

Canal & River Trust

# The Vital Connector for Nature and People

## The Role of our Canal Network in UK Nature Recovery and Connectedness

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# Foreword: Canals being the vital connector for nature and people

At the Canal & River Trust, we believe that access to nature is not a luxury, but a vital ingredient for healthier lives and communities, available to all regardless of their background or circumstances.

This is not only about improving places; it is about addressing underlying issues at the heart of the biodiversity and climate crises. Our 2,000-mile network of canals and other waterways is vital for biodiversity and nature recovery. It provides crucial habitats for wildlife, serving as long linear freshwater corridors that support biodiversity across England and Wales. Collectively, they help underpin our nation's growth, health and security. Now is the moment to recognise and value them and what they can offer, and act together to unlock their potential and transformative power.

This report shines a light on the role of canals in contributing some of the 'connective tissue' needed for a functioning Nature Recovery Network and in providing accessible spaces for people to benefit from interaction with nature. It brings together the body of evidence on the ecological value of our network and highlights the opportunities for supporting nature recovery and fostering nature connectedness. I extend our thanks to Professor Ian Rotherham and Dr William Bird MBE for their contributions to this report.

Here, we present an invitation to invest in healthier lives, resilient communities, thriving natural environments and routes, and a greener, more equitable and inclusive future.

In the face of huge environmental and social challenges, the regeneration of our canals over the past 70 years stands as a testament to what can be achieved when individuals unite behind a shared purpose. Each action we take – whether investing in the resilience of our historic infrastructure to keep it safe for the communities around it, improving towpaths and their environs to make them accessible and attractive routes for everyday use, or creating valuable habitats for protected and threatened species to thrive – contributes to a society in which people benefit from living in harmony with nature on the doorstep. Our cause is both urgent and hopeful, fired by the belief that together we can shape a better, more connected future for people and nature.

Our canals are not merely stretches of water – they are living arteries that play an essential role in supporting nature's recovery and in forging meaningful connections between people and the natural world, especially in the very heart of our towns and cities. Their survival relies on our ongoing care and dedication and the support of thousands of volunteers and donors. Our work in caring for this historic network is crucial; managing the relentless impact of increased daily use and the growing threats from extreme weather.

We invite you to join with us in this vital work. Whether you are an individual, a group, or an organisation, your energy, support, and belief will help to foster nature recovery and nurture communities that are more resilient and more connected with, and engaged in the protection of, nature. Together, let's be the champions that our canals and other waterways deserve. Let's ensure that these inspiring, and sustaining blue spaces continue to bring wonder, wellbeing, and a sense of belonging to us all – now and for the generations to come.



**David Orr CBE**
Chair

# Our network map




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# Introducing our report

**The United Kingdom (UK) faces a severe biodiversity crisis, characterised by significant species decline and habitat loss – and is one of the most nature-depleted countries globally. This is compounded by low levels of nature connectedness and high levels of wellbeing inequalities.**

Our canals provide the opportunity to help address these three interconnected challenges – uniquely positioned to serve as a vital urban connector, supporting nature and offering local, free and open access for people.

This report presents the body of evidence on the ecological value of our network and highlights the breadth of opportunities for contributing to nature recovery and fostering nature connectedness.



# Keeping our canals open and alive



## We are the largest canal charity, looking after 2,000 miles of canals and rivers across England and Wales.

Our purpose is to achieve a sustainable future for our canal network, keeping it open and alive, making it resilient and safe, and maximising its value for people, nature and the economy.

## Our vision – Our canals are living waterways that transform places and enrich lives

**Living waterways** provide vital habitats for wildlife, much-needed open spaces and routes for people and boats, and help tackle some of the UK's most pressing challenges

**Transform places** by connecting communities and businesses, physically and digitally, providing a focus for regeneration and giving us new ways to live and work sustainably

**Enrich lives** by connecting us with nature, with each other and with our past and our future

**Our 250-year old canal network provides vital habitats for wildlife and essential open spaces and routes for people and boats, with towpaths available for everyone, every day.**

# The challenge

The UK ranks lowest of the 14 European countries considered in a recent study across three critical indicators, experiencing the greatest biodiversity loss, lowest levels of nature connectedness and highest levels of wellbeing inequalities as shown below.

Numbers are scores given to each country based on the study.

| | Nature Connection | Biodiversity | Wellbeing |
|---|---|---|---|
| Italy | 4.67 | 0.51 | 61.00 |
| Portugal | 4.63 | 0.51 | 65.13 |
| Czech R | 4.47 | 0.50 | 62.35 |
| Bulgaria | 4.43 | 0.49 | 63.94 |
| France | 4.36 | 0.42 | 61.97 |
| Greece | 4.35 | 0.55 | 63.45 |
| Estonia | 4.29 | 0.44 | 56.45 |
| Spain | 4.29 | 0.49 | 67.55 |
| Germany | 4.27 | 0.37 | 58.23 |
| Netherlands | 4.21 | 0.41 | 61.52 |
| Finland | 4.17 | 0.29 | 60.61 |
| Sweden | 4.05 | 0.30 | 58.97 |
| Ireland | 3.96 | 0.28 | 58.97 |
| **UK** | **14th** | **3.71** | **11th** | **0.32** | **14th** | **54.13** |

**The Guardian.** Source: Country-level factors in a failing relationship with nature, Miles Richardson, Iain Hamlin, Lewis R Elliott & Mathew P White, Ambio (2022).[1]

Climate change is accelerating biodiversity loss and increasing wellbeing inequalities. It disproportionately impacts deprived communities in the UK through multiple interconnected environmental and social pathways, notably urban heat islands, limited access to green and blue spaces, poor housing quality, and lack of private outdoor amenities.[2]

Nature underpins the UK's growth, health and security. As a nation, we need to tackle these challenges to create a thriving natural environment, build places more resilient to climate change, and encourage healthier communities to reduce the burden on the National Health Service.

The future health and wellbeing of our society is dependent on a healthy natural environment.[3]



Credit: Daniel Trim

# The opportunity

Our canal network provides a unique opportunity to help address the three interconnected challenges of biodiversity loss, low nature connectedness and high wellbeing inequalities. It has the potential to serve as a vital urban connector, supporting nature and offering free open access for people – especially those living in areas with an urban green deficit.

The Trust owns, operates and cares for a 2,000-mile-long network of canals, towpaths and river navigations, plus docks, reservoirs and other historic structures and habitats.

We have 68 different locations that are of considerable environmental significance, and all of these are designated as Sites of Scientific Interest (SSSIs). However, the environmental impact of the network extends well beyond these designations. Indeed, it is the contribution of the entire integrated linear network – comprising of both green and blue space – that makes



the greatest contribution to nature and wildlife, with huge potential to support the future recovery of nature across England and Wales. The canal network is an important connector for nature and wildlife – linking green space and habitats, connecting towns with the countryside, and supporting wildlife migration in, between and through them.

The network is also an important free and accessible blue-green space, with approximately 9 million people living within 10–15 minutes' walk of one of our canals. Within this population more than 53% of households (nearly 2 million) experience wellbeing inequalities. There is potential for even greater impact with nearly 30 million people (50% of the population), living within 5 miles of our canals.

**10.3 million**
visitors (average over a two-week period)

**9 million**
**people** live within 10-15 minutes' walk of one of our waterways

**800 million**
individual visits annually

**30 million**
people live within 5 miles of our waterways

Since 2021/22 we have been mapping our 2,000-mile network to gain a better understanding of its diversity of habitats and species. We have also developed a greater understanding of how climate change affects our canal network and its associated structures and habitats, and the steps that we need to take to manage those impacts now, and in the future, in response to challenges faced.



Our canals, and the work of our dedicated colleagues, partners and amazing volunteers, are making a difference. But to fully realise the potential of our network as a vital connector for nature and people, and for supporting a pathway to environmental stewardship, transforming places and enriching lives, we need support.

By investing in canals as vital green and blue spaces, we can transform neglected and vulnerable corridors into vibrant, restorative, biodiverse spaces for all – protecting and enhancing their ecological value, and creating more inviting and accessible places open to everyone to connect with nature, right where it's needed.

**The following chapters showcase the ecological value of our network and opportunities for contributing to nature recovery and fostering nature connectedness.**





# Nature recovery on, by and along our canal network – thriving nature corridors and havens for wildlife

## State of UK nature and biodiversity

As successive UK 'State of Nature' reports show, the general picture for biodiversity in the UK remains one of ongoing decline. Nearly 500 species have been lost entirely from England, mostly in the last 200 years, and these recorded losses may under-estimate the true extinction rate, particularly for less well-known groups. Furthermore many once abundant species have declined substantially to the extent that some have become range-restricted, rare or regionally extinct as a consequence.[4]

Such losses mean England has one of the worst records for biodiversity loss in Europe, and biodiversity loss risks 'ecological meltdown'.[5]

As Adrian Colston (Researcher in the Centre for Rural Policy Research at Exeter University) summarised: "in lowland Britain... the second half of the 20th century produced a farmed landscape where areas of semi-natural habitat became highly fragmented and small in extent... so that different habitats rarely occur alongside each other... Corridors in the landscape, such as hedges or streams have been progressively lost or degraded, further increasing habitat fragmentation."[6]

Biodiversity loss and nature decline in the UK has been caused by increasing urbanisation, intensive agri-industrial farming and rapid climate change with associated extreme weather.

The result of this decline is a landscape of voids, fractured and disconnected habitats with wildlife



under threat and the aggressive spread of invasive plants and animals.

The UK Government's Environmental Improvement Plan (2023) has the Apex Goal of 'thriving plants and wildlife', and 'enhanced beauty, heritage and engagement with the natural environment' and includes the commitment to protect 30% of land and sea for nature by 2030 (30by30). The UK Government response to the biodiversity crisis focuses on

## The Ecological Void

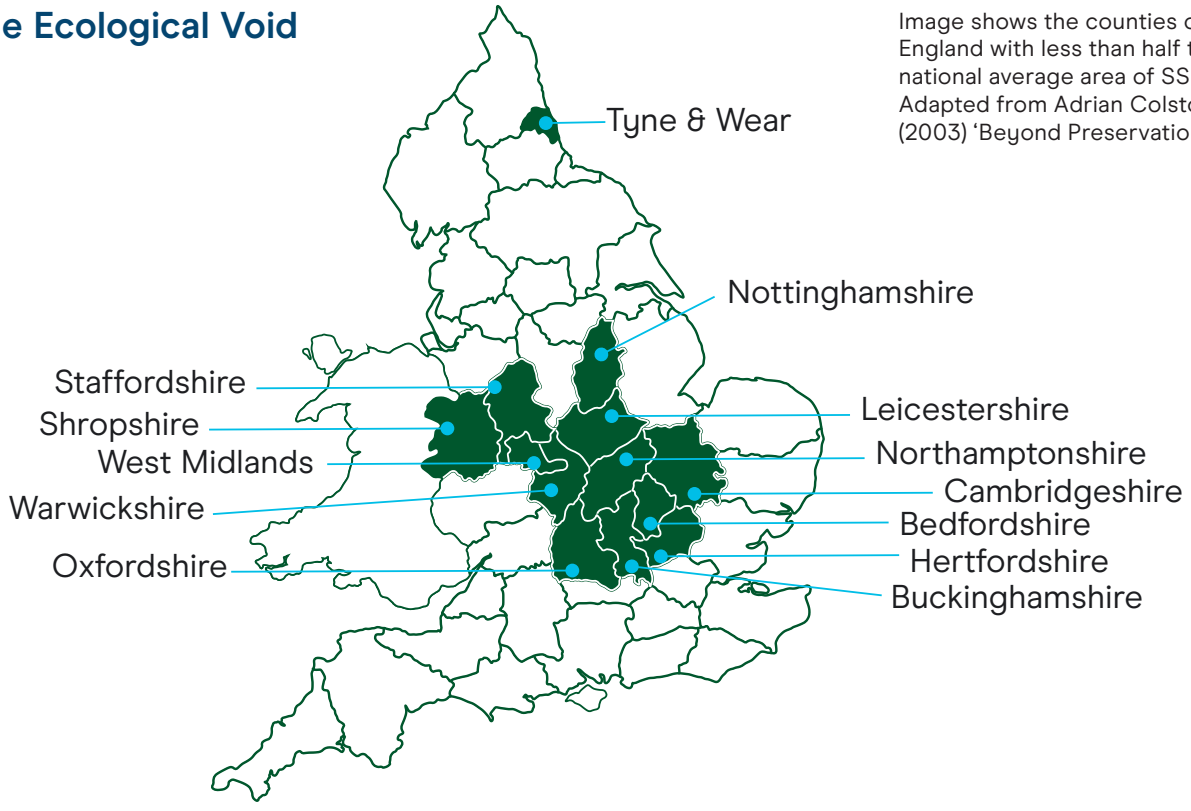


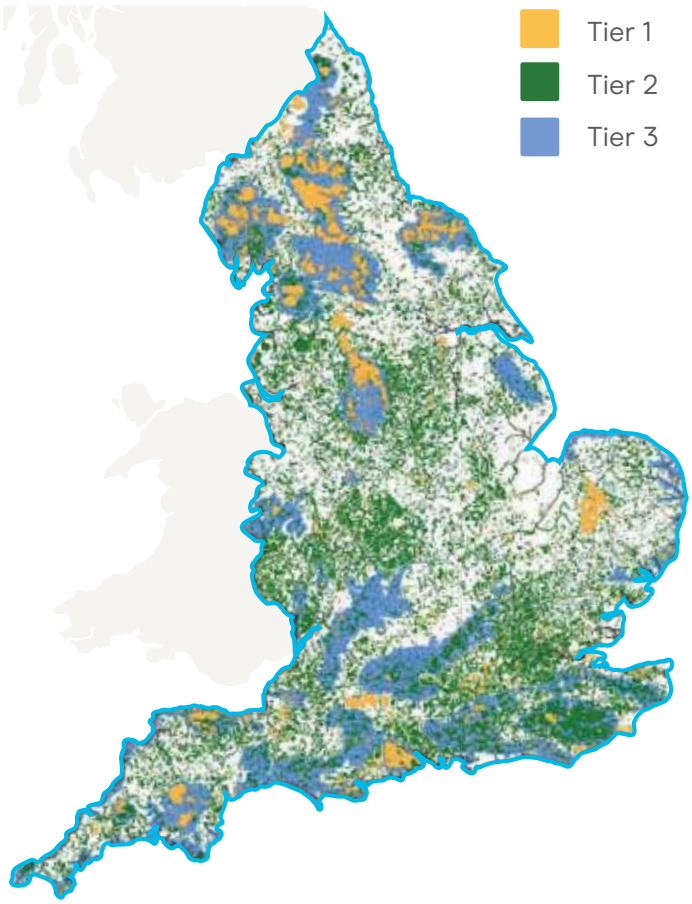

Image shows the counties of England with less than half the national average area of SSSIs. Adapted from Adrian Colston (2003) 'Beyond Preservation'

the delivery of a nature recovery network, based around landscape-level interventions and initiatives, is needed to redress long-term ecological decline.[7]

The Lawton Report (2010)[8], advocated for 'more, bigger, better, and more joined', ecosystems at a landscape scale. Much of this conservation work and positive action is targeted at obvious protected areas and in practice many of these are relatively isolated within the landscape. This is especially the case across much of central England where a mix of post-industrial land and intensive farming in the so-called 'planned countryside' has limited potential recovery. It is in this often heavily-populated region that the role of canals and their corridors offer exciting possibilities of recovery and of interconnection.[9]

The map opposite, along with the map on page 12, both highlight through different measures how nature is particularly threatened in the central part of England, which is the heart of our network.

## Distribution of the three tiers of wildlife sites




Source: The Lawton Report (2010)

## Making Space for Nature: A review of England's Wildlife Sites and Ecological Network – The Lawton Report (2010)

For wildlife sites to function as a network, it is important that organisms are able to move between them. This requires ecological connectivity and there are a number of ways this can be achieved. There are already linear features that already exist which are well suited to enhancing ecological connectivity across our countryside. These include both natural and human-made corridors such as rivers, canals, roadside verges, hedges, cycle-routes and railway embankments. (Excerpt from section 6.4.2)

**Recommendation 21.** Public bodies and other authorities responsible for canals, railways, roads, cycle ways, and other linear features in the landscape, should ensure that they better achieve the connectivity of ecological networks, and improving opportunities for people to enjoy wildlife.


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



# Our canal network's vital role in supporting nature recovery and biodiversity

We manage an intricate network of waterways that is biodiversity rich, serving as an interconnected and open system of canals, canal banks, towpaths and (often) hedgerows. Collectively, it provides nature a vital home through towns and cities and is critical for the survival and recovery of our threatened wildlife. As the nation's longest corridor of freshwater habitat, our canals provide essential safe spaces for wildlife to move freely, supporting a resilient ecosystem across England and Wales.

Our post-industrial canals now teem with wildlife and at a landscape scale, they are the living arteries of biodiversity. Despite their origin as a human-made commercial trade network they have become, over the past 200 years, living, vibrant ecological systems, that potentially offer huge opportunities for future biodiversity enhancement.

Nature is thriving in the canal network along corridors and connectors, and in habitat 'mosaics' providing havens for

wildlife. This special value of canals was first brought to the attention of a wider audience in 1996 in an article titled "Canals – Wildlife value and restoration issues" by Briggs (1996)[10,11] which highlighted the significant wildlife value of historic canals. This helped spark a recognition and interest in canals as aquatic habitats and as ecological corridors supporting multi-habitats and connecting the landscape.

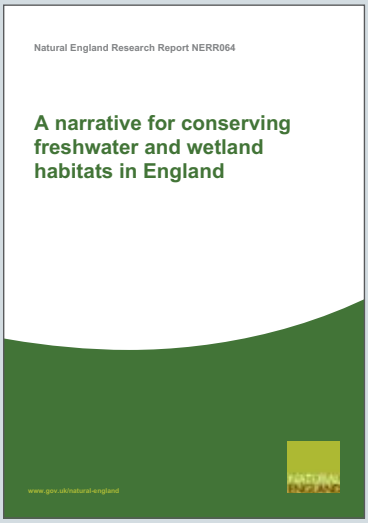
Aspects of the conservation management of canal freshwater habitats were researched by Dr John Eaton (1996)[12,13] and have been developed and expanded by researchers over the decades.[14,15,16,17,18,19] Canals and navigable rivers have more recently been looked at for their morphology and potential using methodologies developed for rivers over the years.[20]

Strategies for conserving freshwater and wetland habitats in England tends to focus on restoring natural processes, however, it is recognised that there is an urgent need to raise the profile and to broaden awareness at all



levels about the importance of canal networks and their biodiversity, where natural processes cannot simply be relied on for these artificial and semi-natural habitats.[21]

The value for wildlife of artificial habitats is less appreciated and often artificiality is overlooked, however, independent research highlights its significance.[22,23,24]




This report [21] highlights canals as examples of 'systems (that) require constant intervention to maintain their interest. These systems can still be important for biodiversity and consequently are valued for the species they support rather than the habitat in its own right. They are particularly important where no good-quality natural standing water habitats remain in the landscape'.



# Our network's ecological footprint located in the areas of greatest nature deficit

As such an accessible, and increasingly well-used network, the habitats are to an extent very familiar. Yet they are underappreciated, particularly in the context of the decline in the wider landscape which is not so apparent to most people.

Extending as a linear network concentrated throughout much of central England and Wales, our canals provide mosaics of quality habitats across the region.

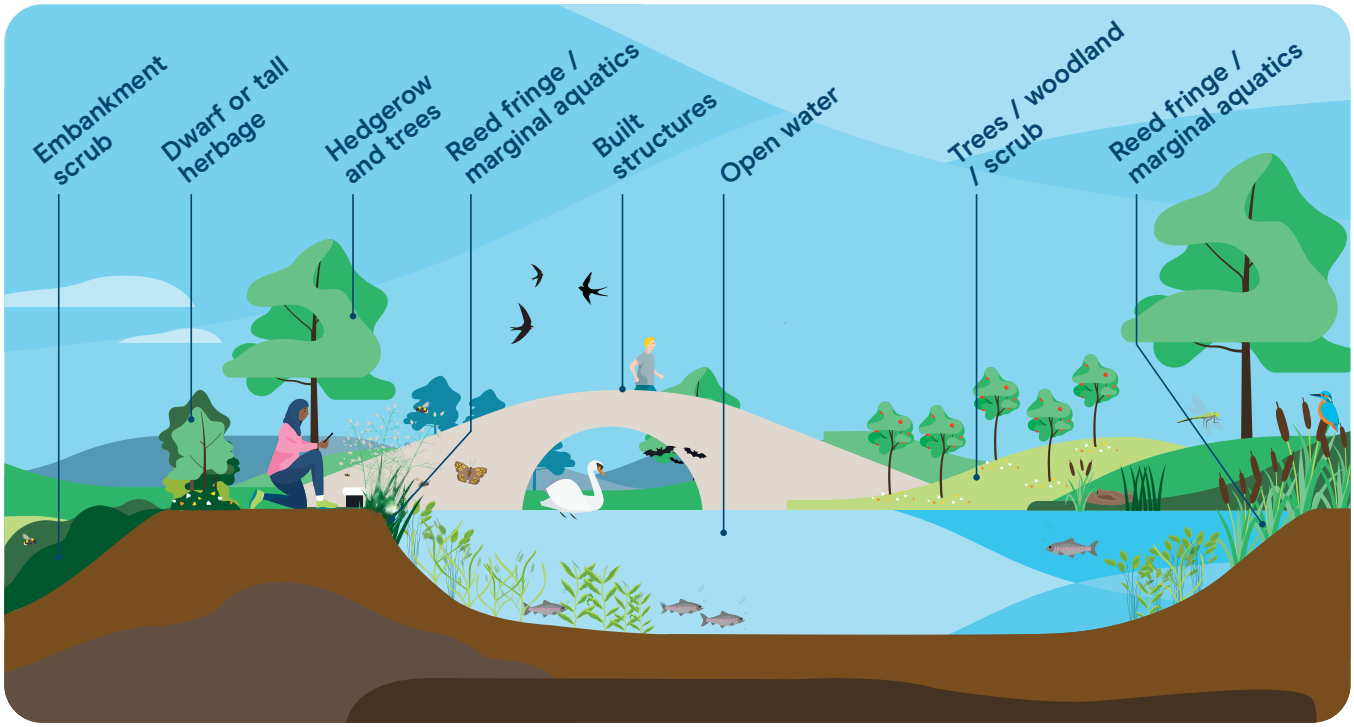
The wider landscape is fractured, disconnected, disjointed and contains ecological voids.[25,26] However, the canal network can help address issues of fragmentation, of isolation, and disconnection between society, nature, and infrastructure. This is a key point emphasised by 'Recommendation 21' of the 2010 Lawton Report cited earlier. As a connector and re-connector, the canal



network offers shared, accessible and inclusive spaces, serving to fill the voids, mend the fractures, and in urban settings in particular, to add 'beauty' and a sense of place.[27,28]

Canal corridors and other waterway corridors are unique in that they host multiple types of habitats which are also interconnected.[29]

## Cross-section of an idealised canal with a range of habitats





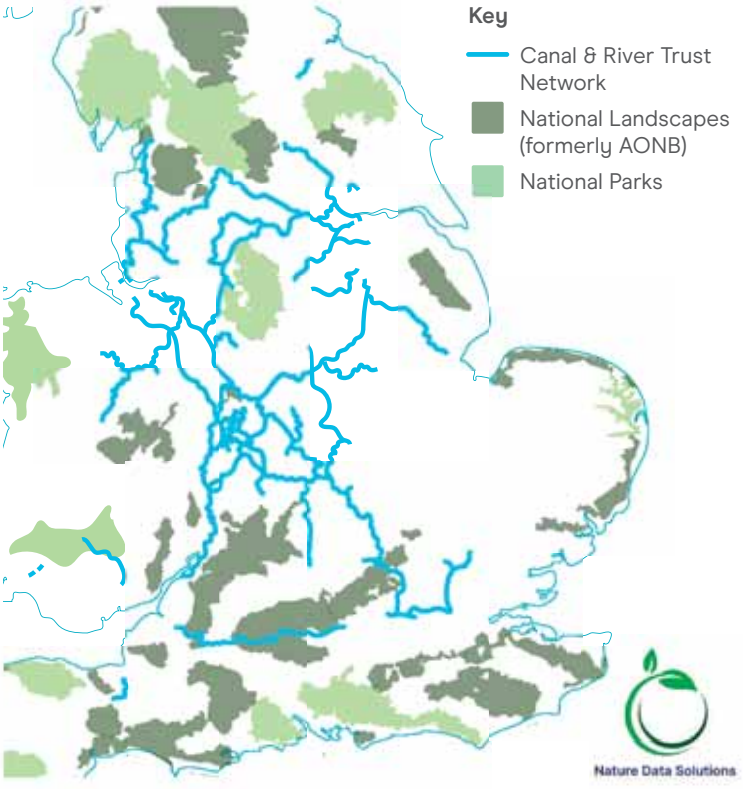


**These aerial images show canal corridors in nature-poor urban and rural landscapes.**

The geographical footprint of the canal network is located in areas of nature deficit and is uniquely placed to: fill the voids in urban green space deficit; tackle nature disconnect; provide linearity; and make a vital contribution to the Nature Recovery Network.[7,8] While the network extends from London to Liverpool, Wales and Somerset to Humberside and Teesside, it is concentrated in the lowland Midlands where nature loss has been most severe.

**The map clearly illustrates how our network fills the nature-deprived 'void' between the main Protected Landscapes in England and Wales.**

## Canal & River Trust network and the protected landscapes



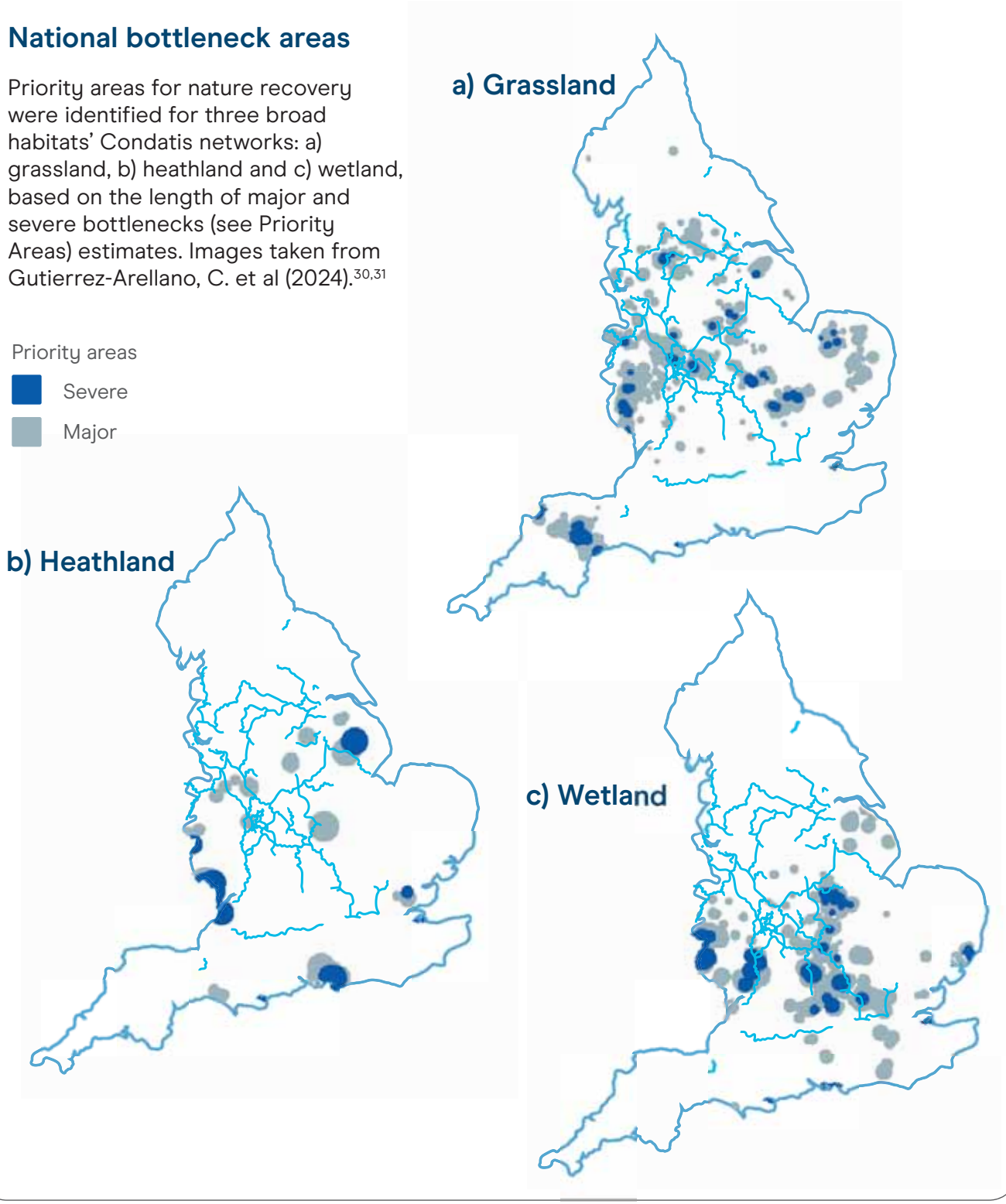

Credit: Nature Data Solutions Ltd

© Natural England copyright.Contains Ordnance Survey data © Crown copyright and database right 2025. Canal and River Network provided by the Canal & River Trust. BasmapOSM.

Natural England used 'Condatis', a tool developed by the University of Liverpool which models how species can disperse based on the quality and type of habitat present to predict 'bottlenecks' which would impede nature recovery. It identified clusters of 'bottlenecks' in central England as shown in the images below. We are using the same tool, with our detailed habitat data along our network, to identify opportunities where nature recovery might be most effectively focused.

## National bottleneck areas

Priority areas for nature recovery were identified for three broad habitats' Condatis networks: a) grassland, b) heathland and c) wetland, based on the length of major and severe bottlenecks (see Priority Areas) estimates. Images taken from Gutierrez-Arellano, C. et al (2024).[30,31]



Dragonflies and damselflies are amongst iconic waterway wildlife, and in many counties canals are home to a huge proportion of the species recorded. For example, there are 21 species of dragonfly and damselfly recorded on the Grantham Canal (out of 57 species in the whole of the UK).



Credit: Karen Arnold



Credit: guentherlig, Pixabay





Credit: Jack Perks

Reptiles and amphibians are declining nationwide, but in many areas canals provide habitat and sanctuary for grass snakes.



Spectacular birds along our canals include kingfishers, grey herons, and little grebes. There are 46 bird species recorded on the Sheffield & South Yorkshire Navigation.



Credit: Jack Perks

# Canals are human-made cradles of heritage and increasingly, of nature

Canals and other navigable waterways have often been overlooked in their remarkable biodiversity contribution perhaps because of their historical association as human-made structures and, their link to their past role in the Industrial Revolution. From their origins in the late 1700s they connected places of industrial manufacturing through essential transportation routes until entering a gradual decline from the mid-1800s following the advent of the railways. The places of manufacture were dirty, polluted, bustling urban centres with communities of workers often living in squalid conditions; this was followed by a long-term decline into dereliction and neglect.[9,32,33,34,35,36]

Today much of the decline and dereliction has been reversed with many hundreds of miles of canals restored and brought back into use, allowing nature to recover and to recolonise.[32,36] This history, repeated across and throughout the network, has bequeathed a remarkable eco-cultural heritage of nature and buildings which now define locations and provide a deep sense of place.[33] Old industrial buildings, now repurposed, provide hubs for regeneration and community activities as well as prime habitats for many threatened and rare wildlife species.[33,39] Structures such as tunnels, bridges and retaining walls offer roosting sites for threatened species and other important species such as bats. In the channel, canals provide a refuge for aquatic plants pressed out of the wider landscape.



> “Canals irrigated my early life with the Grand Union just a hundred yards from the front door, and fishing for gudgeon when I was a kid. Twenty years on, trudging the towpath in an afternoon’s break from writing with kingfishers on the lock gates, grey wagtails and sandpipers skittering on the edges, and chats about mink with boat-dwellers. Discovering botany here via the mysterious orange balsam sprouting under a bridge. Then summer evenings at our canalside pub, raising a glass to the swift packs screaming down the cut.”



**Richard Mabey, Writer and Broadcaster, on nature and culture**

# Scarcity and value of urban nature and urban catchments

Urban nature, particularly along the linear watercourses, is an increasingly vital part of UK's biodiversity and sustainability. Commonplace species assume importance because of their easy accessibility and familiarity to city dwellers, but less common or rare species are finding suitable habitat within our urban canals.

Once industrial, canals are now blue-green conduits for nature, from the wider landscape deep into the city heartlands, they are wildlife-rich habitats. Connecting isolated habitat patches and providing pollen-rich canalside vegetation, the juxtaposition of waterway networks and adjacent sites is vitally important.[37,38,39] Pollinating insects, under great pressure and declining nationally, thrive in these urban and rural havens.[40,41]

Urban canals in particular provide corridors for both aquatic and terrestrial species as they provide linear habitats, connections, and mosaics. Otters follow the watercourse, whilst urban deer, badgers, and foxes all move along the embankments and associated woodland.[42] Water voles extend throughout rural areas and deep into urban heartlands along our canal network.

> "As a life-long city dweller, canals have always served as my green and blue ribbons through history and nature. Just a few minutes from home and I can escape the traffic and walk for miles in the quiet company of herons and kingfishers without ever needing to cross a road. They are loved by cyclists and anglers, boaters, dog walkers and runners, and for me they are the lifeline that links my local landscape together – past, present and future."



**Chris Baines,**
**National Vice President,**
**The Wildlife Trusts,**
**Environmental Campaigner,**
**Writer and Broadcaster**

## Otter spotted – 21 July 2025

Otter spotted at dusk in the Nottingham and Beeston Canal at Castle Lock, in the heart of Nottingham city – first ever for this location.



This map includes data from: Landsat / Copernicus Data SIO, NOAA, U.S. Navy, NGA, GEBCO, Airbus, IBCAO.

# Understanding the ecological value and condition of our network

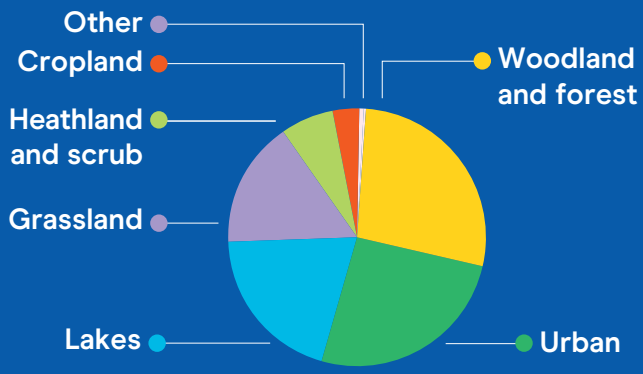
### Mapping our ecological footprint and establishing our ecological baseline

To fully understand the extent, value and condition of our habitats, we commissioned leading design and environmental consultancy, FPCR Environment & Design Ltd to map our ecological footprint, different habitats and their condition. This ecological baseline work was completed at the end of 2024, requiring 1,000 surveys and sophisticated modelling. It revealed the Trust's network totalled over 11,000 hectares comprised of the following broad habitat types and over 1,400km of linear hedgerow and tree habitats.

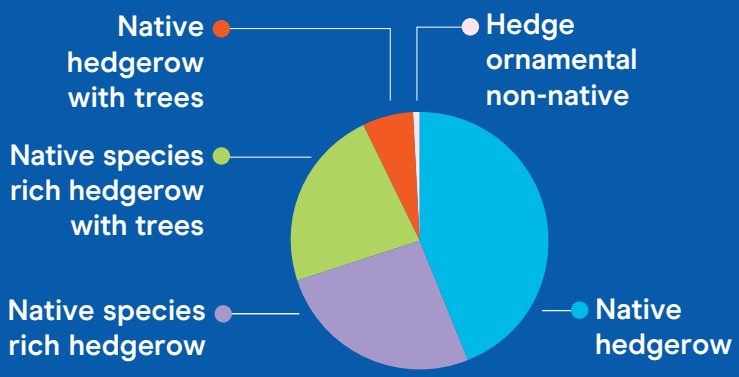




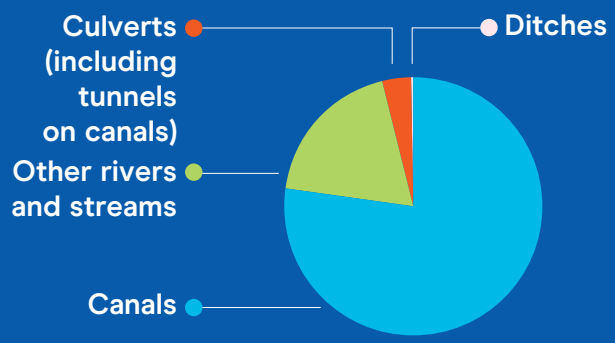
**Area habitats (excluding canals and other waterways) – 5,933 hectares**




**Hedgerow habitats – 1,421 kilometres**




**Watercourse habitats – 3,184 kilometres**



## Baseline area habitat summary

| Broad habitat type | Area (ha) | Percentage of total area (%) |
|---|---|---|
| Watercourse footprint | 5182.21 | 46.79 |
| Urban | 1815.98 | 16.40 |
| Woodland and forest | 1558.82 | 14.08 |
| Lakes | 1257.69 | 11.36 |
| Grassland | 799.90 | 7.22 |
| Cropland | 253.74 | 2.29 |
| Heathland and shrub | 157.29 | 1.42 |
| Intertidal sediment | 29.77 | 0.27 |
| Wetland | 18.86 | 0.17 |
| Coastal saltmarsh | 0.50 | 0.00 |
| **Total** | **11074.77** | **100%** |

Source: FPCR Environment & Design Ltd (2024) Calculating the Biodiversity Net Gain Value of the Canal & River Trust's Network.

## Baseline linear habitat summary (excluding watercourses)

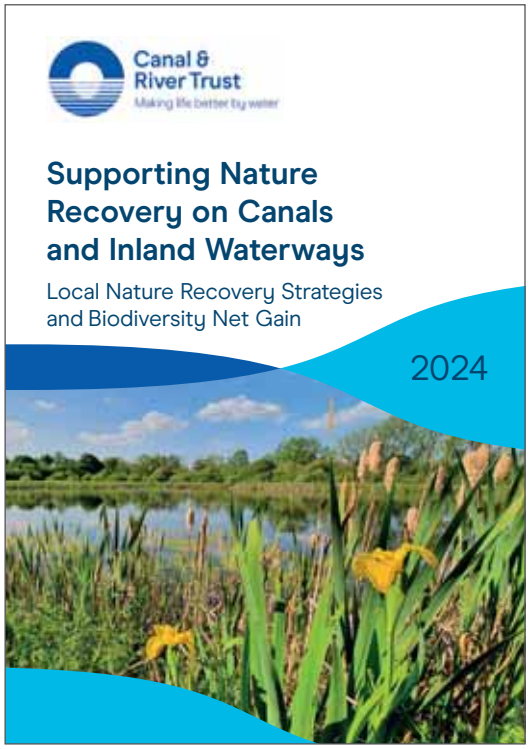
| Hedgerow type | Length (km) | Percentage (%) |
|---|---|---|
| Line of trees | 66.89 | 4.71 |
| Line of trees – associated with bank or ditch | 12.27 | 0.86 |
| Native hedgerow | 63.34 | 4.46 |
| Native hedgerow – associated with bank or ditch | 14.87 | 1.05 |
| Native hedgerow with trees | 353.28 | 24.86 |
| Native hedgerow with trees – associated with bank or ditch | 43.92 | 3.09 |
| Non-native and ornamental hedgerow | 43.49 | 3.06 |
| Species-rich native hedgerow | 20.53 | 1.44 |
| Species-rich native hedgerow – associated with bank or ditch | 0.90 | 0.06 |
| Species-rich native hedgerow with trees | 645.82 | 45.45 |
| Species-rich native hedgerow with trees – associated with bank or ditch | 155.57 | 10.95 |
| **Total** | **1420.88** | **100%** |

Source: FPCR Environment & Design Ltd (2024) Calculating the Biodiversity Net Gain Value of the Canal & River Trust's Network.

# Our local nature recovery strategies technical guide for local authorities

The combination of our 68 existing designated SSSIs, and around 1,500 non-statutory wildlife sites, evidence that the network can contribute to the Government's '30by30' commitment.

We published our technical brochure on Local Nature Recovery Strategies Document in 2024. It was issued to the 32 relevant Responsible Authorities to help inform their LNRS process and site selection. This brochure was also shared with 165 relevant Local Planning Authorities to ensure local planning policies recognise our network as being an integral and important part of the nation's nature recovery network and, explicitly referenced to be a beneficiary of Biodiversity Net Gain (BNG). As a result, many parts of the network are being recognised as Areas that could Become Important for Biodiversity (ACBs).




## Example from a draft Local Nature Recovery Strategy

A corridor is a continous strip of natural habitat that connects different ecosystems, allowing wildlife to move more freely between areas, which supports species migration, dispersal, and genetic diversity.

**Canals:** Enhancing canal corridors by restoring adjacent wetland habitats, enhancing, and connecting hedgerows, and conserving native aquatic vegetation to create continous green and blue corridors for wildlife.



“The NBN Trust is excited about the new data to come from CanalSpot which will be shared with the NBN Atlas via iRecord. The records from this popular multi-habitat network across England and Wales will be a valuable addition to the database and contribute to our mission of making data work for nature.”

**Mandy Henshall,**
**National Biodiversity Network Trust**

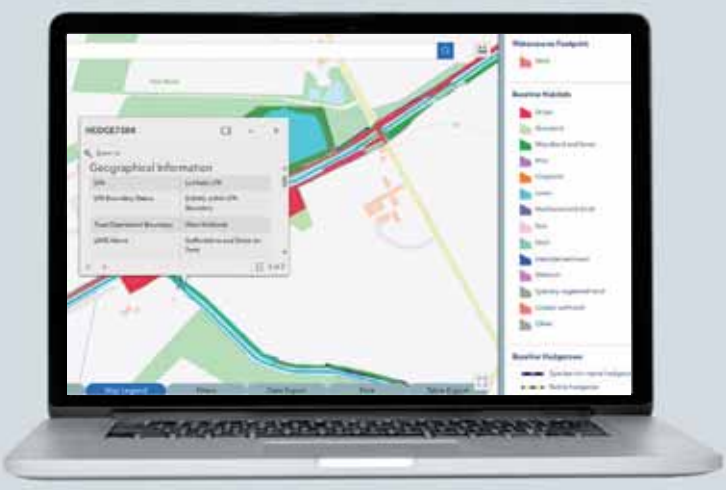
## ‘CanalSpot’, our species recording portal linked to iRecord

Players of People’s Postcode Lottery have enabled the development of CanalSpot, our species recording portal. This is the source of the species data mentioned in this report.




## Our Ecological Data Hub

The Ecological Data Hub, displaying the baseline data for Canal & River Trust.



## Biodiversity Net Gain (BNG) – now a legal requirement in the planning system

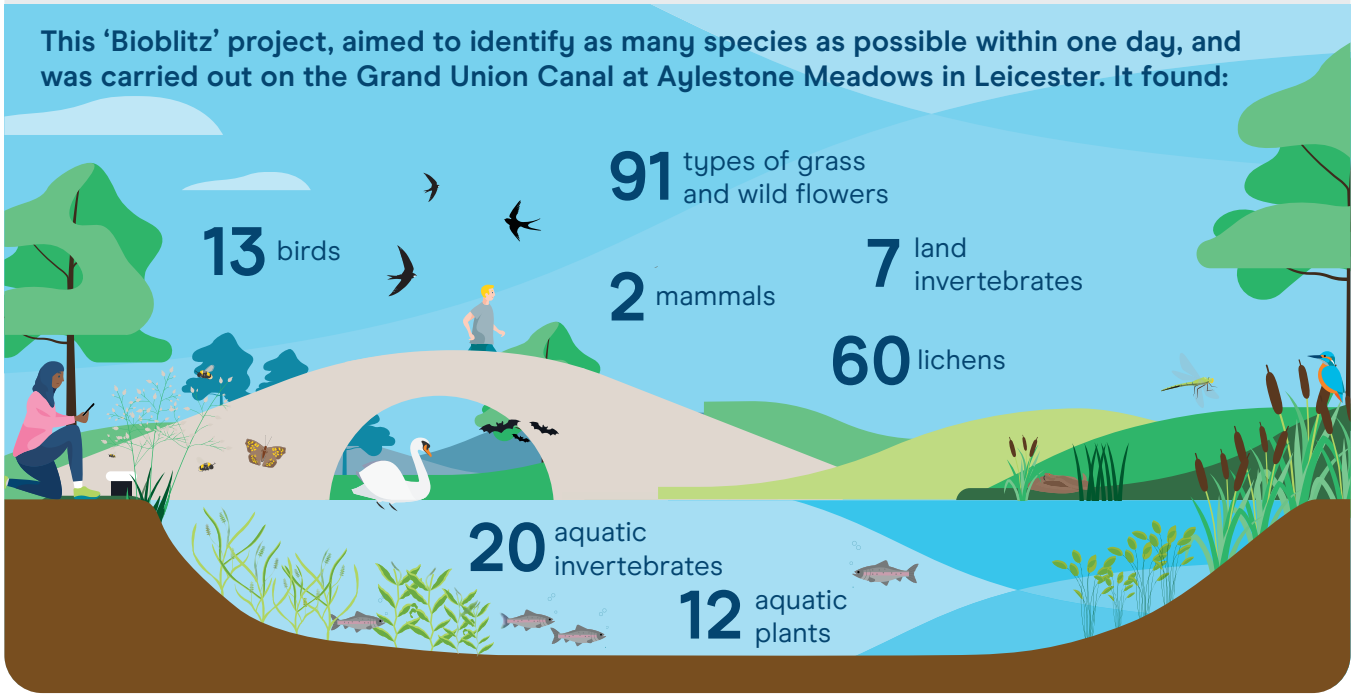
We secured a requirement in national BNG rules for developments to consider the impacts on canals and rivers even when they are within up to 10m of the watercourse. Our Ecological Data Hub provides an excellent starting point for us to identify BNG opportunities with local authorities and developers, where these are required to meet planning requirements, and other organisations looking to deliver ecological enhancements, for example for ESG commitments. Please contact BNGEnquiries@canalrivertrust.org.uk to discuss how the Trust can support you with the delivery of BNG.

“I reviewed their statistical code and model results, and I was very surprised how well their model performed, given the initial challenges. Although by no means is their model perfect but it is by far the best approximation I have seen anywhere in the industry. This should be celebrated, and the team should be commended for their innovative approach to tackle their client’s challenge. In addition, I can see their model to become a tool for other practitioners across the conservation sector. The FPCR team has shown both innovation and best practice throughout this project. Their innovation has allowed the Trust for the first time to calculate biodiversity value across their network.”

**Dr Sven Batke,**
**Edge Hill University,**
**Independent Reviewer of the ecological baseline work conducted by FPCR Environment & Design Ltd**

## ‘Bioblitz’ project on the Grand Union Canal in Leicester

During 2023 we worked with Biological Science and Environmental Science undergraduates from the University of Leicester, sustainability volunteers from DeMontfort University and conservation officers from Leicester City Council on a pilot biodiversity mapping service, to better understand the biodiversity of the canal in Leicester.






“This was a great opportunity for our students to collaborate with professionals and volunteers to learn how to identify the variety of wildlife that use canals and rivers across the UK. Our students were really excited to learn how canals and the adjacent vegetation act as ecological corridors for many species of bat. They were also amazed to see the diversity of aquatic invertebrates in the canal and learn how these can be used as indicators of water quality.”

**Dr Moya Burns,**
**School of Biological Sciences and the Institute for Environmental Futures at the University of Leicester**



# Our key and unique habitats

Our canal network in urban settings and in the rural countryside are home to numerous wildlife habitats both common and uncommon, natural and artificial. The linear waterways form distinctive wetland habitats and with pockets of lentic and standing water. The banksides have habitats typical of marshes and wetlands, whilst the towpaths and banks have woodland, woodland edge, hedgerows, and grassland or heath.

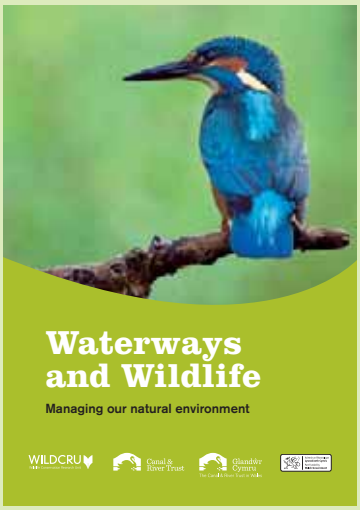
Adjacent to the canals themselves are often mosaics of meadows, marshy habitats, and woodlands of various ages and origins. These woodlands and the hedgerows also have veteran sometimes ancient trees and their associated fauna, and the juxtaposition of these key habitats that leads to their huge importance to local and regional biodiversity.[41]

The building of the industrial canals in the 1700s and 1800s, inadvertently created refugia habitats for wildlife species, many of which were then squeezed out of the wider landscape by urbanisation in towns and cities, and by intensive farming in the rural countryside. These species are now able to become part of the emerging Nature Recovery Network. Human-made historic structures such as buildings, walls, cuttings, and tunnels, now form unusual and interesting habitats and may house rare species such as ferns, mosses, and lichens.[39]

“Canals and other waterways incorporate a range of habitats which can be important in their own right and as connecting corridors, with a part to play in the resilience of surrounding landscapes. Our farmland research continues to show the significance of these types of habitats for wildlife and the importance of actions to retain and improve them.”



Dr Ruth Feber,
University of Oxford (2025),
Co-Author ‘Waterways and Wildlife’ (2017)[44,45]




## Unlocking Biodiversity (2021-25) Supported by Severn Trent Water’s ‘Great Big Biodiversity Boost’

**33km of aquatic margins** were created using coir roll planting and bank management, significantly expanding water vole habitat into urban areas.

**85ha of reedbeds** were restored or established, enhancing habitat for amphibians, birds and rare mammals.

**134km of species-rich grasslands** were enhanced, targeting priority pollinator species with bespoke nectar and larval plant mixes.

**54km of hedgerow restoration**, tailored to support declining species like the brown hairstreak butterfly, added vital wildlife corridors across rural and urban areas.

**66ha of heathland** were restored, with technical innovation in embankment soil remediation and rare acidic grassland creation in support of Natural England’s regional strategy.




“Unlocking Biodiversity exceeded its own targets… and has strengthened connections between people, policy and place. It has not only enhanced ecological connectivity across one of the UK’s most urbanised regions but also demonstrated how evidence-led conservation, collaborative delivery, and community involvement can work in harmony to restore nature at scale. The project is an exemplary model of modern, applied conservation – blending technical excellence with deep community roots – and a thoroughly deserving winner of the NGO Award.”

Judges comments for CIEEM 2025
NGO Impact Award

# Linear freshwater habitats – canals and navigable rivers

Canals and navigable rivers are the most familiar feature of the inland waterways network and make up nearly 50% by area, forming the focal point of the network.

Being human-made, the open water of canals would not exist were it not for their built structures, ongoing maintenance, and active water management. Repairing canal infrastructure and ensuring adequate water supplies from the wider catchment is essential to support this unique freshwater environment. Like linear, slow moving ponds the shallower edges of open water support submerged plant and animal communities. These have become uncommon in the wider landscape, and they are the reason for the designation of most of the canal Sites of Special Scientific Interest (SSSIs).

Canals are artificial systems and differ from natural watercourses. When assessed against natural criteria, the uniform features of these artificial systems are in moderate condition at best, however, there are physical features that have been recognised as helping to improve the condition.[20] Diversity is provided by features such as shallow fast water flowing around by weirs and even built structures for mooring boats. Bank protection techniques, incorporating and encouraging vegetation, while not appropriate everywhere, benefit some key species such as water vole and insects.

Repairing canal infrastructure and ensuring adequate water supplies from the wider catchment is essential to support this unique freshwater environment.

Locks were built to enable navigation, flood defence and, at times, power generation on rivers and weirs. Fish and eel passes may be needed to



make these human-made barriers passable, allowing nature recovery while providing these other functions.

Where water is nutrient-rich, competitive plants and algae can dominate, causing problems in warmer weather. Remediation to prevent high phosphorous levels entering waterways from nearby farmland or sewage treatment effluent is possible. This involves working with partners and stakeholder organisations in the catchment including regulators, water companies, fishing clubs and other landowners.

Trampling of canalside banks by livestock such as cattle can encourage silt and nutrients to run-off into the water – and this may be prevented by fencing. Dredging to remove nutrient-rich silt has double benefit of helping reduce turbidity, from high levels of boat traffic. Measures to mitigate the impact of silt and disturbance on important plant communities can include 'in-channel reserves, translocation and regular monitoring.











# Open water freshwater habitats – historic and working docks

As part of the network, we own and manage four dock complexes – three groupings of historic docks in Liverpool, London and Gloucester and one working dock, Sharpness Docks. These dock complexes comprise of large areas of deep open water, sometimes tidal and estuarine, and with wharves and warehouses. They can support unusual mixes of species and are a focus for improving biosecurity.











# Open water freshwater habitats – reservoirs and ponds

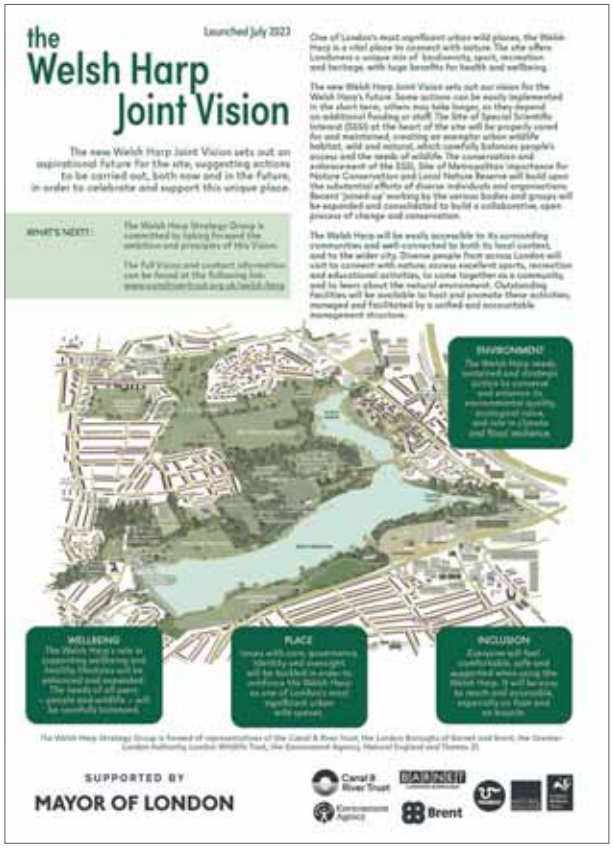
Our network includes over 70 large reservoirs, some of which are amongst the oldest in the country, and many other smaller lakes and ponds. This totals over 900 hectares, which equates to 11% of our total footprint. These 'open water' habitats provide rather different types of conditions for aquatic wildlife, combining with canals to form a rich and varied tapestry of wildlife habitats.

Typically around two hundred years old, the reservoirs are frequently designated as Wildlife Sites at local, national, and even international levels, including eight of our SSSIs. This conservation value is often associated with their importance for migrating water birds, and can include marshes and wetland areas.

The water quality of waterways and waterbodies including reservoirs is impacted by the management of land in their catchments. This presents the greatest opportunity for improving their value for nature.










## Other linear freshwater habitats – feeder channels, streams and by-wash channels

At the other end of the spectrum of our freshwater habitats is the fast-flowing feeder channels, streams and by-wash channels that supply the canals, and again, provide habitats for a different and distinctive suite of wildlife species.







## Hedgerows

Ancient hedges, old hedges, and modern hedges run parallel to canals and cut through in the wider countryside adjacent. Hedgerows were planted alongside canals soon after they were built. Old and new canal hedges now intersect with those in the wider landscape and help facilitate species movement, recovery and recolonisation.[44,45] Providing blossom for pollinators, nesting sites and refuge for birds, mammals and reptiles these aged features are key to supporting wider landscape nature recovery.

There are over 1400km of hedgerow along the network, with 30% estimated to be in good condition, 33% in moderate and 26% poor.

Since towpaths are often narrow, space to provide an undisturbed land along the hedge base can be challenging. There are opportunities for enhancement in hedge-laying and gapping up.







## Woodlands and trees outside woodlands

Canalside woodlands can mix ancient woods, recent plantations, and naturally developed woodlands through succession on embankments, on land parcels such as dredging disposal sites, and 'wet woodlands'. Some of these sites assume greater significance for nature recovery in the large areas of countryside with limited woodland cover.[44]

There are around 1,500 hectares of lowland deciduous woodland within our estate. Management to improve condition can include coppicing and thinning (to encourage more ground flora), selective planting.





## Ancient and veteran trees

Along the route of each canal there are fragments of ancient countryside often marked by remnant veteran and ancient trees taken into the land of the waterway when construction took place in the 1700s or 1800s. The surviving trees are a remarkable legacy and provide habitat for rare insects, woodpeckers, treecreepers, lichens, ferns, mosses, and more.

Veteran White Willows and Black Poplar are examples of trees of high biodiversity and landscape value along the canal network and adjacent wetlands and watercourses.[46]



## Scrub and ecotone habitats

These areas are very important for connectivity, as stepping stones, and as habitats in their own right, but are frequently overlooked. They occur along woodland edge, hedgerow, and particularly as part of the canal towpath. These areas often join and connect other larger habitats in the landscape as part of the juxtaposition of mosaics and connections. Subject to what is called successional change, they need appropriate management to maintain their biodiversity interest which may include breeding birds and mammals such as dormouse.[47]

There are many types of scrub habitat, which collectively totals nearly 160 hectares. FPCR survey and modelling estimates about 60% are 'poor', and 36 are in 'moderate' condition. Both species and structural diversity could be improved – for example by creating 'rides' which help invertebrates, choice of planting and occasional cutting. With scrub often on embankments there are opportunities to improve habitat condition and ensure these critical structures are looked after.

Heathland, in the same category as scrub is quite localised around the network but can be found where a canal cuts though acidic rock like sandstone, or in some cases where there is a former industrial site with brick rubble or similar. Such habitats are rich in unusual biodiversity such as solitary bees and ground beetles.[47]

The Unlocking Biodiversity project in the West Midlands restored and remediated 67 hectares of heathland through Cannock Chase National Landscape.





## Arable fields

Such lands are mostly owned and managed by farmers but potentially important for birds like lapwings and some waterfowl. Boundaries and field margins are among the most biodiverse elements of agricultural land, and are important to many invertebrates. While the Trust owns some, the canal network forms the border of many more.[45]



## Grasslands and wildflower meadows

Grassland habitats occur along towpaths, but also as parcels of land adjacent to the network and forming part of land around reservoirs.

Low species diversity and sward height is a common reason for the FPCR surveys finding 64% of surveyed grasslands 'poor' and 32% 'moderate' condition. Collecting the cuttings afterwards can reduce soil nutrients over time. This in turn, will reduce the need for frequent cuts, improve species diversity and allow flowering to benefit pollinators. Ensuring safe access along narrow towpaths does constrain management options but these can be managed at a local scale. Careful choice of seed mixes, including slower growing less vigorous native grasses, following maintenance work can lead to improvement. Grazing of livestock on some parcels of land can be beneficial.

Old, traditional meadows and recently created sites are important for nature, and especially important for pollinating insects like butterflies, bees, and hoverflies.[32] Being eco-cultural, all require appropriate management. There are numerous sites along canalside embankments that have unimproved grasslands and areas capable of being enhanced by appropriate management. "Modified grassland" which is 'species-poor' can be improved for biodiversity by overseeding to create a 'flowering lawn' which tolerates frequent mowing. However, if left uncut in May and June can benefit pollinators and other invertebrates.









# Urban commons

From urban centres to rural corridors the canal network – despite its legacy of disturbance and disruption – is now home to a wonderfully rich array of unique biodiversity linked to the history, heritage, and ecology of the waterways and their past uses. Indeed, some of the plants such as soapwort are tied to their cultural use by the canal community in times past. Each urban centre has its unique signature of distinctive plants and animals associated with its history, heritage, and particular micro-climate.[9] Whether in a town or city these areas and their habitats are often mixed mosaics of grassland, herbaceous plants and scrub. Unless managed these areas and habitats may progress through ecological 'successions' to less species-rich communities.

Urban features make up 17% of the area of Trust land – for example, much being developed or sealed land. This can be hard-surfaced towpaths, parking areas and, land around operational yards and depots. Historic associations of canals with docks, railways and industry mean there is potential for much ecological interest here, particularly for invertebrates that favour disturbed ground of varied substrates. There are opportunities to investigate these microhabitats more closely and manage them respectfully as they continue to age.







Credit: Ulleo Leone Pixabay



## Walls and built structures

Thousands of structures – buildings, boundaries, bridges, locks and tunnels integral to the historic network – have ageing walls. Once badly affected by air pollution from soot, smoke, and grime, these increasingly provide habitats for rare and exciting plants and animals. On brick walls, the mortar creates alkaline habitats for species associated with chalk and limestone in the wider countryside.[39] Here they are sanctuaries and opportunities for common polypody fern, for rusty-back fern, maidenhair spleenwort and many more. Stonework, brick and mortar may be valuable for both rare and more commonplace, ferns, mosses and lichens, along with specialist flowering plants. Indeed, such walls have become increasingly important for local biodiversity. In northern areas, stone walls often replace hedgerows and boundary structures, and may host invertebrates and small mammals in their holes and crevices. Where waterway walls have limited wildlife, 'floating ecosystems' and coir can provide new habitat. Submerged walls provide habitat for crayfish. Freshwater sponges, which grow on structures such as lock gates and stone canal walls, are remarkable creatures very overlooked. There could well be species as yet undiscovered around the network.[48]

Epitomising the robustness and adaptability of nature, there is opportunity to record new species and retain those that don't damage these structures during repair and maintenance.












## Improving our Sites of Special Scientific Interest (SSSIs)

41% of SSSIs across our 701 hectares of landholding are in 'favourable' condition, with a further 27% in 'unfavourable – 'recovering' condition, as assessed by Natural England. They are also affected by wider pressures such as water quality with much potential for collaboration and partnership. Among other work to improve these sites we have:

- Removed reeds and channel vegetation along 10km of the Grantham Canal, including at Kinoulton Marsh & Canal SSSI to maintain and improve the open water habitat.
- Translocated macrophyte plants to Kilby Foxton SSSI to help improve the condition by adding to submerged and marginal plants in the canal.
- Reprofiled and scraped back bracken roots along an embankment on the Anglesey branch canal to enable future management of a remnant rare heathland in the Chasewater and the Southern Staffordshire Coalfield Heaths SSSI.
- Managed canalside trees to reduce shading on open waters, which is a common challenge at many sites.







## The Great Canal Orchard

The Great Canal Orchard is an ambitious environmental project aiming to create the world's longest community orchard along the canals of the West Midlands. Stretching 50 miles from Wolverhampton to Worcester, the orchard passes through Birmingham and follows the Staffordshire & Worcestershire, Old Main Line, and Worcestershire & Birmingham canals.

This initiative involves planting 3,000 fruit trees, including apples, pears, plums, cherries, and rare varieties like the Tettenhall Dick pear, along canal towpaths. The project also introduces exotic species such as peaches, apricots, figs, persimmons, loquats, and pomegranates to adapt to climate change. The orchard is designed to benefit local communities, wildlife, and boaters, providing free fruit and enhancing biodiversity. It also aims to re-establish hedgerows and create pocket orchards of 10 to 300 trees.

This decade-long project is supported by volunteers, including the Wild in Birmingham team and funding from the Green Recovery Challenge Fund. It revives a historical tradition, as boat families once harvested fruit along these canals during the Industrial Revolution. The Great Canal Orchard not only offers a unique green space but also fosters community engagement and environmental stewardship across the West Midlands.



"Planting the trees was really nice to see and do because it is good for nature. I like it as it's nice for everybody who lives near there because they can eat the fruit and enjoy the view."

**Evelyn Crowther aged 9 – volunteer from Tibberton Orchard planting**



# Homes for wildlife

Canals and navigable rivers are home to a remarkable array of plants, animals, fungi, lichens and more, from nationally rare and threatened species to more familiar everyday ones. They host biodiversity in abundance.

Some species are so important that they are specially protected, others are threatened, and some are simply everyday plants and animals which, being familiar, help us be exposed to, and connect with nature and develop a sense of place. Indeed, regardless of conservation status the sheer richness of biodiversity delivering ecosystem services is vital for sustainability. Plants offer pollen and nectar to myriads of insects are pollinators. Some invertebrates work with fungi and bacteria as decomposers to break down and recycle organic matter in the natural world. The ecological food webs and guilds of plants, herbivores, pollinators, parasitoids, predators, and higher predators combine to support natural processes throughout the canal network and beyond.

In areas of nature deprivation, the network becomes increasingly important, so improved habitat management, for example, hedgerow, grassland and scrub management can help in dispersal.


Credit: Charlie McCartney



Over 770 different species have been recorded along the canals in Birmingham, including 24 threatened species.

Canals can be very valuable for dragonflies and damselflies, particularly in urban settings where there may not be much other suitable habitat. The Grantham Canal has 21 different species recorded, one of the best sites in Leicestershire & Rutland.


Credit: Claudia Peters




Credit: RPN Pixabay


Credit: Kathy Büscher Pixabay

13 different butterfly species have been recorded on the Northampton Arm of the Grand Union Canal.



Over 900 different species were recorded on the canals in Manchester include five species of orchid (marsh orchid, common spotted-orchid, northern marsh-orchid and bee orchid) and four species of hawk moth (lime hawk-moth; eyed hawk-moth; poplar hawk-moth and elephant hawk-moth).







Coot and moorhen are quite familiar species which often use canals, but considered threatened due to long term significant population declines.





Credit: Stuart Collins



Credit: Stuart Collins

Freshwater sponges need hard surfaces to grow on, like lock gates and waterway walls. They're probably very common but not well recorded. A finger sized sponge can filter 125 litres of water per day. There are only six different species in the UK, but survey efforts could well find more.

The plants wood-sorrel and yellow archangel recorded along canals in Birmingham, and dogs mercury along the canals within the cities of Leeds and Doncaster, are considered 'ancient woodland indicator species' showing the canals role as a refuge.







Of the 450 species recorded along Regent's Canal in London, 11 are types of bees. Of the 19 threatened species, most are birds.



# Protected species

Canals are home to rare and protected species like water voles, otters, great crested newts, kingfishers, little egrets, grey herons, little grebes, grass snakes, white-clawed crayfish, and plenty of others.











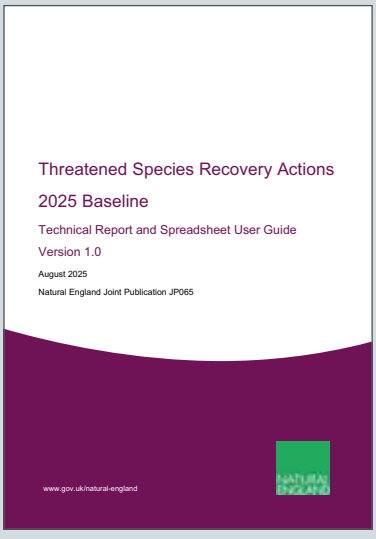
# Threatened species

Many wildlife species and plants found along the canal network are ones that have declined or are under threat in the modern world, and our waterways provide vital places of sanctuary. Mammals such as bats are especially threatened by modern living and the canals provide vital areas for feeding, breeding, and winter hibernation, and offer major opportunities for positive conservation action too. Even common frogs and common toads, so typical of canals and canalside habitats, are declining dramatically in the wider countryside and also in urban areas.

The endangered water vole benefit from the relatively stable water levels of canals. Habitat management, including 'soft' bank protection has retained populations while they have declined in watercourses in the surrounding countryside. Water voles are also benefitting from control of invasive mink – which the Trust is assisting with and can do more to mitigate with extra support.






This Natural England guide summarises the specific actions for over 1,300 species which require conservation or recovery in England. Supported by CanalSpot and survey work this Guide is helping the Trust to identify appropriate and specific tasks and opportunities for nature recovery along the network.[49]



Credit: Jack Perks

## Saving the Nations' water voles – a threatened species

We are collaborating with Waterlife Recovery Trust and others on mink trapping (to eradicate an invasive species to encourage the water vole population to thrive) on numerous canals including the counties of Leicestershire, Oxfordshire, Nottinghamshire, Derbyshire, Lincolnshire and Northamptonshire. Elsewhere we are actively discussing expanding this critical activity.

Many kilometres of canal bank have been made more suitable for water voles to burrow, feed and travel along, using techniques including coir rolls.



"We all enjoy working as a team doing a variety of jobs across our patch to help maintain the canal for the benefit of all, whether they be boaters or towpath users. This specific project was the second year we had been involved. We received many encouraging comments from members of the public on the work we did last year as to how the rolls were blending into the environment and the sightings of more wildlife. This encouraged us to work with the ecology team to do more work this year. It was hard work, but we all get great satisfaction from seeing a job completed."

**Phil on behalf of the Grand Union Canal volunteer team**

# Everyday species

All along the canal network there are bird species which only recently were considered commonplace – the tree sparrow, yellowhammer, linnet, and turtle dove are all today reduced in numbers. The canal network weaving as it does through the countryside, urban and rural, provides vital habitats and much needed connections for such species to survive and then thrive and repopulate the wider landscape. Around many refurbished historic buildings found along canal corridors, the once abundant house sparrow, yet another familiar bird under threat, does remarkably well with a little help. There are numerous common and often unseen species of plants and animals which are vital to ecological functions but are less appreciated, some of which we know relatively little about. These aspects of biodiversity present opportunities for further research and often for citizen science projects too.









# Fish

Fish populations in waterways are vital to ecological functioning but are very dependent on water quality and quantity, connectedness within the system, and influences of surrounding habitats and land use. Fish communities include predators, herbivores and even cannibalistic species like perch or pike. Some native fish species are increasingly uncommon, but the canal network provides connections for otherwise isolated populations. Other non-native species like zander also become established through unofficial releases by enthusiasts, and these can cause problems. Having the capability to monitor and, where necessary, rescue and relocate fish is essential in canals which require maintenance.

Fish are therefore important to ecosystem functioning. They provide essential food to mammals such as otters, and birds like kingfisher, grey heron, and little egret, and also sport for keen anglers along the waterways.


Credit: Jack Perks


Credit: Jack Perks


Credit: Jack Perks


Credit: Jack Perks

# Fish and eel passes

Improving connectivity of watercourses and adjacent habitat. System connectivity can be improved on navigable rivers by physical infrastructure measures such as fish and eel passes.













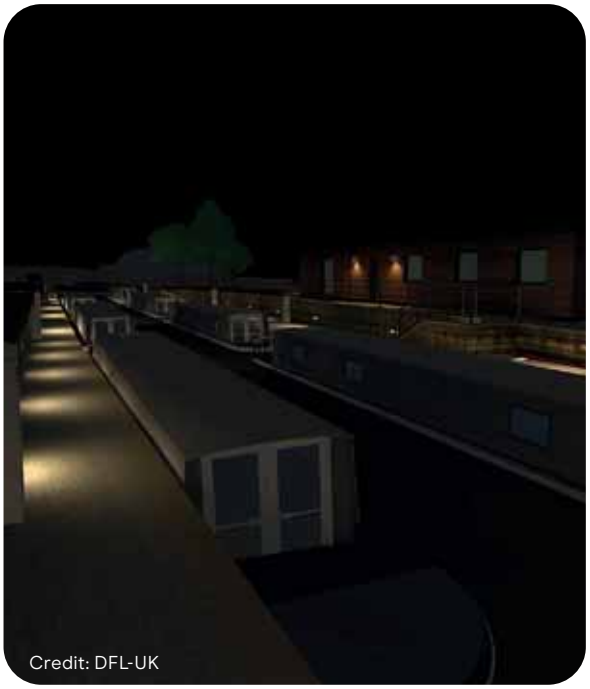
# Homes for bats, birds and bugs

The Trust has many opportunities to protect, create, and enhance opportunities for specially protected species such as for roosting bats. Roost sites (which are legally protected) may be found in structures like bridges, locks, tunnels, aqueducts, and buildings. Canals and their structures, together with old trees, offer numerous crevices and similar habitats suitable for bats and these are assessed and safeguarded, and where possible, new sites are created. Opportunities may include installing bat bricks or boxes or creating new structures such as bat caves suitable for bat roosts. Because bats love to feed and forage along our canals and in adjacent habitats, these are important sites for these mammals.

There are abundant opportunities to provide sites for nesting birds, invertebrates, reptiles, amphibians and other creatures within our canals and associated structures. These may involve installation of bird boxes and features such as swift bricks, and incorporation of crevices suitable for nesting birds, reptiles and amphibians. Creating habitat piles or stacks with vegetation and deadwood from maintenance work are good for invertebrates. Along navigable rivers and canals, and in adjacent areas such as woods and hedgerows, there are opportunities to provide for mammals such as otters, badgers, water voles, and hedgehogs.







Credit: DFL-UK





# Responding to today's challenges to create a sustainable future

Across the country there are major challenges ahead for nature and biodiversity, and for the health and wellbeing of people and communities. The Trust also faces particular issues and challenges in sustainably caring for the nation's network of canals, navigable rivers and reservoirs.

## Impacts of climate change on nature and biodiversity

### Extreme weather events

Both floods and droughts can cause severe harm with direct and indirect impacts on habitats and structures, and associated problems such as deoxygenation, algal blooms (including toxic blue-green algae) and consequent fish deaths.

A major challenge to all wetland habitats is the increasing frequency and longevity of drought conditions. Where canals are able to maintain a good body of water they become vitally significant as other wetlands dry out. However, canals themselves may also be seriously impacted by water shortages and this is likely to be an increasing challenge in the future.

The following sections highlight the particular issues affecting the network of canals and navigable rivers.



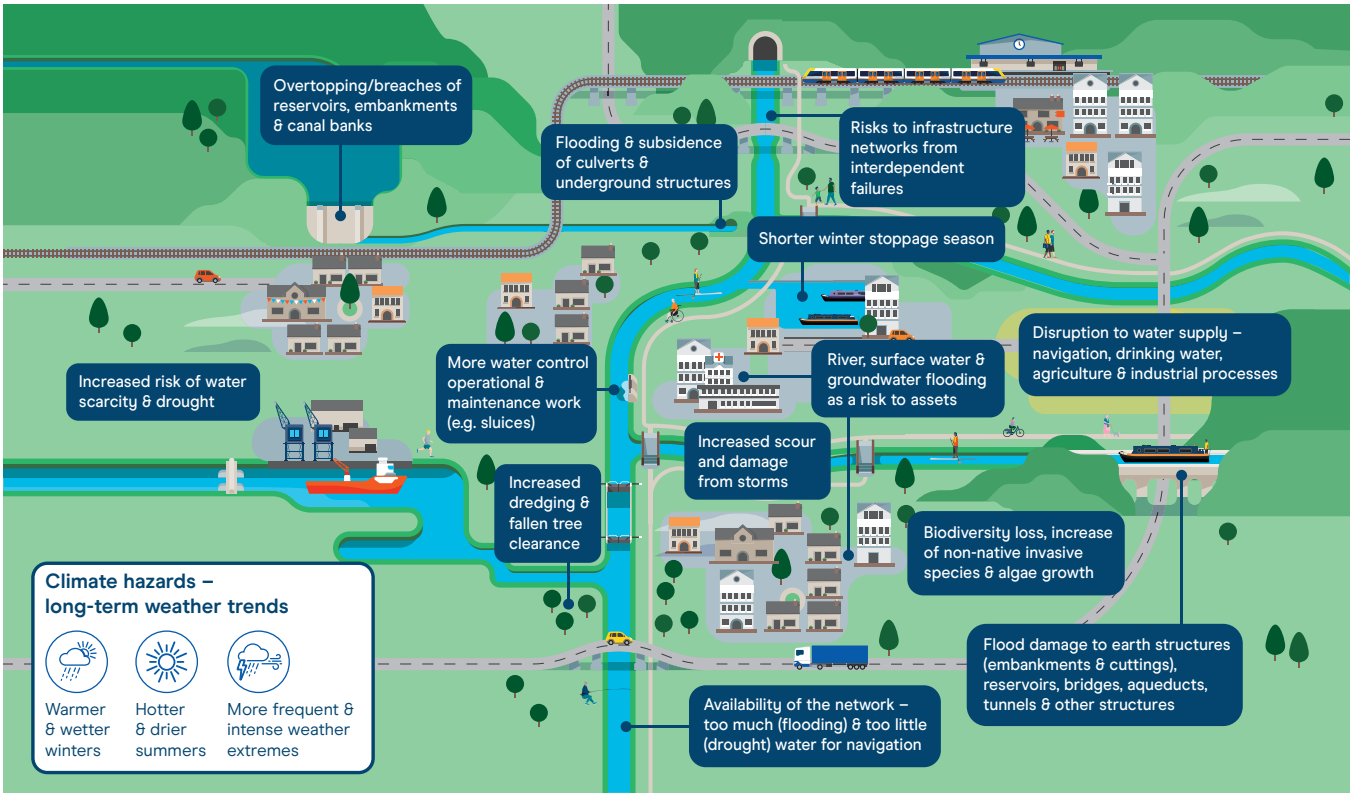






## How climate change affects our canal network

Climate change is likely to significantly impact the functions, assets and services we provide. Temporal and spatial changes in rainfall frequency and intensity, increasing temperatures and rising sea levels pose risks, including flooding, drought, subsidence, structural damage and ecological degradation.



## Warmer temperatures – invasive species and biosecurity

Changing conditions combine with globalisation to promote the spread of invasive non-native species which can cause practical problems such as blocked watercourses, and damage to buildings. Invasive plant species affecting waterways include terrestrial, amphibious, and aquatic plant species such as Himalayan balsam, Japanese knotweed, giant hogweed, and aquatic plans like water hyacinth, New Zealand pygmyweed and others. Exotic fauna such as American signal crayfish and American mink are also spreading throughout the network, and require active monitoring and control. These invasive species require active monitoring and control.[50]

Other work may include removing non-native fish, for example, zander.[50]

Canals and canalside trees can be important in helping to provide urban cooling as towns and cities heat up. They also offer microclimate refuges for vulnerable insect species like butterflies, and a means for dragonflies and damselflies to move north and west as temperatures rise.

### Canal & River Invasive Species Eradication Project 2021-2025

The Canal & River Invasive Species Eradication Project 2021-2025 funded by Severn Trent Water as part of their Great Big Nature Boost initiative – focused on four principal invasive-non-native species. It enables the trial of ground-breaking methods of eradication to find more sustainable, cost-effective and longer-lasting solutions. This project won the 2022 CIEEM NGO Impact Award.

#### Key outputs delivered:

- Aquatic weed management via mechanical removal across 108km of waterways.
- Targeted treatment in over 300 land-based invasive species sites.
- Successful one-of-a-kind trials of Himalayan balsam in two sites.
- 1,500 tonnes floating pennywort removal removed across 35km – one of the largest removals in the country.
- Biocontrolled deployment of weevils across 22 sites, many with multiple release locations – we have seen the return of native water cress to the area as a result.







Control of terrestrial non-native plant species may be needed if they threaten native plant communities. In such cases, there may be a need to control invasive non-native aquatic plant species, like water hyacinth, New Zealand pygmyweed, floating pennywort, and water fern. Invasives also include channel-side plants like Japanese knotweed, giant knotweed, giant hogweed, and Himalayan balsam.











## Invasive aquatic weeds

Warmer water and nutrient-rich surface water run-off allows unwanted aquatic invasive weeds such as duckweed, floating pennywort, azolla and blue-green algae to flourish. The prolific growth has knock-on impacts for canal ecology, including some of our 68 Sites of Special Scientific Interest, by reducing essential oxygen levels.

In 2023, we worked with Paddle UK, the Environment Agency, Yorkshire Water and Angling Trust to remove floating pennywort from the River Lee and Calder and Don Navigations. This partnership expanded its efforts into the East Midlands in 2024. This work would not have been possible without the help of dedicated volunteers. Now these waters are flourishing with native species and healthy fish and people are back enjoying time on these stretches of water.

# Societal challenges

## Impacts of pollution by plastic and other waste

Especially in and around urban areas, littering can be a big problem – on the bankside, on land around the canal, and in the canal channel itself. Typical debris includes fly-tipped white goods, builders' debris, car tyres, shopping trolleys, and garden waste, as well as general public litter. Combating these problems involves litter picking and other removal of waste deposited in the canals.

Water quality issues are critical to our future sustainability, and even more so because the canals and rivers ultimately connect to the seas and oceans beyond. Canal water quality is threatened by waste pollution, particularly where agricultural runoff carries pesticides and fertilisers into the water. Problems occur both in the watercourse itself but also arise from litter left on banksides and other places adjacent to canals. Nature and wildlife species are damaged by plastic litter and containers directly, but also, almost ubiquitously, by the intake of damaging 'micro-plastics'. The implications of this pollution load are only now becoming fully recognised.

Our research found that there are:

**24 million** items of plastic and other litter entering our waterways every year.

**14 million** items (59%) are plastics such as bags, bottles, disposable cups and food wrappers.

**½ million** items of plastic are reaching the ocean.

We are spending **£1 million+** a year on removal.








## Urbanisation – housing and growth

With increasing demand for new housing in and around towns and cities, and in many rural areas too, nature is under pressure.

We are committed to supporting the delivery of housing and infrastructure, alongside protecting and improving the natural and built environment. We are focused on working in partnership to deliver high-quality, healthy, resilient and sustainable places and infrastructure that supports nature, economic growth, water security, green energy and sustainable urban living and neighbourhoods.

To recognise the multi-functional nature of canals and other blue spaces we have produced a 'Design Coding for Canals' document (2025) for developers, which provides guiding principles on how to achieve waterways as places for nature, for movement, and for people. Achieving an appropriate balance between these needs is key to the design of successful and sustainable waterway places.







Academy of Urbanism/ Urban Splash/Places for People



# Partnership opportunities

## Opportunity 1



Help improve the SSSIs across the network and get 'actions on track' to meet favourable condition by 2035.

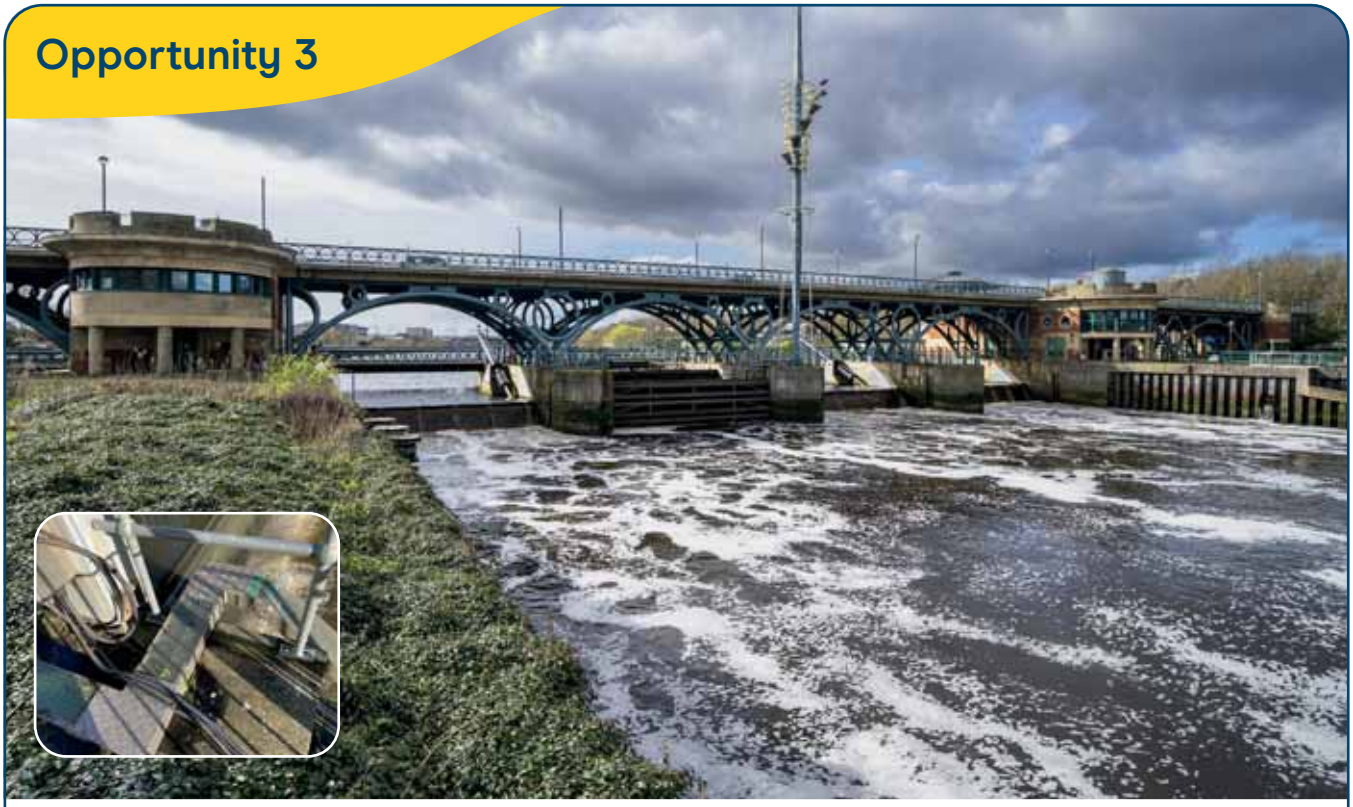


## Opportunity 2



Develop priorities and initiatives with partners to 'fill the void' that are aligned with Local Nature Recovery Strategies.

## Opportunity 3



Help to fund the installation and maintenance of fish and eel passes to improve connectivity on river navigations.

## Opportunity 4

Help answer fundamental ecological questions through University of Leeds programme of research on our multi-habitat network.



“The Canal & River Trust is responsible for a network of broadly linear spaces passing through natural habitats and also ecologically poor agricultural and urban landscapes. These terrestrial-aquatic corridors are often multihabitat and species rich yet remain underresearched and likely under-utilised for their ecological value to the wider landscape. Building on our previous Community Ecology work demonstrating the value and emergent properties of multi-habitat landscapes, and working in close collaboration with Canal & River Trust, we’ve prepared a programme of research to look at fundamental and applied ecological questions which this “unseen” model system can help answer. We expect this burgeoning partnership to yield mutually beneficial, impactful research that can apply nationally and internationally across a range of systems beyond the network managed by Canal & River Trust.”

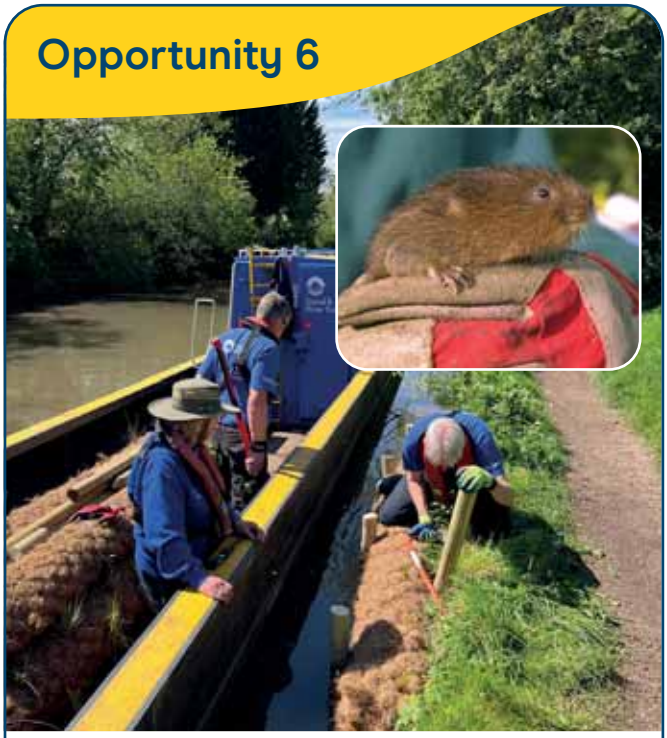
Dr Talya Hackett,
University of Leeds

## Opportunity 5



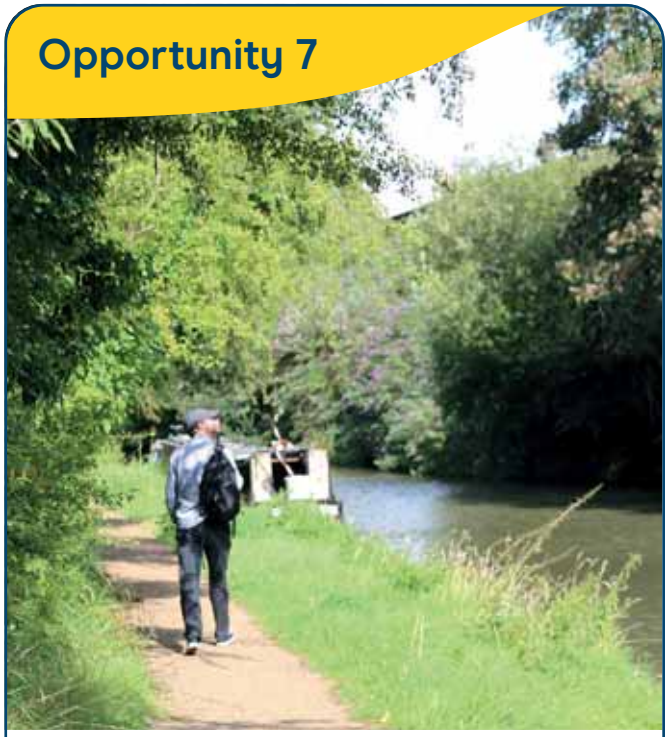
Work towards eradication of key invasive non-native species through biological control, specialist techniques and supporting community involvement.

## Opportunity 6



Support the recovery of the water vole through canal bank habitat improvement, and control of mink in partnership.

## Opportunity 7



Support a greater understanding of the ecological value of towpath grassland and the management of this multi-use space for access and wildlife.

## Opportunity 8



Helping hedgerows – support the expansion of hedgelaying and management through practical tasks, materials, training and engagement.

## Opportunity 9



Invest in the recording, monitoring and evaluation of the impact of our interventions to protect and improve water quality, habitats and key wildlife groups.

## Opportunity 10



Improve water quality by supporting remediation and removal of sediment from canals and feeder channels.

## Opportunity 11



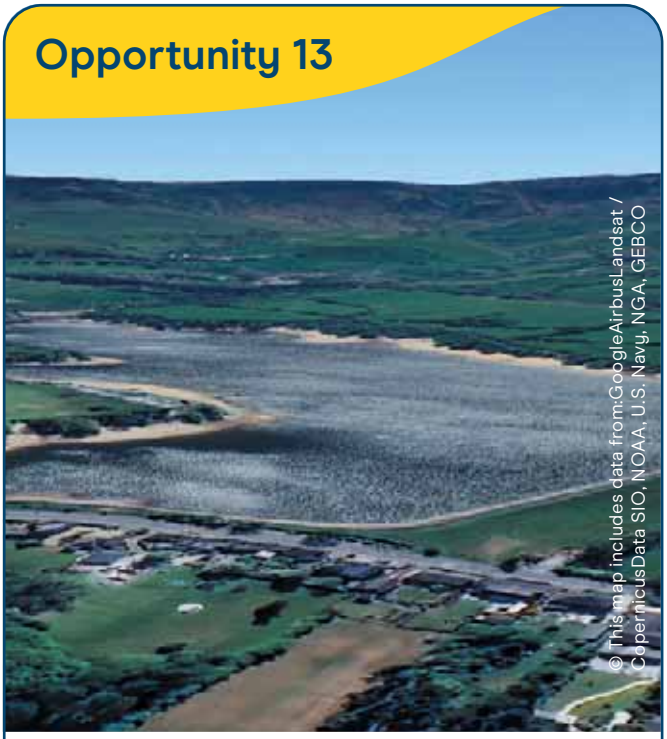

Investigate our most under-studied group – freshwater sponges – when canals and locks are emptied of water.

## Opportunity 12



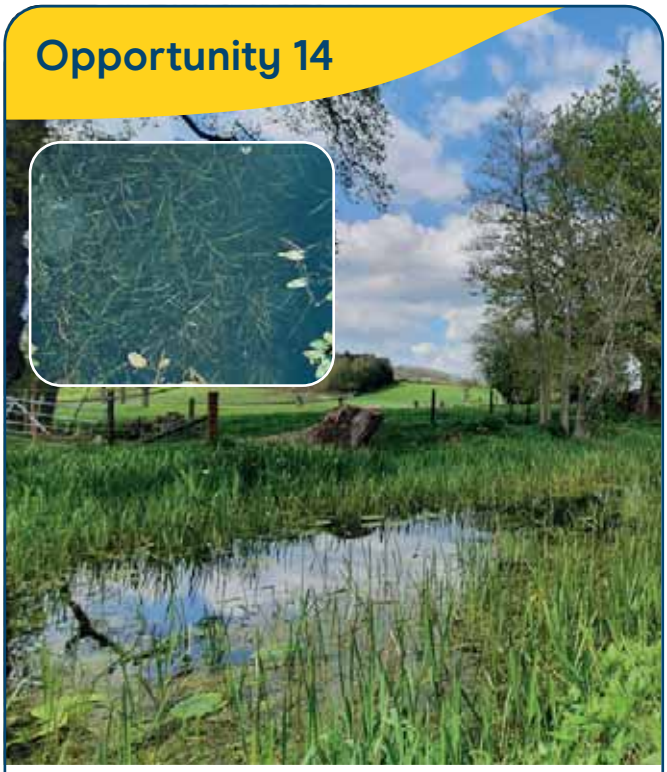
Zander management support the understanding of the ecology of this invasive fish, and management to contain and remove from the canal network.

## Opportunity 13




Support improvements to the water quality and flow affecting reservoirs, protected sites and infrastructure through changes to land management.

## Opportunity 14



Support propagation and translocation of key aquatic plants including grass-wrack pondweed.

## Opportunity 15



Support the provision of bespoke plant and seed mixes from specialist nurseries for use in canal maintenance work.

## Opportunity 16



Develop skills and capacity in green jobs through training and apprenticeships in the Trust.



# Defra Green Recovery Challenge Fund and Waterways, Wildlife and Wellbeing







Green Recovery Challenge Fund

Department for Environment Food & Rural Affairs

The National Lottery Heritage Fund

Environment Agency

NATURAL ENGLAND

Council for Learning Outside the Classroom













## Green Recovery Challenge Fund

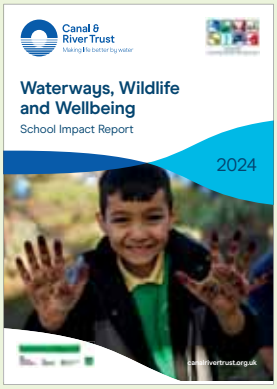
The Trust secured £1.7 million from the Green Recovery Challenge Fund (GRCF) to deliver ecological and environmental enhancements across the West Midlands, incorporating community engagement, conservation training, an apprenticeship scheme, outdoor learning and employment opportunities.

### Key achievements included:

- Approximately 6,700 volunteer hours.
- 7 SSSIs were improved through vegetation management, scrub removal, pond creation, reedbed installation and water quality improvement.
- Citizen Science programme of 8 species groups, completed by over 250 volunteers.
- Water vole habitat enhancements of over 1,700m of coir roll installed providing over 20km of connected habitat.
- Urban green infrastructure improvements in 7 central urban areas totalling 88.09 hectares of habitat improved.
- Orchard planting of 536 fruit trees of 15 varieties across in 8 pocket orchards.

## Waterways, Wildlife and Wellbeing (WWW)

As part of the GRCF project, WWW Project was designed for schools in areas of disadvantage across the region to increase contact and connection with the natural environment amongst pupils.




### Key achievements included:

- Over 500 schools supported to take their learning beyond the classroom with project reach estimated at 123,500 pupils.
- 56 schools, and 2,380 pupils engaged in practical environmental activities.
- A positive impact on a wide range of learning, wellbeing, nature connection and pro-conservation outcomes for pupils including:
  - an increase in overall wellbeing and a significant increase in learning,
  - a positive impact on pro-conservation behaviour,
  - Nature Connectedness Index scores higher than the national average for under 16s.




# NLHF funded Unlocking The Severn Project

‘Unlocking the Severn’ is a river restoration project on the UK’s longest river, engaging thousands of people with the fascinating natural, cultural and industrial heritage of the Severn.

Funded by National Lottery Heritage Fund (£11.2 million) and EU LIFE Programme (£6.4 million) and delivered by partners – Canal & River Trust, Environment Agency, Natural England and the Severn Rivers Trust.

UNLOCKING THE SEVERN

## Summary of project outcomes:

- **Upstream passage for migratory fish was restored** with the construction of four major fish passes, providing access to historic spawning habitat for the first time in 180 years and reconnecting ecosystems.
- **New techniques for tagging, monitoring and tracing shad** developed with vital environmental DNA analysis from more than 500 tagged shad.
- **Over 93 million people reached** through national media, targeted outreach, and local engagement initiatives. Including 17,000 hours of volunteering, with 521 volunteers.

Canal & River Trust · SEVERN RIVERS TRUST · Environment Agency · NATURAL ENGLAND · Heritage Fund · Life · NATURA 2000

Canal & River Trust

# Diglis Island & Fish Pass

## Worcester

Since October 2021 we have had
**29,191 visitors**

including
**3,808 schoolchildren**

The Diglis Island Guide volunteers have so far given
**5,541 hours**







Credit: Unlocking the Severn











# Birmingham – the first Nature City

The City of Birmingham was recognised as the UK's first official Nature City by Natural England, National Lottery Heritage Fund and others in July 2025 – along with Bournemouth, Christchurch and Poole, which were named the UK's first official Nature Towns.

The city has been awarded the accolade as part of a programme working to improve access to nature in urban communities.

The award recognised the role played by the city council and others in providing communities in Birmingham with better access to nature and green and blue spaces.

The Trust and our amazing volunteers, have been working with local communities, Birmingham City Council and other partners in Birmingham over the last seven years to improve access to, and 'greening' the canal corridors to help reconnect people with nature, improve biodiversity, ensure environmental justice and support the transformation of the city.


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Birmingham named UK's first Nature City

GETTY IMAGES

Birmingham is joined by Bournemouth, Christchurch and Poole, which were named the UK's first official Nature Towns





















# Canals for people – nature connectedness and wellbeing

## State of UK nature connectedness, health and wellbeing

As well as being vital for nature, wildlife and biodiversity, our canals and towpaths are vital for people – providing a free, accessible and local public health asset. In areas where green and blue space is limited and private gardens are rare, our canals offer vital lifelines – spaces for movement, mental reset, and meaningful connection. With targeted investment, these green-blue corridors can become frontline infrastructure for preventative health, reducing pressure on public services and delivering lasting impact.

Across the UK, we are confronting an escalating public health crisis. High levels of physical inactivity and deteriorating mental wellbeing are placing unsustainable pressure on the NHS. Urbanisation and modern lifestyles have created environments where physical activity is low, stress levels are high and mental health is suffering. Furthermore, rates of diabetes, heart disease, stroke, obesity, anxiety, and depression are rising, and the reality is stark: those living in the most deprived communities are hit hardest.

The World Health Organisation (WHO)[51] define health inequalities as "The differences in health status or in the distribution of health resources between different population groups, arising from the social conditions in which people are born, grow, live, work and age".



The evidence is clear: the less access people have to nature, the worse their health outcomes become: our most deprived communities are disproportionately affected, with limited access to green and blue space, safe walking routes, and opportunities for connection.

## The state of health in England and Wales




**People in the most deprived areas of England experience a healthy life expectancy at birth that is almost 20 years shorter than those in the least deprived areas.**
(ONS 2022)



**In 2022, nearly 50% of adults in the UK reported feeling lonely occasionally, sometimes, often or always.**
(Campaign to End Loneliness)



**1 in 4**
**people will experience a mental health problem each year.**
(MIND 2020)




**Physical inactivity is associated with 1 in 6 deaths in the UK and is estimated to cost the UK £7.4 billion annually.**
(Office for Health Improvement & Disparities, 2022)



**41% of adults have at least one longstanding illness or condition.**
(Health Survey for England, 2022)




**Obesity is over twice as high for children living in the most deprived areas.**
(NCMP, 2021)

# UK bottom in Europe for nature connectedness and highest health inequalities

Access to green (parks, forests, urban vegetation) and blue (canals, rivers, lakes, docks, reservoirs, coastlines) spaces is increasingly recognised as a key determinant of health.[52] These environments are linked to reduced stress, higher levels of physical activity, improved cardiovascular outcomes, and better mental wellbeing.[53]

However, access to green and blue resources is uneven. Socio-economically disadvantaged and ethnic minority groups are more likely to live in neighbourhoods with limited or poorer-quality green and blue space.[54] Mitchell & Popham (2008)[55] report that: "Health inequalities in England are narrower in areas with more green space, suggesting that unequal distribution directly contributes to disparities."

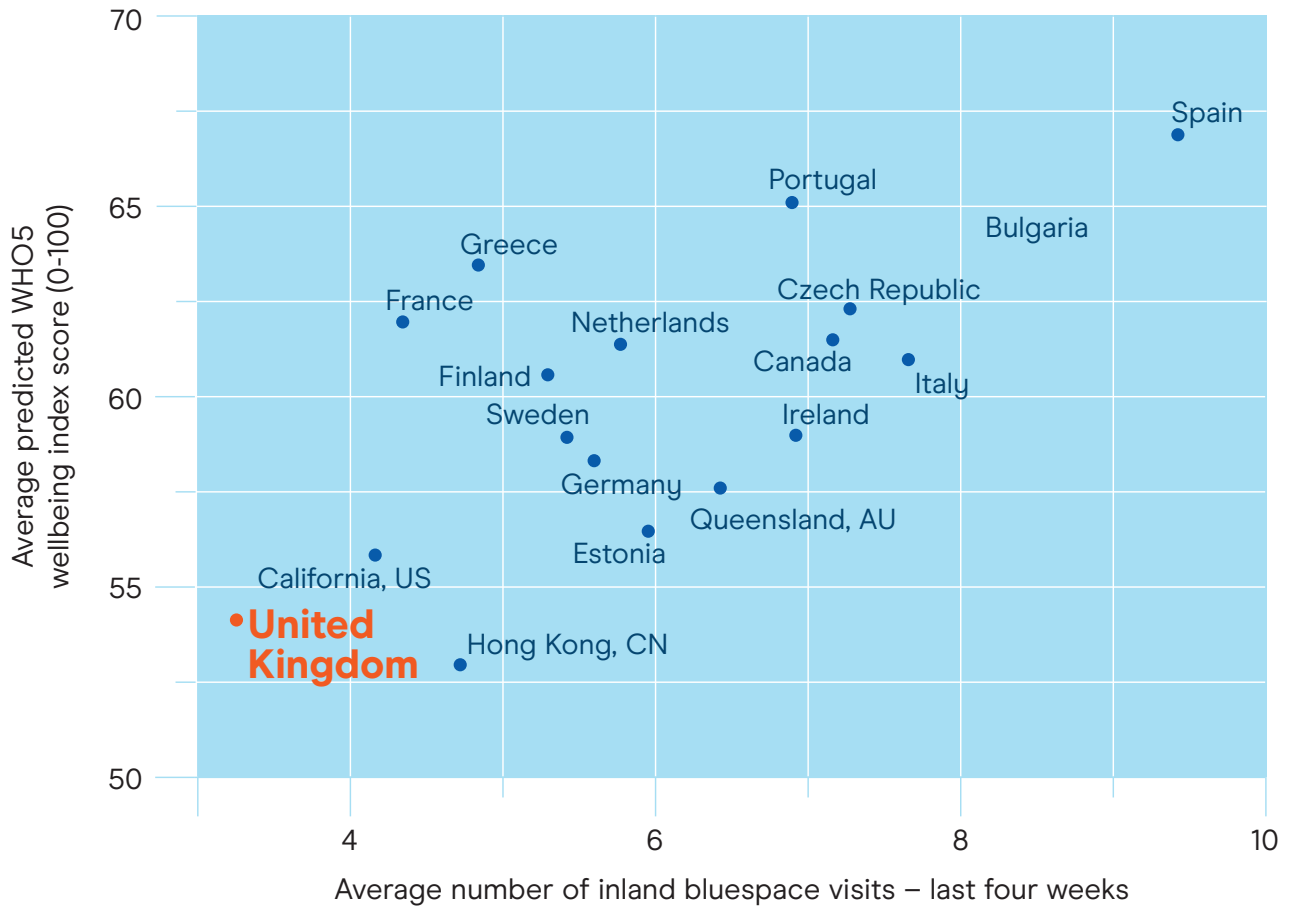



Figure 1: Shows average wellbeing scores and average visits to inland blue spaces for 18 countries.[56]

UK has low levels of nature connectedness when compared internationally. An 18-country study revealed that the UK, alongside Hong Kong and California, reported some of the lowest positive wellbeing, which correlated with lower visits to blue spaces and connectedness.

## Everyone should live within a 15-minute walk of a green or blue space

The health and wellbeing benefits of nature are well documented. However, not everyone has access to quality nature; over 8 million people have no private garden or no / limited access to public open space. In many urban communities, especially those shaped by industrial history, access to green space is severely limited.

The UK Government's Environmental Improvement Plan (2023)[57] explicitly commits to a landmark ambition: "everyone should live within a 15-minute walk of a green or blue space".

However, analysis by Wildlife & Countryside Link (2024)[58] notes that despite the welcome ambition, critical details are lacking, such as nationally published delivery plans, clear roles or funding mechanisms, and coverage in the most nature-deprived areas, where 38% of the population currently lack such access.





"The All-Party Parliamentary Group for Outdoor Recreation and Access to Nature believes that achieving a more active, healthy country requires a similarly ambitious approach to improving access to nature, asserting that new, considered legislation is the only meaningful way to provide practical opportunities for everyone to enjoy the outdoors while protecting the environment and respecting other users and landowners."

APPG Outdoors for All: Recommendations to Government on Access to Nature (September 2025)



# Benefits of connection with nature

Nature connectedness induces both environmental and health benefits. Building on the pioneering research of Professor Miles Richardson (2023)[59], which underscores the transformative benefits of nature connection and re-connection, the ripple effect our work begins with benefit for individual wellbeing and nature but cascades to society:

- **Good for you – wellbeing benefits of connection**
- **Good for nature – vital for pro-environmental behaviours and actions**
- **Good for society – health benefits for the individuals, communities and the nation**

However, there is an urgent need for system-wide shifts in societal values, structures, and practices to halt and reverse biodiversity loss. Among these shifts, fostering nature-connectedness, is identified as a critical enabler of long-term behavioural and policy change.[60]

A recent international report (including the UK), highlights disconnection from nature as a key driver of global biodiversity decline. By investing in initiatives that activate the canal network as a space for nature connection and ecological stewardship, funders can play a pivotal role in addressing this root cause, supporting both environmental outcomes and health and wellbeing outcomes.[61]

The Trust's collaboration with King's College London[62] led to the publication of an academic study (August 2022) which found that **visiting canals and rivers was associated with a 6% improvement in mental wellbeing and this association is statistically stronger when compared to just green spaces alone.**

This enhanced benefit might be explained by the unique combination of water and wildlife found in canals and rivers, which can yield aggregate benefits beyond those offered by green spaces in isolation. The Urban Mind study also revealed that these increases in mental wellbeing were still evident after the visit had taken place, suggesting a lasting positive effect rather than just a momentary uplift.





# The transformative power of nature connection

Everyday access to nature plays a vital role in fostering nature connectedness, a deep, emotional relationship with the natural world that goes beyond occasional visits to scenic landscapes. When individuals encounter nature regularly in their daily routines, whether through walking along a canal or simply hearing birdsong on the way to work, they begin to build familiarity, appreciation, and a sense of belonging with the environment around them. This repeated exposure cultivates empathy for nature, encourages pro-environmental behaviours, and supports mental and physical wellbeing.

**Importantly, nature connectedness is not reserved for remote wilderness; it can flourish in urban settings when green and blue spaces are accessible, welcoming, and integrated into everyday life.**




Source: Professor Miles Richardson. Finding Nature, Nature Connectedness Research Blog

Research by Straka et al., (2025)[63] concluded that: "While the opportunity to experience nature is important, this may not be sufficient to drive pro-conservation behaviour alone. A deeper relationship with nature, which is what nature-relatedness represents, and knowledge about nature are both important in motivating people; irrespective of age, to engage in conservation efforts. Urban green (but also blue) spaces provide chances to learn and meaningfully interact with nature."

**By investing in nature close to where people live, especially in underserved communities, we lay the foundation for a more resilient, healthier, and environmentally conscious society.**



# Understanding the pathways to nature connectedness

Nature connectedness is a psychological construct that describes an individual's subjective sense of their relationship with the natural world.[64] It captures the sense of emotional, cognitive, and physical relationship with the natural world and is a key driver of pro-environmental behaviour and mental wellbeing.

Research shows that individuals with stronger nature connectedness are more likely to engage in conservation actions, adopt sustainable lifestyles, and experience improved mental health. Unlike passive or knowledge-only approaches, nature connectedness promotes active, emotional, and meaningful engagement, and can be applied across scales, from individual activities to infrastructure design and school curricula, making it a powerful tool for driving systemic change and building a healthier, more connected society.

People who have a deeper connection to nature report and participate in more pro-environmental behaviours and actions[65] contributing to global challenges such as climate change and biodiversity loss. By fostering nature connectedness with our network, especially in urban and underserved communities, we can contribute to improved wellbeing, stronger community cohesion, and enhanced environmental stewardship, creating lasting social impact.

> "Canals invite us to explore new ways of engaging with nature – linking past, present, and future in every step. Along the towpath, the perceived boundaries between people and nature soften, revealing accessible wildness where nature connectedness can flourish for all. In these unexpected places and moments, canals reconnect us, uniting both human and nature's wellbeing."



Professor Miles Richardson, University of Derby




Canal & River Trust

The Five Pathways to Nature Connectedness[66]














# Connecting local communities to nature – our reach and impact

Our canals offer a unique and accessible gateway to nature, especially in urban and underserved communities where green space is limited. Stretching across hundreds of miles, our network weaves through city centres, communities, and rural landscapes, bringing people face-to-face with wildlife, seasonal change, and tranquil green-blue environments.

Whether it's spotting herons and kingfishers, walking beneath tree-lined towpaths, or simply pausing beside water, canals provide everyday moments of nature that are proven to reduce stress, improve mood, and foster a sense of wellbeing. Through our initiatives, we have seen how canals serve not only as ecological corridors but also as therapeutic landscapes, providing nature-based therapy and health promotion through healthier, happier lives for people of all ages and backgrounds.

Canals and towpaths provide space for everyday recreational activity and daily use such as active travel. The network can be used to walk, run or cycle on towpaths, to provide a calm space for relaxation and contemplation, for angling and to connect with nature. Activities on the water such as boating, paddleboarding and canoeing. The canal towpath network fulfils an important role in connecting urban communities with the countryside and with the wider National Trails network.

Canals and other blue spaces are powerful tools for preventative health as demonstrated by the annual social value generated by the Trust's network and activities, a substantial £4.6 billion.[67] A significant portion of this value is attributed to £1.1 billion in cost savings to the NHS. These savings are a direct result of the improved physical health derived from the active use of the canal network and its towpaths, highlighting the profound preventative health benefits these spaces offer. Increasingly, canals are keeping cities and urban areas cool as the temperature rise. We have worked with the University of Manchester[68] to understand the extent that our canals contribute to urban cooling.

Our network is the 'vital urban connector' providing free, local and accessible space as demonstrated during and post COVID. During the pandemic, canal usage accelerated exponentially, increasing by 400% in some urban locations, providing everyday local green and blue space for communities. Usage of the canals and towpaths remains higher than pre-pandemic levels.

The geographical footprint of the canal network uniquely flows right through the heart of many communities – providing vital access to nature and to the outdoors for recreation, helping to restore environmental balance and improve community wellbeing.

> "The partnership between Sport England and Canal & River Trust plays a vital role in driving sustainability, nurturing the development of high-quality active environments that foster deeper connections with nature whilst also enabling gains in physical activity and mental wellbeing."

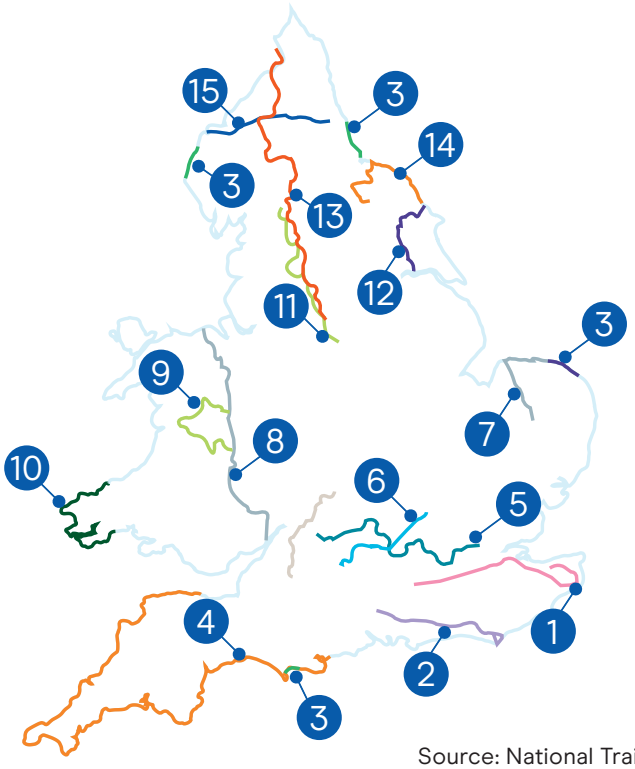


**Lisa Dodd-Maynes,**
**Executive Director,**
**Place at Sport England**

## The National Trails

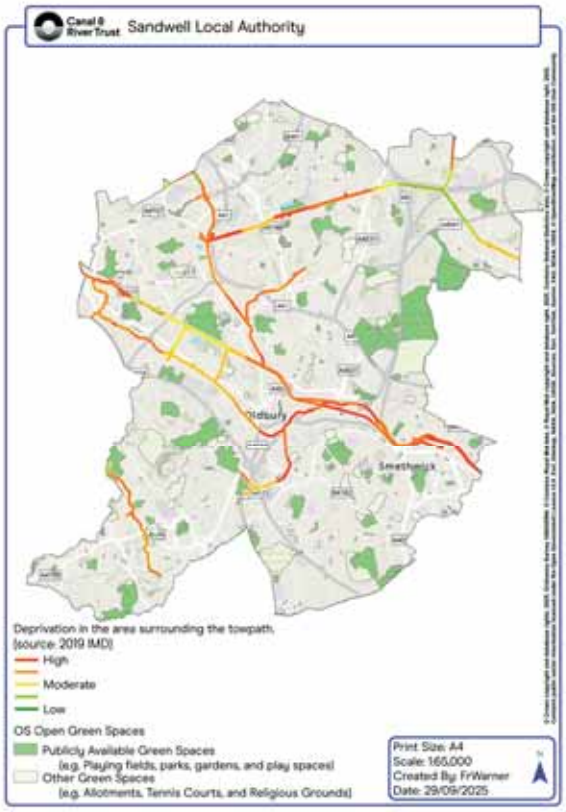
The canal towpath network fulfils an important role in connecting urban communities with the countryside and with the wider National Trails network.

1. North Downs Way
2. South Downs Way
3. England Coast Path
4. South West Coast Path
5. Thames Path
6. The Ridgeway
7. Peddars Way Norfolk Coast Path
8. Offa's Dyke Path
9. Glyndwr's Path
10. Pembrokeshire Coast Path
11. Pennine Bridleway
12. Pennine Way
13. Yorkshire Wolds Way
14. Cleveland Way
15. Hadrian's Wall Path

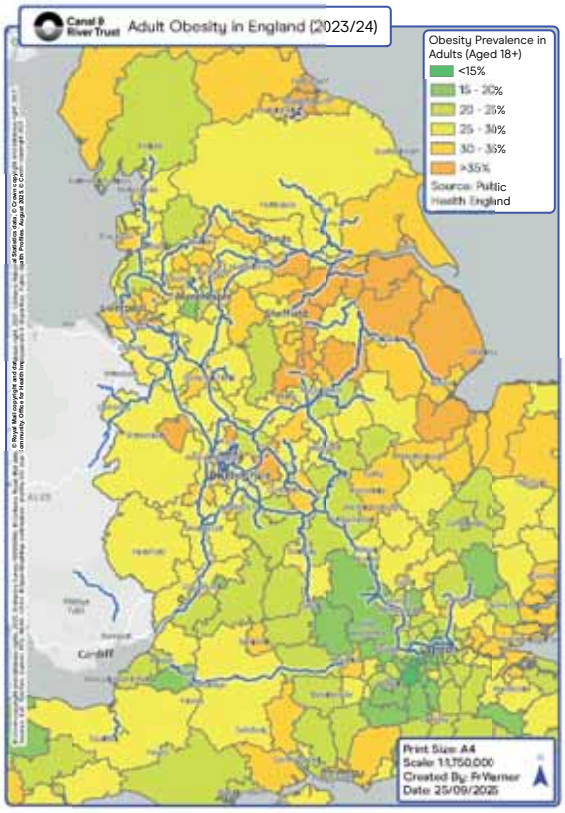



Source: National Trails UK

Our network is the ‘vital urban connector’ providing free, local and accessible space. This is critical for communities experiencing an urban green deficit; with no / limited back gardens or private space and with no / low car ownership.




Adult obesity in the UK is strongly linked to deprivation, with higher rates in disadvantaged communities. Given the proximity to homes and workplaces, canals can form part of the solution, offering a space for integrating physical activity into daily routines.






Canals are keeping cities and urban areas cool as the temperature rise. ‘Urban heat island effect’ plus a warming climate threatens to make summers intolerable in many metropolitan and urban areas in UK.

MANCHESTER 1824
The University of Manchester

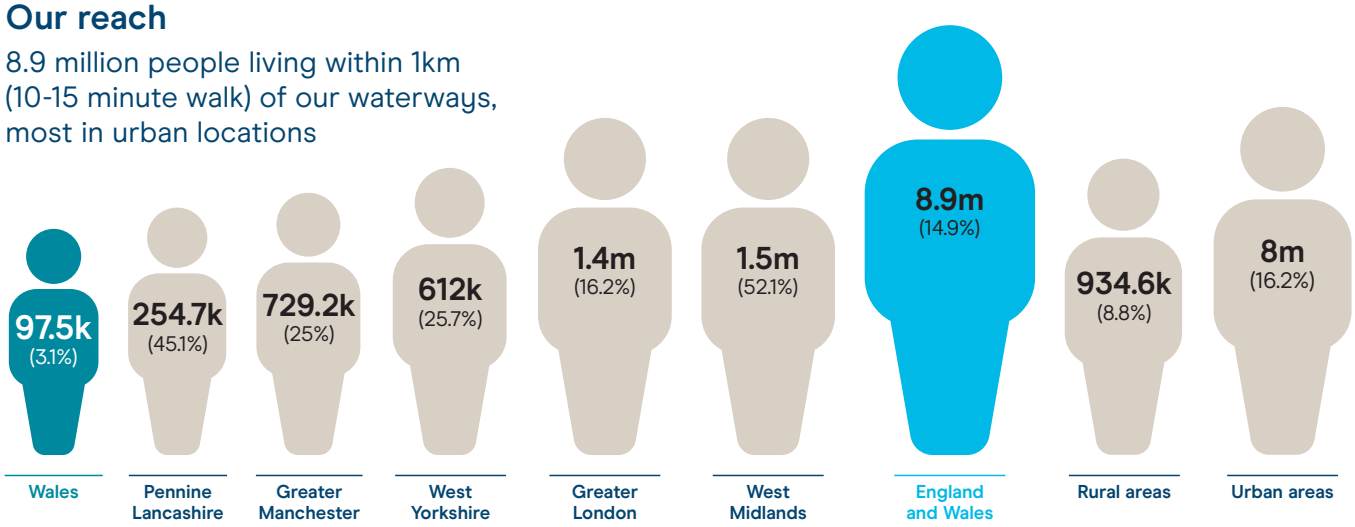
“The canals in our cities were a product of the Industrial Revolution, a time of great innovation. Adapting to climate change will require new thinking and ways of working, and this research shows the importance of working across disciplines and in partnership. Bringing together our industrial heritage with new technologies and cutting-edge research like this can help us create urban areas where people and nature thrive in a more sustainable future.”



**Dr Joanne Tippett, lead project researcher from the University of Manchester**

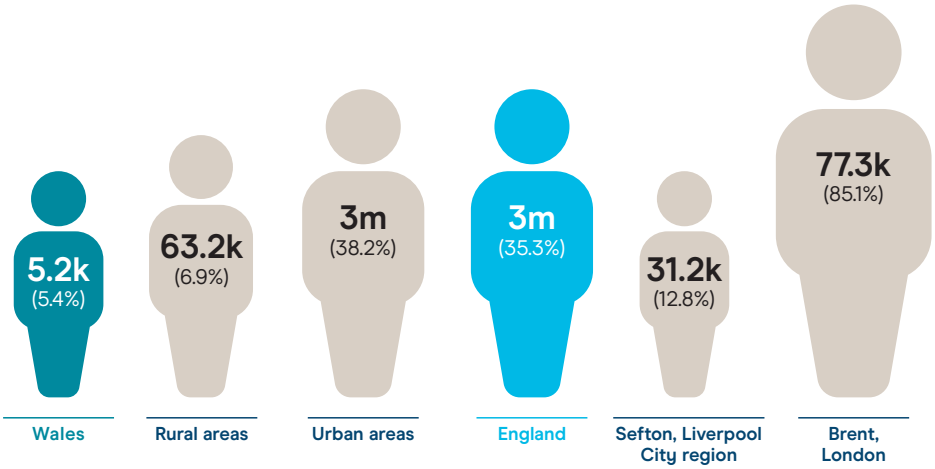
## Our reach

8.9 million people living within 1km (10-15 minute walk) of our waterways, most in urban locations



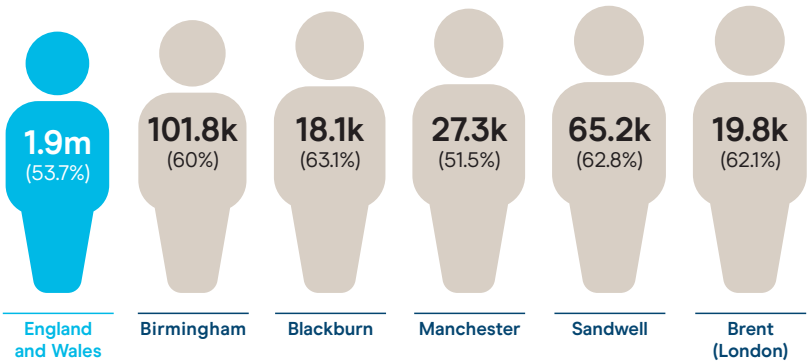

## Diverse communities

34.9% from an ethnic minority (including White minority) background, versus 25.6% nationally – ranging from 12.8% (Sefton) to 85.1% (Brent)




## Wellbeing inequalities

53.7% of households (up to 63%) living within 10-15 minute walk (1km) of our network have health and wellbeing challenges









# Nature connectedness and community connections – our holistic and sustainable model

We have developed a bold, integrated five-step model that transforms local canals into thriving blue spaces for nature connectedness. This approach strengthens community connections, fosters environmental stewardship, and delivers measurable improvements in health and wellbeing. It's not just a model, it is a sustainable cycle of engagement, connection, and regeneration that turns canals into catalysts for lasting social and ecological impact.

Step 1
**Availability**

Provision of accessible blue space and nature on doorstep

Our network of canals and other blue spaces provides 8.9 million people living within 1km (10-15 minute walk) of these blue spaces with open and free access to nature and the outdoors.



Step 2
**Quality**

Making blue spaces safe and inviting

Our research found that there are two fundamental barriers to use – actual or perceived safety and poor environmental quality (hygiene factors). Step 2 is focused upon creating safe, accessible and inviting spaces for everyone to use and enjoy.



Step 3
## Engaging

Creating positive and meaningful experiences of blue spaces

Addressing physical barriers to use, is essential but is not enough on its own. For many urban communities there are cultural and psychological barriers to use – these need to be overcome. Through a diverse range of activities and experiences, step 3 is about ensuring everyone can discover the unique benefits of canals and begin a meaningful connection to nature.



Step 4
## Connections

Enabling everyday use and deepening connections with blue spaces

Activities and events have the potential to attract large and diverse audiences, but without fostering connection to nature, the impact may be short-lived. Step 4 is about establishing everyday, regular use as the norm to support a stronger, lasting connection to keep canals relevant, building a sense of belonging and ownership.



Step 5
## Sustainability

Empowering pro-environmental actions to transform blue spaces for the benefit of people and nature

Long-term impact depends on resilience. Step 5 is about inspiring meaningful action. By fostering environmental responsibility and supporting practical initiatives, we can transform canal spaces into thriving, resilient places – delivering long-term benefits for both people and nature, and instilling a strong sense of local pride in place.



# Our model in action

## Removing physical barriers and creating inviting blue places

### Securing Green Flag awards for our canals

**Over 741 miles of our canals, other waterways and waterspaces, representing over a third of our network, has been awarded Green Flag status – achieved thanks to the sterling effort of our amazing colleagues, volunteers and local partners.**

The Green Flag Award scheme recognises and rewards well-managed parks and green spaces setting the benchmark standard for the management of recreational outdoor spaces across the United Kingdom and around the world.

The Blue Flag award for our Royal Albert Dock and Salthouse Dock in Liverpool was reconfirmed, recognising outstanding environmental information, management, safety and boating services.






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# Introducing children and young people to the wonders of canals, nature and the outdoors

## Explorers: nature connection through outdoor learning

“On a recent visit to Trent Lock, one of my pupils told me, ‘This is amazing, it’s so beautiful – I’ve never been here before.’ It made me realise just how important it is for children to have the opportunity to spend time in nature. We no longer feel comfortable asking parents for contributions for school trips, so being able to access the free green and blue spaces at Trent Lock is invaluable. Not only can we walk to the lock and avoid transport costs, the activities we enjoy there, thanks to the Trust, are also free. The plan focuses on a visit to the lock every half term with activities to develop pupil mindset, connect



them to nature, and help them understand their part in protecting and enhancing the natural world. Giving children time to play and explore is critical to their mental learning – I’d love to give the children these opportunities every day, if I could!”

**Emma Raynor, Year 3 teacher**

## Children own the city

Raynham Primary School is a large primary school in Edmonton in Enfield. The multicultural school lies close to the River Lee Navigation and the Banbury and William Girling Reservoirs. The school is proud of its links to the water and has produced a sustainable sculpture for the local canal bank.

“Our children spend very little time outdoors and have very little experience of their local area, beyond where they live,” Iveta Bejaul, the Assistant Head explained. “We are always looking for ways to take our learning beyond the classroom walls and encourage them to connect to their local environment.

I only discovered what a lovely place we have just up the road after living here for 10 years. We try to carefully incorporate sustainability into everything we do and to develop the children’s understanding of the



amazing places we have on our doorstep and being able to appreciate that we can see nature within walking distance from where we are. The canal is really close to the school and it’s so important that we develop awareness, for the children and their parents and the community, that we do have this amazing resource that many people, including adults, don’t realise.”

**Iveta Bejaui, Assistant Head**



## Our London STEM Programme

Young people are vital to the future of our canals and rivers. Not only as future visitors and supporters, but also as a future workforce. Our STEM learning programme aims to inspire secondary school students to use our waterways as a vital learning resource and establish a connection to canals and nature, leading to more pro-environmental action.

> “The children were buzzing when they came back. They were really excited. And we’ve got some students that have told us they go outside more now, they just enjoy being outside.”

Rachael Harvey, Geography and Safeguarding Leader, Wapping High School

| 80 | 56 | 12,695 |
|---|---|---|
| London schools within 1km of a canal | Schools and colleges participated | Pupils participated |

## Young Rangers give nature a helping hand

An intrepid group of young people undertook several ecological and habitat studies around the Anderton Boat Lift in Cheshire. A group of 12-16 year olds completed tasks including planting a new wildflower meadow, studying flora and fauna in an existing meadow, creating new habitats and building a pond.

Canal & River Trust | Anderton Boat Lift | Cheshire



# Tackling physical, cultural and psychological barriers

## Events and open days

2,220 events and open days held attracting nearly 600,000 people.










## Swim Sista Swim

Our award-winning Swim Sista Swim project was designed for women from African and African-Caribbean communities in Nottingham to improve swimming ability and boost water confidence, enabling the community to engage with their local canal.




> “Prior to doing the Swim Sista Swim programme I had an immense fear of water which has significantly reduced since taking part in the programme. The canoeing gave me a different view of the outdoors, and I now enjoy walks by the canal. My physical and emotional health has improved, and I feel more confident taking the grandchildren by the water.”

**Sharon Thomas, participant**

## Community Roots in action

Currently delivered in ten urban areas where the need, and potential for impact, is greatest, our Community Roots programme empowers residents to shape and care for their local canal. Through co-creation and inclusive engagement, we help communities rediscover the environmental, cultural, and wellbeing value of their waterways, changing perceptions and creating pride in place.

Working with SEGRO, our community roots project in Brent, London used World Bee Day as a focus to encourage the local community to find out about and help look after the local canal. The local waterway became a hive of activity as over 100 residents came together to explore its hidden biodiversity, roll up their sleeves for litter picks, and build insect habitats. By connecting people to nature through hands-on action, we're planting the seeds for long-term care and environmental pride.

> "Really good to get an insight into the wildlife around the area – this is often missed when walking or driving around the busy and built-up industrial area. It was also a great opportunity for us as a company to feel like we were doing something positive as well as understanding more about the environment near our offices and how to take more ownership for the sustainability of the waterways."
>
> SERGO staff member











# Building and sustaining healthy behaviours and connections

## Beat the Street

The Beat the Street programme is a tool designed to connect individuals with the local environment and make physical activity and active travel an enjoyable and integral part of everyday life.

Working with Intelligent Health locations across the network, we aim to encourage people to explore their local canals and embrace active travel.



"We have been working with the Trust since 2020, working in diverse communities across England and Wales and helping people of all ages improve their health and wellbeing through physical activity. The Trust's network of canals and navigable rivers provide the ideal space for Beat the Street games as they are on the doorstep for so many communities and offer open and accessible places for people to walk, cycle and run, helping them to make healthy choices and build healthy habits for life."

**Dr William Bird, CEO, Intelligent Health**

## Canals on prescription

In collaboration with local GP's, Active Black Country and Health & Beyond, 'GP guided walks' were offered as part of our Green Social Prescribing programme for patients with long-term conditions in Bilston.

Patients increase their levels of physical activity, and as they immerse themselves in nature and share moments with others, they experience measurable boosts in mental wellbeing, reduced isolation, and improved overall health.

"I've made lots of new friends from walking each week. I feel more confident to walk now and go on my own sometimes. I have not really used the canals before, this walk has made me use them more often now as a great place for being close to nature."

**Female 55-64 participant**



## Improving lives through fishing

**Fishing involves a therapeutic engagement with nature and green blue spaces, which can have a positive effect on a person's subjective happiness, satisfaction, relaxation levels and overall emotional wellbeing (Royal College of Psychiatrists).**

Let's Fish! is more than an introduction to angling – it's a gateway to nature, wellbeing, and community. Welcoming people of all ages and abilities, this flagship Trust programme opens up our canals, offering safe, inclusive, and inspiring fishing experiences.

By reconnecting individuals with their local canal or river, Let's Fish! fosters a sense of place, supports mental health, and builds confidence – often sparking lifelong engagement with nature.

Our volunteer coaches are central to the success of Let's Fish!, offering expert support and helping expand the programme's reach and impact.





Daniel's Nan, Lorraine, shared that she recognised the positive impact of Let's Fish! on Daniel's wellbeing and behaviour: "When he comes fishing, he sits there and is calm. Let's Fish! is the best idea ever it gets your children out in the fresh air."

Chris, a 39-year-old artist, enjoys regular angling on his local stretch of the River Stort. Reflecting on his motivation for fishing, Chris said: "Being in nature, sitting down a riverbank with the trees, kingfishers flying past, that for me is a massive part of it. If you have been out in that environment all day, when you come back to your house, you're kind of refeshed from being in a natural environment."



# Deepening connections




## From participant to volunteer

Beginning her journey as a participant on the Swim Sista Swim programme, Paulette's experience was so impactful that she has since become an enthusiastic volunteer – a role she describes with joy and purpose.

Passionate about what the programme can achieve, Paulette is continuing to support the delivery and legacy of Swim Sista Swim by volunteering for the Trust. As a Black woman and former participant, Paulette offers cultural relatability and representation – building trust and inspiring confidence in others.

## Plogging

"I enjoy exercising with my daughter Jaime. It's a great way to reconnect with each other and take some time without the day-to-day distractions of work and school. Running along the canal together is a great way to get away from it all. It gives us an opportunity to escape from the roads and the noise of the traffic. I didn't realise the collecting litter while you're running is called 'plogging' until recently. It makes sense to do it when we're out running together. It gives us a focus and helps distract from the distance we're running."

**Jacqui**



## Keeping communities active and connected

Over £350,000 from Sport England's Together Fund enabled the Trust to support local organisations to keep communities active and connected and combat the effects of the pandemic. Funded projects included supporting young people with additional needs and disabilities, a project for women to get active on the water and walking and cycling activities with isolated residents from the Chinese community in Manchester.

**Together Fund 2020-2023**

- **42 projects** Targeting long-term health conditions & disabilities
- **61 projects** Targeting LSEG
- **38 projects** Targeting culturally diverse communities
- **31 projects** Targeting children & young people

**66 Together Funded projects**
(self-led delivery utilising our waterways)

- **New community project partnerships** 24
- **Reach: number of participants** Over 5,000
- **Community partner Collaboration projects** 10
- **Raising awareness & connecting communities**



"Working with Support and Action for Women's network, we collaborated with the Trust to do a project called 'Women on Water' (WOW). The project gave women the chance to get on the water and gain qualifications in paddlesports to increase confidence, physical activity and become leaders in canoeing and kayaking. We have built a network of community leaders and funded projects such as cycling, walking and paddling that better people's lives. On the back of this project we have secured more funding and have become a Paddle UK affiliated canoe club."



Victoria Holden, Northern Lily

## Forging canal connections through pocket adoptions

Through school pocket adoptions, children learn about and engage with their local canal while making it a better place to be.

Schools adopt a small stretch of a canal or river that's local to them, assess its current condition and then suggest ways to improve it. Pupils work with colleagues and volunteers from the Trust and local groups to improve the area. By involving pupils in a range of activities from street art and litter picking to planting and habitat creation, children gain a sense of local pride. They take ownership of the canal,



build important connections with the local community and develop new skills.

# “Community ownership” – pro-environmental behaviours in action

## Onwards and upwards on the Regent’s Canal

The Regents Canal Coalition (RCC) look after a 1.2 mile stretch of the region’s canal in the heart of London’s East End, from Limehouse to Mile End. Since 2013, they have been working to improve the environment, protect wildlife and engage the local community.

The Waterway Community Fund grant provided the RCC with equipment to accelerate their invaluable work of greening and cleaning the canal and towpath through vegetation management, litter picks, the creation of beautiful wildflower meadows and planters full of spring bulbs on the canalside, while enriching the lives of hundreds of local volunteers.



The Waterway Community Fund can support partner groups and volunteers across the network that care for the canals through a small grants programme (of up to £5,000).



## Volunteering – green action

Volunteers are helping to make our canals and water spaces better places to visit, playing an active role across operational areas at the Trust. This includes supporting the delivery of our community engagement programmes and events, undertaking repairs, restoration and environmental improvements.

> “Volunteering gives me a purpose, it has a really positive effect on me mentally and physically, and gives me a sense of belonging to something bigger. I have gained so much confidence.”
>
> James, Volunteer



## Our citizen scientists in action

Since 2021, we have been expanding our network of citizen scientists to collect meaningful data and deepen understanding of the social and environmental value of canals for local communities.

In collaboration with a range of charity partners and academic institutions, our citizen science programme offers diverse opportunities from canal-based activities such as Otter Spotting, Habitat Surveys, Plastic Challenge and Towpath Characterisation to home-based and remote projects like “Sense in Nature” and “Rate this Scene.” These initiatives are designed to be inclusive and accessible, enabling participation across a wide demographic.

Citizen science strengthens relationships with our supporters, visitors, and volunteers, but also builds skills, confidence, and leadership capacity. Participants become project advocates, ambassadors, and community leaders, extending the reach and sustainability of our work.



Credit: Peter Hoare Pixabay

“Over the last six months I have completed 500 survey locations. The survey itself involves a photograph of the towpath, several measurements of width and condition and description of the locality and how it feels to you.”



**Malcolm Gray, Volunteer Towpath Characterisation Citizen Scientist**

# Partnership opportunities for nature connectedness

We are keen to grow our portfolio of bold and tailored partnerships driving transformation at every scale. From projects on local canal corridors to national programmes, priority groups (for example, children and young people; people from ethnic minority backgrounds; low-income households; and people living with disabilities and / or ill health), or whole community-focused and varied approaches to pro-environmental and green action, we want to galvanise long-term stewardship and social inclusion through meaningful participation.

## Opportunity 1

Making canals safe and welcoming blue spaces for people and nature and helping to secure and retain Green Flag accreditation in challenging urban areas by supporting access, environmental and ecological improvements.

Green Flag Award®




## Opportunity 2

The expansion of our community engagement programmes, including our flagship Community Roots programme, will deliver place-based impact through the co-creation of projects that are reflective of local needs to foster deep connections to nature and drive long-term stewardship.



## Opportunity 3

The expansion of our existing learning programmes, Explorers (5–12 year olds), STEM (11–18 year olds) and Youth Fellowship (16–24 year olds) as well as the exploration of new initiatives will enable more children and young people to experience and connect with nature, fostering a lasting connection to canals and building a generation of pro-environmental activists.

Educating the next generation through our Water Safety Education programme will teach vital life lessons on how to stay safe on and by the water.







## Opportunity 4

The expansion of nature-based health interventions, including our Canals on Prescription programme will unlock the full potential of the UK's canals as a scalable and preventative health asset.



## Opportunity 5

With investment in pro-environmental and green action we can deepen public engagement and grow passive interest into active stewardship through programmes including citizen science, apprenticeships and volunteering, helping to secure the future of our canals.



# Call(s) to action

The canal network has long been an undervalued asset – it's role in nature recovery and connectedness has been overlooked. By recognising its unique potential and value and investing in its restoration and integration, we can unlock their transformative power.

## With targeted investment, and meaningful partnerships, our canals can:

1. **Become recognised and valued as the nation's longest linear nature network** – with improvements to quality and abundance of wildlife along these special blue-green linear habitats – all of miles of linear habitat and hectares of area habitat including our SSSIs – all contributing to the international ambition of 30by30.

2. **Act as a vital connector for towns and cities**, restoring biodiversity and serving as a corridor for nature that can support the movement of wildlife in urban spaces, as well as bringing nature to the doorstep of millions of people. This would be building upon Birmingham's experience as the UK's first Nature City.

3. **Create vital habitats for protected and threatened species** – reversing the decline of the water vole population, tackling invasive non-native species, creating urban and rural 'stepping-stones' that support insect pollinators, which in turn attract birds, fish and even otters into our towns and cities.

4. **Become an accessible and inspiring 'linear park'**, providing vital blue spaces on the doorstep of millions – connecting children and young people to urban nature and the outdoors, as well as creating traffic-free environments that facilitate active travel along our towpaths. Also offering recreational activities on, along and by the water, and be used for relaxation and contemplation – all of which contribute to healthier people and communities.

5. **Serve as platforms for environmental education and stewardship** by mobilising, connecting and enabling local communities to care for their local canal, through citizen science, volunteering, canal adoptions and local partner groups – all contributing to community wellbeing, resilience and pride in place.

**Canals offer a unique high-impact, low-footprint opportunity to enable nature recovery, transform urban places, and enrich lives through nature-based solutions and nature connectedness.**

**This report presents an invitation to invest in healthier lives, resilient communities, thriving natural environments and routes, and a greener, more equitable and inclusive future.**

# Report contributors



### Dr. William Bird MBE

William is a pioneer of social prescribing, he founded the first Health Walk and Green Gym schemes. Now a global authority on health and activity, he advises WHO and Sport England, and leads Intelligent Health, an organisation with a mission to build healthier, active and more connected communities.



### Professor Ian Rotherham

Ian is an Emeritus Professor at the Advanced Wellbeing Research Centre, Sheffield Hallam University, Sheffield. He is an authority on landscape history and ecology particularly woodlands and peatlands, urban wildlife and climate change. He has published widely, including over 500 academic research papers, around 50 books, hundreds of popular articles, and works extensively with popular and social media.



### Heather Clarke, Strategy & Impact Director, Canal & River Trust

Heather leads the Trust's strategy, research, planning, heritage and environment policy functions and over a 35-year career has been dedicated to unlocking the benefits of canals for local communities and in improving resilience of place through urban planning and area-based regeneration. She has pioneered participatory programmes and partnerships, social value and impact reporting, and developing climate action strategies.



### Richard Bennett MSc CEnv MCIWEM MCIEEM, Nature Recovery Manager, Canal & River Trust

Richard brings the understanding from 25 years experience in environmental roles managing and helping deliver ecological enhancement on the canal and river network. Published author of articles on canal ecology and environmental management.



### Katrina Hull, Head of Participation & Learning Development, Canal & River Trust

Blending evidence-based practice with a passion for nature and the outdoors, Katrina has almost 20 years experience in health improvement and public health. A doctoral researcher dedicated to creating inclusive, meaningful experiences that connect people with nature, enhance wellbeing, and unlock the transformative potential of canals.

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For too long, the canal network's contribution to nature recovery and connectedness has been overlooked. Now is the moment to recognise and value them and what they can offer, and act to unlock their potential and transformative power.

This report for the first time brings together the body of evidence on the ecological value of our network and highlights the opportunities for supporting nature recovery and fostering nature connectedness.

October 2025

**Help us to keep our canals open and alive – for nature and people to thrive tomorrow and beyond.**

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