analysis, Biology Letters, published 20/11/2019
80. Environment Agency (2024) Personal Communication
81. Mayor of London (2018) London Environment Strategy, available at: **london.gov.uk/sites/default/files/london_environment_strategy_0.pdf**
82. Environment Agency (2019) Perfluorooctane sulfonate (PFOS) and related substances: sources, pathways and environmental data, available at: https://consult.environment-agency.gov.uk/environment-and-business/challenges-and-choices/user_uploads/perfluorooctane-sulfonate-and-related-substances-pressure-rbmp-2021.pdf
83. https://www.gigl.org.uk/our-data-holdings/species-data/london-invasive-species/
84. https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/parks-green-spaces-and-biodiversity/trees-and-woodlands/london-urban-forest-resource-hub
85. https://www.nonnativespecies.org/
86. Defra (2025) Nature conservation: Local Sites in positive conservation management in England, 2008-09 to 202-23, available at: **Nature conservation: Local Sites in positive conservation management in England, 2008-09 to 2022-23 - GOV.UK (www.gov.uk)**
87. Defra (2025) Local Sites in positive conservation management in England, 2008-09 to 2023-24 dataset [online] available at: **Single Data List - local sites in positive conservation management - GOV.UK**, accessed 04/03/25

88. https://www.gigl.org.uk/about-gigl/planning-projects/biodiversity-evidence/

89. https://randd.defra.gov.uk ProjectDetails?ProjectID=20638&FromSearch=Y&Publisher=1&SearchText=NR0183&SortString=ProjectCode&SortOrder=Asc&Paging=10

90. Greater London Authority (GLA) (2023) Rewilding London: Final report of the London Rewilding Taskforce, available at: **https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/parks-green-spaces-and-biodiversity/london-rewilding-taskforce**

91. UK Government (2021) Environment Act 2021

92. Defra (2024) The Statutory Biodiversity Metric: User Guide

© Francis Castro, Barking Riverside