Derbyshire Wildlife Trust

CHESTERFIELD BOROUGH COUNCIL

Chesterfield Borough Council: A Plan for Nature 2024

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1 Introduction

This report has been prepared by Hollie Fisher, Nature Recovery Advice Manager at Wild Solutions, Derbyshire Wildlife Trust (DWT), working in collaboration with Chesterfield Borough Council (CBC). The aim of this report is to provide CBC with a detailed action plan, intending to guide policy making and facilitate an integrated approach to delivering biodiversity enhancements across the borough. Using the Lawton Principles of *Bigger, Better, More and Joined Up* (Lawton *et al.,* 2010), the report will identify strategic opportunities for new habitat creation and restoration to create a connected, functioning Nature Recovery Network (NRN) across the borough.

Nature is essential to the long-term provision of ecosystem goods and services (Catchpole, 2006). Loss of nature is directly linked to increased natural ecological disturbances, threats to pollination, and climate change, with habitat fragmentation being the leading cause of species decline worldwide (McCallum, H., & Domdon, A., 2002). Whilst there is a legal requirement to consider biodiversity in local planning, outlined below, the dependency of humans on nature for quality of life means it is a fundamental issue across all areas of planning. This document aims to provide a road map for nature's recovery, ensuring that projects are strategically planned and target key areas to increase connectivity. The action plan, if integrated into policies, procedures, and partnerships, could deliver significant benefits for both nature and society, through a range of vital ecosystem services including flood reduction, pollination, water filtration, carbon storage and access to nature for health and wellbeing. The report is designed to complement the countywide Local Nature Recovery Strategy being developed by Natural England and Derbyshire County Council, with CBC's Plan for Nature offering a more focused, borough specific approach. The data currently available as part of the Natural Capital mapping created for the county strategy has been reviewed and its findings used to further support recommendations and priorities put forward within this document.

The aim of this document is to allow the council to meet their statutory Biodiversity Duty, by outlining the current state of nature in the borough and providing a clear list of opportunities and priorities to take forward to achieve natures recovery. This document aims to form the basis of a formal Biodiversity Strategy following the implementation of the county strategy, allowing nature to be integrated into planning and policy.

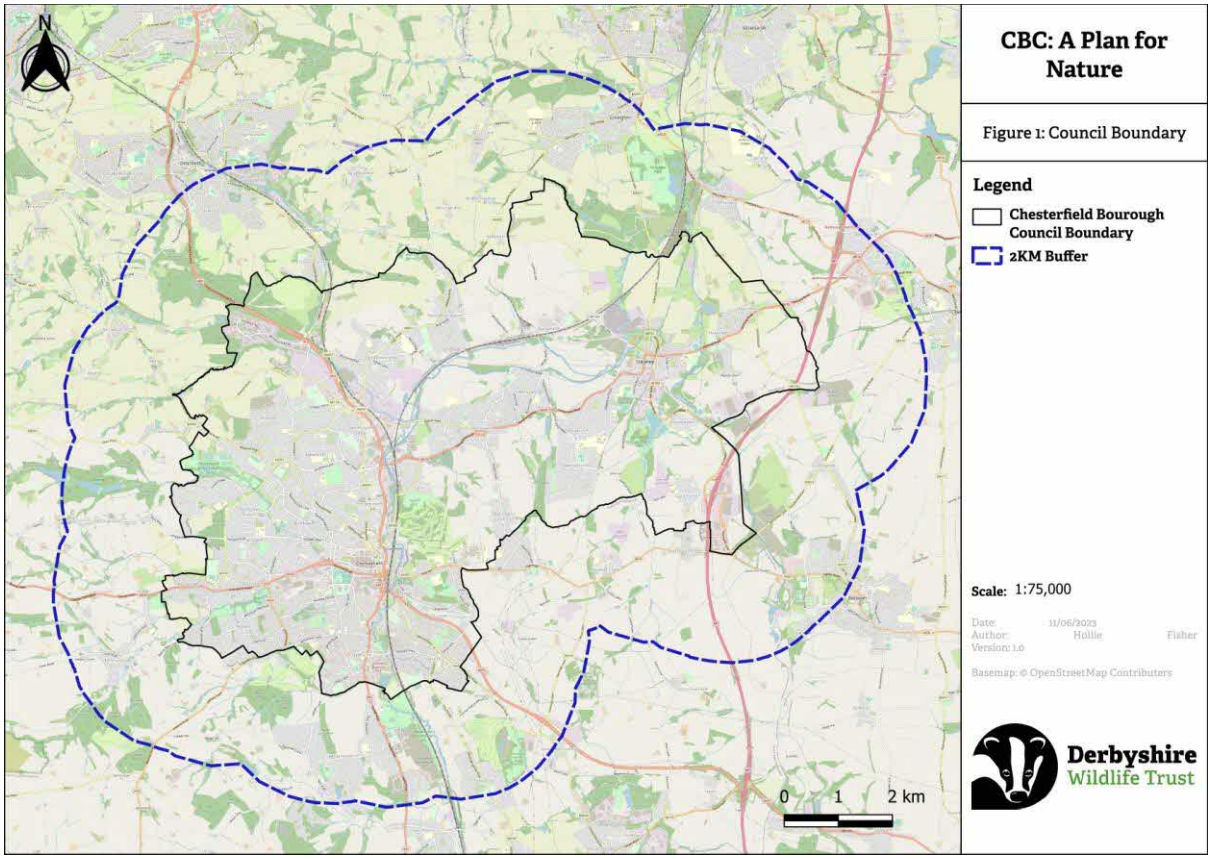
1.1 Context

Over the past 50 years, nature in the UK has experienced a major decline in health. Widespread habitat loss and fragmentation as a result of urban development and the intensification of agriculture throughout the country have contributed to a decrease in abundance of 44% of all species (Jongman, 2004). In the north-east of Derbyshire, biodiversity is predominantly threatened by rapid urban expansion and the resultant loss of habitats, as well as the connectivity between them.

The borough is approximately 6600 hectares in size, located in the north-east of Derbyshire. See Figure 1 below for the borough boundary[1]. The majority of the borough is highly urbanised, though scattered fragments of woodland and other natural green spaces exist

[1] To accurately evaluate current opportunities in the context of the wider landscape, an additional buffer of 2KM is included where possible.

throughout the area, several of which already form key networks of valuable habitats such as Chesterfield Canal and its surrounds. Where urban habitats are not directly threatened with removal, they are faced with longstanding pressures including isolation, pollution and the encroachment of invasive species, the outskirts of the borough supports a mixture of undeveloped land, predominately occupied by agriculture.



1.2 Policy

The requirement for Nature Recovery Networks stemmed from the Lawton review (2010) 'Making Space for Nature' which identified the need for '*Bigger, Better, More and Joined Up*' wildlife sites to reverse habitat fragmentation and create an ecological network in which habitats and species are protected and resilient. From this, the Government set out targets of 'creating or restoring 500,000 hectares of wildlife-rich habitat' in the 25- Year Environment Plan (2018) and identified the need to put the conservation of biodiversity through a spatial planning system on a statutory footing in the Environment Act (2021). Further emphasis on the protection and conservation of biodiversity through the National Planning Policy Framework (NPPF) guidance which outlines a requirement to identify, map and safeguard areas of local wildlife value, and the promotion of Biodiversity Net Gain (BNG) schemes further drives the need for an NRN map to identify where habitat creation or enhancement would be best placed to improve connectivity and strategic networks.

The new extended biodiversity duty for public authorities came into force on 1 January 2023. The aim of this is to provide for the enhancement and improvement of biodiversity, going beyond the mere maintenance of the natural environment in its current state, as required under

the original Natural Environment and Rural Communities Act 2006. Councils now must take a strategic approach to determine policies and specific objectives for taking action to further the general biodiversity objective. They must also provide evidence to government of both the considerations and actions undertaken to enhance biodiversity and make this information public. Several policies and strategies are already in place to support this work, including CBC's Local Plan and Climate Change Strategy (2023-2030).

1.3 Biodiversity Net Gain

BNG is an approach to land management that aims to deliver measurable improvements for biodiversity by creating or enhancing habitats, watercourses and hedgerows in association with development (Planning Advice Service, 2021). Most forms of development will require developers to provide an increase in natural habitats (either in the form of Habitat, River and Stream or Hedgerow units, or a combination) requiring a net gain in biodiversity of 10%. Mandatory BNG as set out in the Environment Act 2021 applies across England and, following a Government announcement in September 2023, is mandatory for all major developments as of February 2024.

All development subject to the BNG requirement **must** provide for a 10% gain in biodiversity which must be delivered *either on-site or off-site* (or a combination). The Government directs that this calculation be determined using a nationally determined metric, which 'scores' on-site provision more favourably than off-site, hence encouraging on-site before off-site provision. Given that developers from February 2024 may require locations for provision of off-site BNG (probably through purchased 'credits' for this purpose), this study includes a feasibility assessment of potential (Council-owned) sites within the Borough that could be repurposed as 'habitat banks' for this purpose. More generally given national and local planning policies, developers must demonstrate that they've taken all reasonable steps to integrate biodiversity into their site plans, through a process called the mitigation hierarchy. All developments should first try to avoid, then mitigate or, as a last resort, compensate for biodiversity loss. Natural England's biodiversity metric assesses habitat loss, habitat condition and habitat distinctiveness to determine relative biodiversity loss or gain. The assessment of distinctiveness informs relative biodiversity value of habitats which can be used to identify priority areas for protection. Using habitat distinctiveness allows the Local Planning Authority to make quick assessments of areas that might be more suitable for development (low distinctiveness habitats) or areas that are best avoided or would require higher levels of compensation (medium/high distinctiveness habitats).

This report is conducted in adherence with BNG Good Practice Principles stated in *Biodiversity Net Gain Good Practice Principles for Development, A Practical Guide* (Baker *et al*., 2019) which states that BNG should not be used on designated sites or irreplaceable habitat, the mitigation hierarchy must be applied, and that the positive outcome be additional to existing obligations.

2 Methodology

2.1 Mapping

An overview of mapping methodologies used within the document are included below, full methods are provided in *Appendix A. Mapping Methodology.*

Given the size of the maps associated with this report, their clarity will be reduced when assessed within the document. All maps are therefore available separately which will allow the reader to zoom in, as well as a GIS workspace available on request.

At the time of this work, DCC and NE were in the process of carrying out Natural Capital mapping of the county. Where applicable, the outcomes of that data has been compared against DWT's NRN map and used to provide additional weighting to recommendations. Similar datasets, methodologies and frameworks were used for both mapping products.

2.1.1 Baseline Habitat Maps

Existing habitat data sets (Table 1) were collated and reviewed using QGIS and Anaconda Python, a coding program, to form an aggregated habitat inventory. The inventory was created by merging all existing habitat data into a single digital file, using OS Master Map as a base and sorting datasets based on their reliability. For each land parcel, any overlapping layers that covered at least 40% of the parcel were compared using a dataset hierarchy, based on the general reliability and dataset age. See Table 1 below for overview of reliability, the lower the score the higher the relative reliability. The scores are an ordinal scale, currently spanning 0 – 11 as this covers the number of categories the present dataset is required to distinguish between. Any data identified as 0 does not classify that data as 100% reliable, it indicates it as the most reliable source of data within this set. All data used was sourced in 2023 and was considered to be up to date and viable.

Data Source	Reliability Score
Ancient Woodland Inventory	11
Countryside Stewardship Options	9
Environmental Stewardship Options	0
Land Cover Map	10
National Forest Inventory	7
National Trust Phase 1 Data	2
DWT Phase 1 Data	8
Priority Habitat Index	5
Wood Pasture and Parkland Index	6
Traditional Orchard Inventory	3
Master Map	0
LWS Habitat Data	1

Table 1. Reliability of Datasets Used in Creating a Baseline Habitat Layer

2.1.2 Habitat Distinctiveness

Habitat distinctiveness was mapped using QGIS, based on the final habitat layer, as described in the above section. Each of the three key ecological networks (open, woodland and wet) have important, core habitats that comprise the central part of the networks and are of the highest value to their associated species. These core habitats can act as a population source for species, from which further habitat creation and network expansion will allow these species to disperse across the landscape.

2.1.3 Nature Recovery Network Modelling

The NRN was created by using baseline and core habitat data files and assigning every habitat a permeability score for the three networks, *i.e.* an estimated cost of movement to a generic species; the higher the score, the less permeable the habitat is for the representative species. the habitats are scored on a scale of 1 (core habitat) to 50 (major barrier, impermeable habitat).

At this stage, additional datasets were input to identify key ecological and physical factors to create opportunities and constraints layers. This includes:

OS Terrain 50 (Digital Elevation Model);
Agricultural Land Classification;
EA Flood Zones (1-3);
Soil Drainage; and,
Heritage sites / Historical Environmental records.

The model included figures on the standard dispersal distances for species representative of open, wetland and woodland habitats. Using the original Forest Research methodology (Watts, *et al*., 2010), the standard dispersal distance for each of these network types was set at 500m. This methodology is based on using generic focal species. A generic focal species is described in Eycott *et al*. (2007) as '*a conceptual species, whose profile consists of a set of ecological requirements reflecting the likely needs of real species …… should encompass the needs of most (but not all) real species that need to be considered in the landscape plan or evaluation*'. Further, the standard dispersal distances were then combined with an opportunity buffer around the core habitats. For the open and woodland networks, land within a certain distance of a core habitat was considered higher opportunity for expansion. For open networks this was set at 500m and woodland was set to 1000m, as per standard guidance in Watts *et al.,* and Eycott *et al.*

The habitat data was ranked by its relative opportunity or constraint and was input into a python script alongside the above parameters. This created raster files of all available opportunity and constraint data for each network. Finally, these outputs were input into a final python script which added all opportunity rasters together, multiplying the result by each constraint raster in turn for all three networks. For the open and woodland network opportunity rasters, each is split into three categories, high, medium, and low opportunity for expansion, for the wetland network, the opportunity raster is split by threshold values to give high priority opportunities.

2.2 Assessment of Potential Biodiversity Net Gain Sites

2.2.1 Desk Based Assessment

The Royal Society of Wildlife Trusts draft principles for the delivery of BNG state that BNG should be used to create net gain in space for nature through securing additional and permanent gains, ensuring BNG is strategically targeted to contribute to natures recovery. The overarching goal is to create new habitats, as opposed to enhancing existing ones.

The criteria assessment for evaluating the council owned sites utilises the above draft principle, as well as integrating the Lawton principles, awarding sites with a higher score if their restoration would work towards the creation of an NRN, as it is designed to highlight sites that are in a strategically significant location within the landscape. All sites put forward by the council as being suitable for a change in land use were assessed against a range of criteria, including data from the NRN map, the site's proximity to designated sites and priority habitats as well as a range of different opportunity maps including the Natural England Habitat Network Map.

See *Appendix B. Criteria Assessment Methodology for CBC A Plan for Nature* for detailed methods.

2.2.2 Field Survey

Following the criteria assessment, the sites were ranked by score and professional judgement in order to identify which sites to prioritise for further survey.

A total of 10 sites were subject to a high-level UKHabitat survey, as per the UKHAB Classification guidelines (Butcher *et al*., 2020), using UKHAB 2.1 to identify the broad habitat type. Additionally, Habitat Condition Assessments were carried out using the guidance set out in Natural England Joint Publication JP039 'The Biodiversity Metric: Auditing and Accounting for Biodiversity:Technical Supplement' (2021) to identify suitability for BNG.

2.2.3 Calculations

The Biodiversity Units present on each site were calculated using Natural England's Statutory Biodiversity Metric. The Statutory Biodiversity Metric calculation tool was also used to calculate an estimate of the potential uplift in Biodiversity Units which could be generated as a result of habitat enhancement works at each site.

2.3 Limitations

Although key species were considered throughout the project and species recommendations have been made, the mapping assessment focused on habitat distribution rather than the distribution of species, with hypothetical species used in the modelling. This is due to the availability and accuracy of species information - mapping based on species can risk under or over representation due to sampling biases, whereas habitat data, particularly from aerial imagery, tends to be more accurate. Regardless, there are a number of limitations to habitat data, described below:

Whilst measures were taken to create an accurate baseline habitat layer based on existing records, no ground truthing was completed during this project due to the scale of the area. Before any alterations in habitat management are carried out, the area in question must first be subject to a walkover survey to confirm recommendations are appropriate.

Features such as hedgerows are poorly recorded and so connective corridors through agricultural landscapes are often under-represented.

3 Baseline Biodiversity Data

3.1 Existing Biodiversity Action Plan

CBC has previously been covered by *'A Greenprint for Chesterfield'* (2010-2020), a district level action plan, and the county level Lowland Derbyshire Biodiversity Action Plan (2011-2020).

The *'Greenprint for Chesterfield'* aims to restore biodiversity in the area by targeting particular 'flagship species for Chesterfield'. These species have been chosen because *'they require specific actions over and above those for the habitats they are found in. They are also particularly characteristic of Chesterfield and/or readily identifiable by the public. Most are identified as priorities in the UK and Lowland Derbyshire BAPs'.*

Within the Lowland Derbyshire BAP, CBC falls within the Rother and Doe Lea Valleys action area. The primary habitat objective within the area is *'the maintenance, restoration and expansion of lowland meadow, woodland and wetlands'*, and the secondary objective is *'to increase connectivity of semi-natural habitats to create larger habitat complexes using priority habitats wherever possible'.* The overall vision for this action area is one of *'Connected wetland habitats along the river and canal corridors and managed woodlands and semi-natural grassland habitats connected by hedgerows.'*

3.2 National Character Areas

The majority of Chesterfield is situated within the Nottinghamshire, Derbyshire and Yorkshire Coalfield. Small areas of two other NCAs; the Derbyshire Peak Fringe & Lower Derwent and the Yorkshire Pennine Fringe, overlap the westmost edge of the council's extent. These extents are shown below in Figure 2. Each NCA has their own strategic environmental opportunities which are summarised below in Table 2, and further expanded upon in Appendix C. The information included in the table is taken from the relevant NCA Profiles (Natural England). The Derbyshire Local Nature Recovery Strategy is set to use NCAs as a framework for spatially mapping biodiversity opportunities across the county.

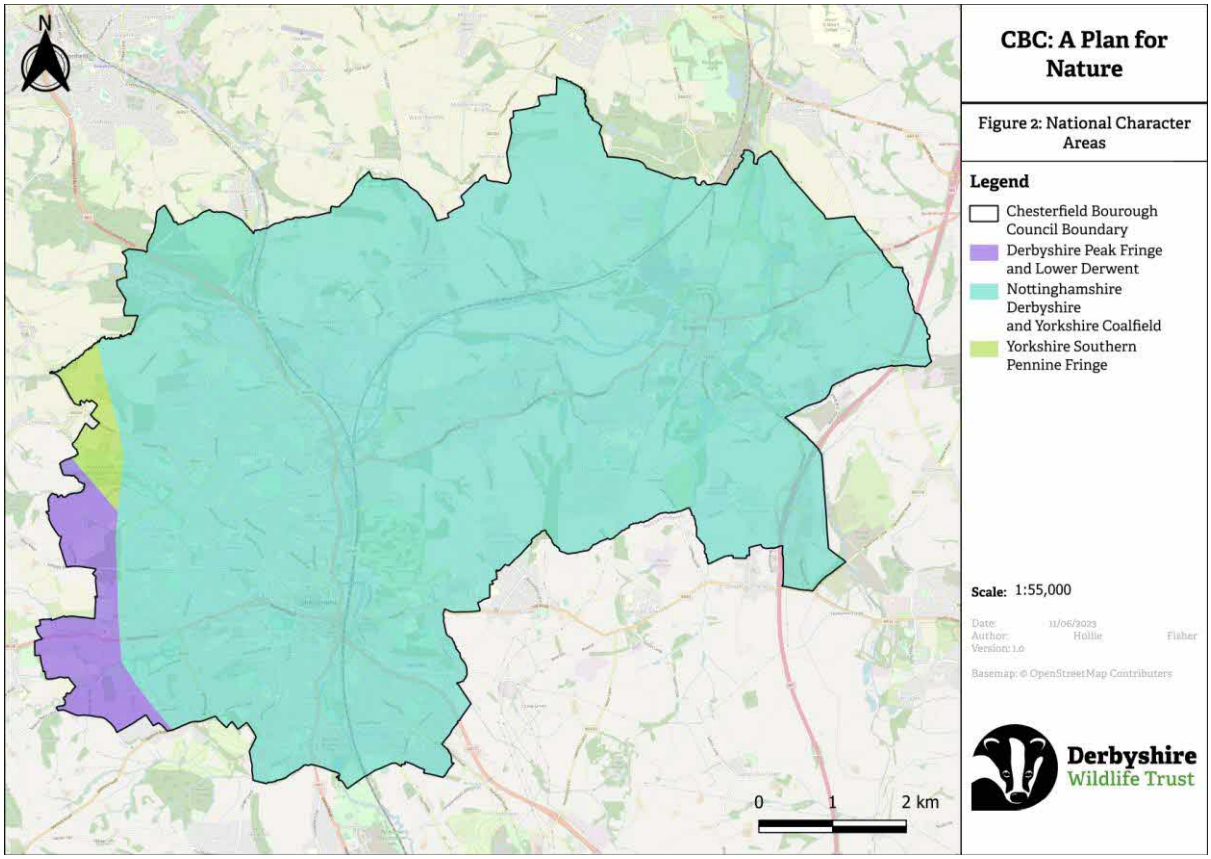

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Figure 2: National Character Areas
Legend
Chesterfield Bourough Council Boundary
Derbyshire Peak Fringe and Lower Derwent
Nottinghamshire Derbyshire and Yorkshire Coalfield
Yorkshire Southern Pennine Fringe
Scale: 1:55,000
Date: 11/06/2023
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
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NCA Name	Environmental Opportunities
Nottinghamshire, Derbyshire and Yorkshire Coalfield	Restore and enhance existing areas and create new landscapes through the inclusion of woodland and networks of green infrastructure. Protect and manage the archaeological and historical environment to safeguard a strong sense of cultural identity and heritage. Conserve, enhance and expand areas and corridors of semi-natural habitat such as grasslands and woodlands to create a functioning ecological network. Manage, enhance, and extend wetland habitats associated with the rivers Aire, Calder, Dearne, Don, Rother and Erewash and their tributaries.
Yorkshire Southern Pennine Fringe	Protect and manage the rich industrial heritage. Manage flood plains and wetland habitats to regulate water flow and availability, and to enhance water quality and biodiversity, and increase the river and riparian habitat networks. Protect the distinctive landscape character with its contrasts between open pastures on hill tops, woodland on valley sides and the settlements nestled in the valley bottoms. Plan to optimise opportunities for access to the natural environment for the large urban populations in the area.
Derbyshire Peak Fringe and Lower Derwent	Protect and manage the adaptive capacity of this transitional National Character Area, and its geodiversity and biodiversity value. Protect, manage, and plan for change to the area's distinctive historic environment. Manage the National Character Area's recreational assets for multi-functional and accessible opportunities for outdoor enjoyment. Protect and enhance the rivers Derwent, Amber and Ecclesbourne (and their flood plains) – as well as the National Character Area's reservoirs and more minor watercourses.

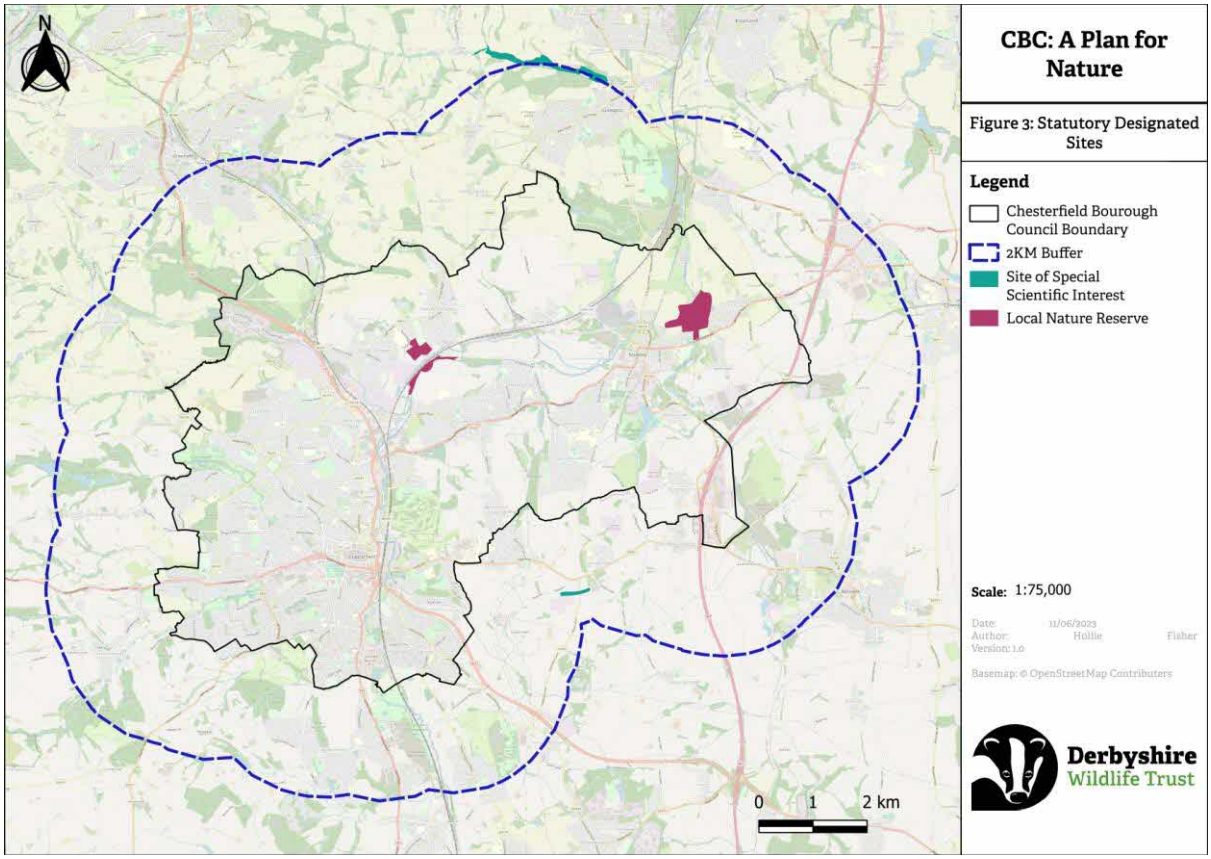
Table 2. Strategic Environmental Opportunities of the National Character Areas

3.3 Core Habitat Areas

The borough has few statutory designated sites, consisting of three Local Nature Reserves (LNR) situated within the borough boundary, and two Sites of Special Scientific Interest (SSSI) situated within a 2km buffer of the borough's boundary. Each has been designated for their range of ecological features such as rare invertebrates and wintering wading birds and waterfowl. See Figure 3 below for extent of statutory designated sites cover. An estimated total of 56.5 hectares are currently designated at statutory level, meaning that less than 1% of the area is protected and considered to be of either national or international value.

A total of three LNRs are recorded: Bluebank Pools, Brearley Wetland, and Norbriggs Flash. As LNRs their condition is not regularly assessed however, each of these sites are also designated as a Local Wildlife Site (LWS). Recent surveys identify a section of Norbriggs Flash to be in favourable condition, and Bluebank Pools and Brearley Wetland, as unfavourable.

No SSSIs are located within the borough, the closest to the borough is Duckmanton Railway Cutting, located 1.5km south. Additionally, no Special Protection Areas (SPA) are located within the borough, the closest to the borough is the Peal District Moors, also a SSSI, located 4km west to the district.



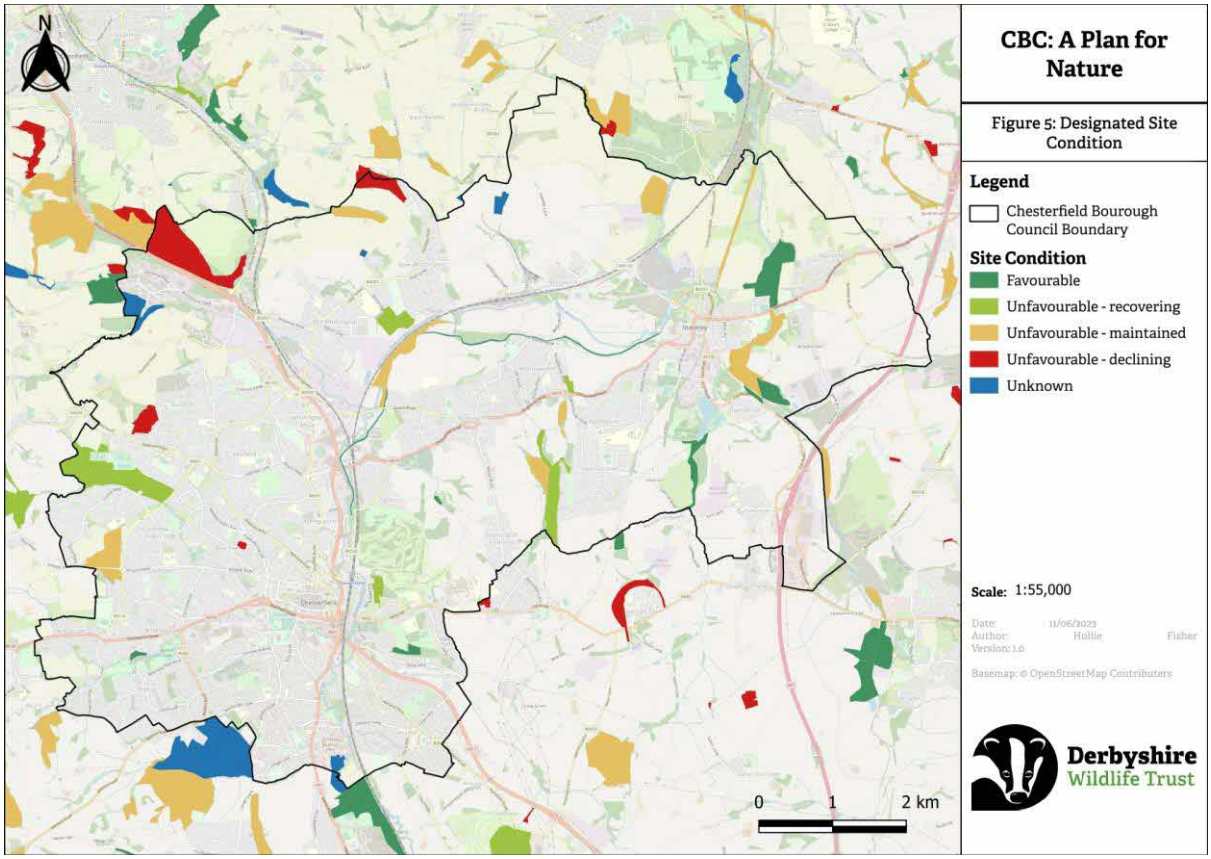
The network of designated sites begins to take shape once LWS, and potential Local Wildlife Sites (pLWS) are considered. LWSs are non-statutory designated sites of county importance, selected based on their habitat type and quality. They are often of high ecological value but are not afforded statutory protection. Likewise, pLWSs are often of high ecological value and likely to meet the selection guidelines but have not undergone the formal selection process.

Existing LWSs make up a total of 327ha over 31 sites. These sites should be regularly resurveyed and assessed if they are in favourable condition and management. Overall, the cover of designated sites within the borough is relatively low, with the majority of the central part of the borough completely devoid of designated sites. The total coverage of designated sites is below 5% of the entire borough, placing Chesterfield below average for designated sites. As Chesterfield is primarily urban, availability of priority habitats are naturally low, however there are still numerous opportunities for the expansion and creation of designated sites, including verges, canals and parks and gardens.

The figure below provides a visual representation of the spatial cover of designated sites. See *Appendix D*. *Summary of Local Wildlife Sites* for detailed list of LWS and their quality.

Designated sites are often considered as ‘core’ areas of habitats – indicating the areas of the highest nature conservation value. The above maps suggest that based on the existing area of land already designated, a limited and fragmented Nature Recovery Network is currently present. When assessing the existing designated network, the relative condition of these sites must be taken into consideration, as many of the UK’s designated areas are falling into poor condition, with a lack of resources and regulation often pushing sites into poor management.

Figure 5 shows the condition of designated sites within the borough, identifying that the existing, protected wildlife network is sparse with, small, isolated sites scattered throughout, with favourable sites making up only 55.8ha, 15% of the total statutory and non-statutory designated area within the borough. Of the 30 sites, 8 are currently in favourable condition, with 5 unfavourable recovering, 9 unfavourable maintained, 4 unfavourable declining and 5 currently unknown. The sites are designated for a variety of reasons, including presence of priority habitats such as habitat mosaic and ancient semi-natural woodland as well as protected species assemblages, see Appendix D for further details.



3.4 Priority Species Records and Population Trends

This section describes the trends and fluctuations in species populations recorded within the borough, using data held by Derbyshire Biological Record Centre between 2003-2023.

It should be noted that the species described are not the result of consistent species monitoring schemes and therefore, trends and records presented may be subjective and are unlikely to show the full picture. Figures 6, 7 and 8[2] provide an overview of species distribution over the past 20 years, the results of which are discussed in further detail below. Where multiple species are recorded in the same area, this is shown through 'point displacement', which displays the records in a circle around the centre point.

Despite its relatively small size and predominately urban landscape, extensive species records are found across Chesterfield and its surrounding area. There are likely several reasons behind this, including a high level of active biodiversity and species groups within the area, suggesting good engagement between the public and nature, as well as the presence of a small number of high value sites that are within the wider landscape, which attract large numbers of regular species recorders.

[2] Can be provided in individual PDF upon request.

3.4.1 Herpetofauna

A small number of common lizard *Zootoca vivipara* records are found in the northeast of the borough. Common lizards use a range of habitats, favouring heathland habitats. There is limited suitable heathland habitat present within the borough, likely limiting species presence in this area.

Sightings of grass snake *Natrix natrix* are frequent across most of the Chesterfield area, with both recent and historic records present, indicating a stable population. Grass snakes primarily use grasslands, hedgerows, and woodland edges, interspersed with waterbodies such as ponds and lakes to rest, commute, bask, and hunt. The habitats present are therefore suitable for grass snake, with pockets of appropriate habitats available throughout the borough.

Slow worms *Anguis fragilis* can be found in a range of habitats including heathland, open mosaic, tussocky grassland, woodland edge and rides (clearings within woodlands). Records show they are a small number present, with a single population recorded around Poolsbrook Country Park however it is likely this species is under recorded.

Great crested newts *Triturus cristatus* use a range of habitats such as pastoral and arable farmland, woodland, scrub, and grassland. Great crested newts have been recorded mainly to the east of the borough, likely due to the urban Chesterfield town situated west, with both recent and historic records present, indicating a stable population in this area.

3.4.2 Mammals

Brown hare *Lepus europaeus* are recorded as present towards the northwest and east of the borough, as brown hares favour grassland and farmland habitats.

A large number of badger *Meles meles* records[3] are recorded in all areas in the borough, this includes both sightings and setts. The mixture of farmlands, grasslands and scrub provides foraging habitats for the species however, species have also been sighted within sub-urban areas of Chesterfield.

Bat records are found throughout the borough, including a mixture of both sightings and recorded roosts. The species recorded includes brown long-eared *Plecotus auratus,* common *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, daubentons *Myotis daubentonii*, noctule *Nyctalus noctule*, natterers *Myotis nattereri,* Brandt's *Myotis brandtii, and* Leisler's *Nyctalus leisleri.* The mixture of grasslands, waterbodies, small woodlands and old buildings around the urban areas is of high suitability for bat species.

A large number of hedgehog *Erinaceus europaeus* sightings have been recorded, with both recent and historic records present, indicating a potential stable population. Hedgehogs are often recorded within urban environments however, increased fragmentation of habitats availability as a result of fences as opposed to hedgerows have had longstanding impacts on the decline of this species countrywide.

A number of otter *Lutra lutra* and water vole *Arvicola amphibius* records are spread across the waterbodies within the borough, with the majority of the otter records found to the northeast. Water vole populations have seen substantial declines across much of the country, now being

[3] Badger records are not shown on the map as the species is still threatened by persecution, sett locations are therefore confidential to prevent putting the species at risk.

locally extinct in many areas, largely driven by habitat loss and rising American mink *Neovison vison* populations, which have been recorded in the area.

3.4.3 Avifauna

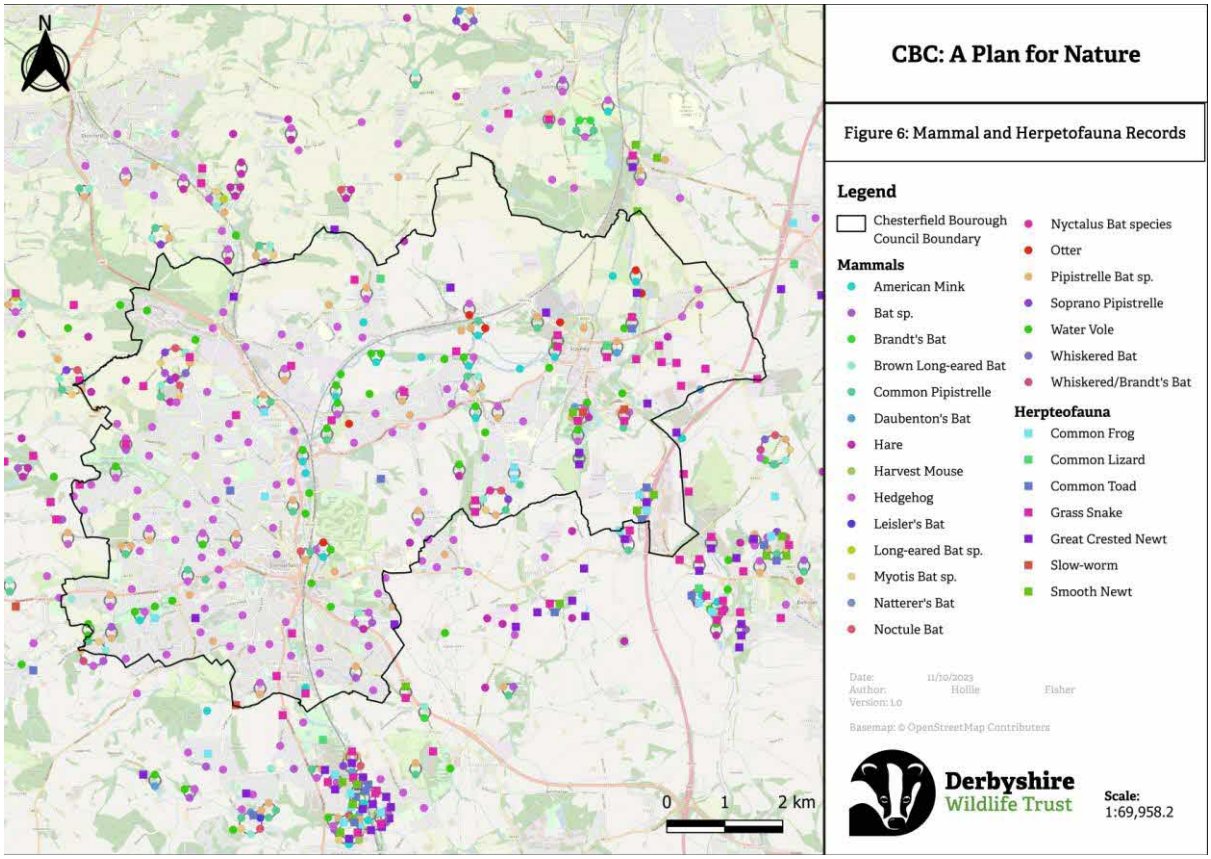
Bird sightings are frequent across the entire Borough, with the urban areas supporting regular sightings of a range of species including swift *Apus Apus*, wren *Troglodytes troglodytes,* yellowhammer *Emberiza citronella* and bullfinch *Pyrrhula pyrrhula*. The wider area hosts a number of locally important sites for birds, including Poolesbrook and Norrbriggs Flash within the borough boundary, as well as Carr Vale, Linacre Reservoir and the Avenue in the wider landscape. This has led to an abundance of priority (UKBAP) species recorded including, bittern *Botaurus stellaris*, black-tailed godwit *Limosa limosa,* bullfinch, common scoter *Melanitta nigra*, corn bunting *Emberiza calandra*, cuckoo *Cuculus canorus*, curlew *Numenius arquata*, dunnock *Prunella modularis*, grasshopper warbler *Locustella naevia*, grey partridge *Perdix perdix*, house sparrow *Passer domesticus*, lapwing *Vanellus vanellus*, lesser redpoll *Acanthis cabaret*, lesser spotted woodpecker *Dryobates minor*, linnet *Linaria cannabina*, marsh tit *Poecile palustris*, red grouse *Lagopus lagopus scotica*, reed bunting *Emberiza schoeniclus*, ring ouzel *Turdus torquatus*, skylark *Alauda ervensis* song thrush *Turdus philomelos*, spotted flycatcher *Muscicapa striata*, starling *Sturnus vulgaris*, tree pipit *Anthus trivialis*, tree sparrow *Passer montanus*, turtle dove *Streptopelia turtur*, willow tit *Poecile montanus*, wood warbler *Phylloscopus sibilatrix*, wren, yellow wagtail *Motacilla flava* and yellowhammer. This suggests that the landscape associated with Chesterfield is of high ecological value for local bird assemblages.

3.4.4 Invertebrates

Invertebrate sightings are limited across the entire Borough, with the majority of instances recorded in the more rural areas of the district. Important invertebrate species which have been recorded in the Chesterfield district are the alder leaf beetle *Agelastica alni*, azure hawker *Aeshna caerulea*, dashed slender robberfly *Leptogaster guttiventris*, long-horned soldier *Vanoyia tenuicornis*.

Butterfly and moth species records are more concentrated towards the northeast of the borough. Species recorded include dingy skipper *Erynnis tages*, blood vein *Timandra comae*, cinnabar *Tyria jacobaeae,* garden tiger *Arctia caja*, grey dagger *Acronicta psi*, knot grass *Acronicta rumicis,* large copper *Lycaena dispar*, latticed heath *Chiasmia clathrata*, narrow-bordered five-spot burnet *Zygaena lonicerae,* shaded broad-bar *Scotopteryx chenopodiata*, small heath *Coenonympha pamphilus*, swallowtail *Papilio machaon*, *wall Lasiommata megera,* white ermine *Spilosoma lubricipeda*, white-letter hairstreak *Satyrium w-album*.

White-clawed crayfish records are restricted to the west and north of the borough, within the Hipper River at Somersall Park and Walton Park, the Holmebrook Valley Country Park and Barlow Brook to the north.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CBC: A Plan for Nature
Figure 6: Mammal and Herpetofauna Records
Legend
Chesterfield Bourough Council Boundary
Mammals
American Mink
Bat sp.
Brandt's Bat
Brown Long-eared Bat
Common Pipistrelle
Daubenton's Bat
Hare
Harvest Mouse
Hedgehog
Leisler's Bat
Long-eared Bat sp.
Myotis Bat sp.
Natterer's Bat
Noctule Bat
Nyctalus Bat species
Otter
Pipistrelle Bat sp.
Soprano Pipistrelle
Water Vole
Whiskered Bat
Whiskered/Brandt's Bat
Herpteofauna
Common Frog
Common Lizard
Common Toad
Grass Snake
Great Crested Newt
Slow-worm
Smooth Newt
Date: 11/10/2023
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:69,958.2
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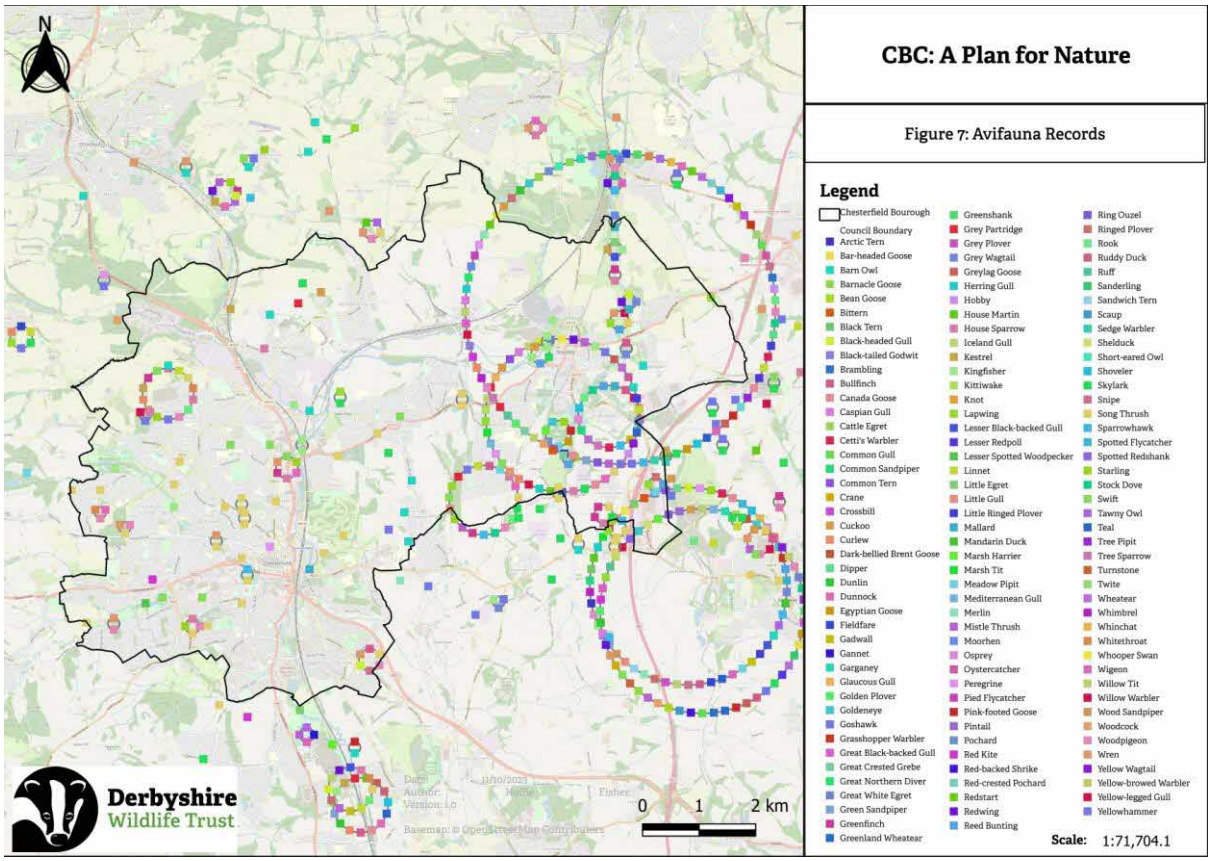
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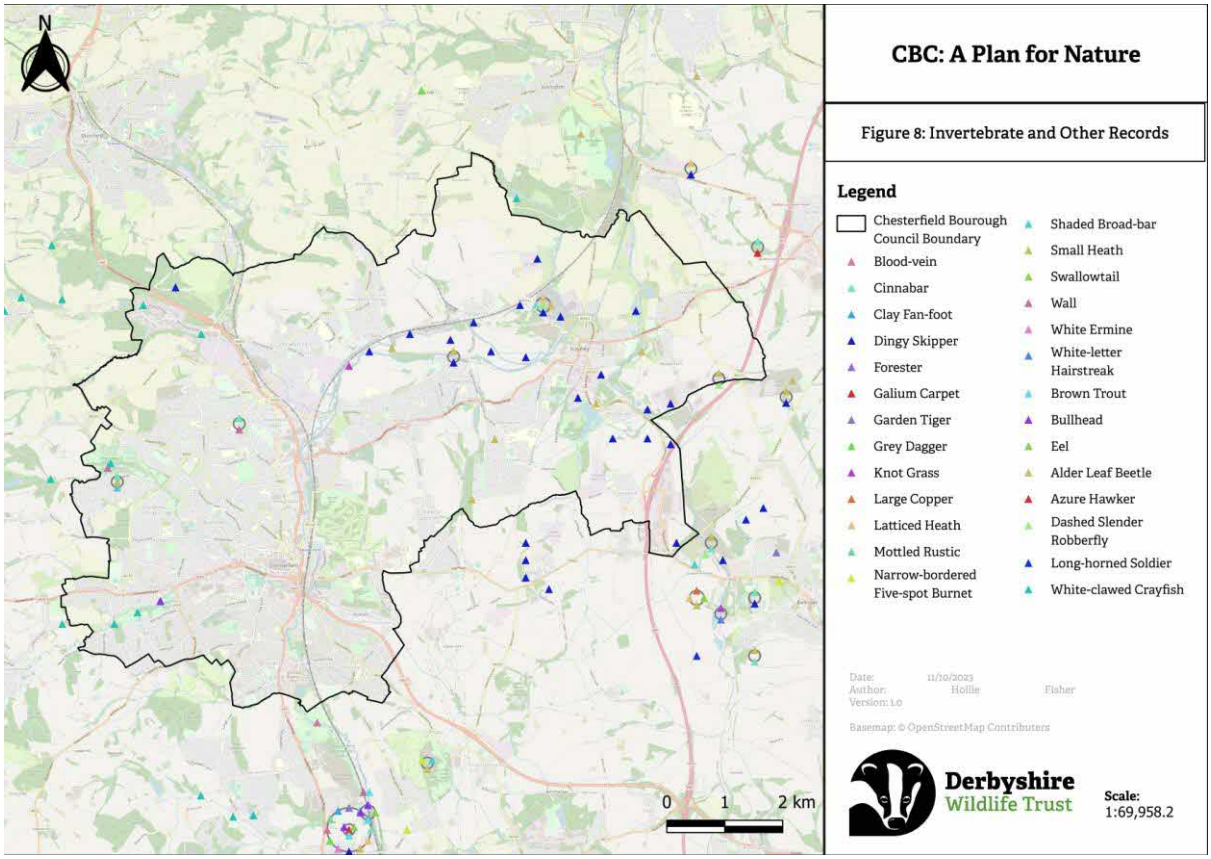
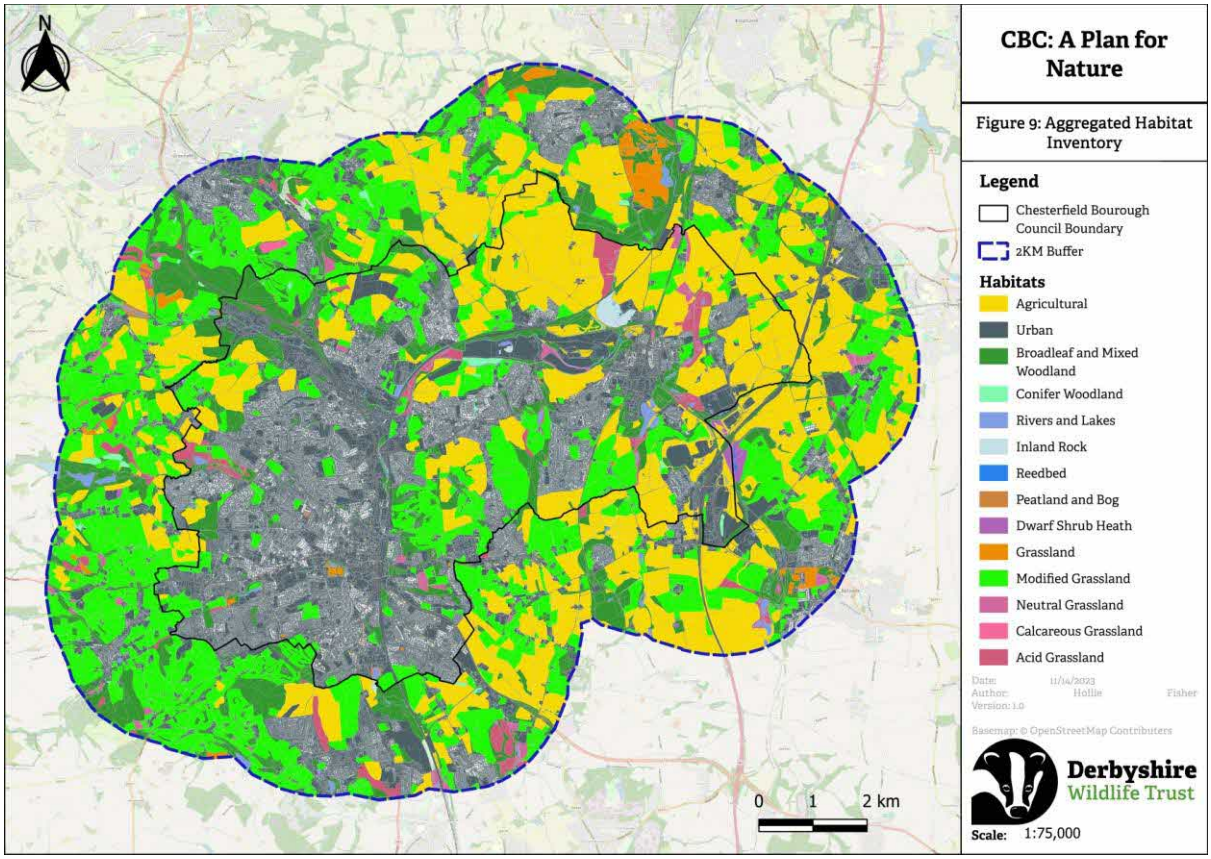
CBC: A Plan for Nature
Figure 7: Avifauna Records
Legend
Chesterfield Bourough Council Boundary
Arctic Tern
Bar-headed Goose
Barn Owl
Barnacle Goose
Bean Goose
Bittern
Black Tern
Black-headed Gull
Black-tailed Godwit
Brambling
Bullfinch
Canada Goose
Caspian Gull
Cattle Egret
Cetti's Warbler
Common Gull
Common Sandpiper
Common Tern
Crane
Crossbill
Cuckoo
Curlew
Dark-bellied Brent Goose
Dipper
Dunlin
Dunnock
Egyptian Goose
Fieldfare
Gadwall
Gannet
Garganey
Glaucous Gull
Golden Plover
Goldeneye
Goshawk
Grasshopper Warbler
Great Black-backed Gull
Great Crested Grebe
Great Northern Diver
Great White Egret
Green Sandpiper
Greenfinch
Greenland Wheatear
Greenshank
Grey Partridge
Grey Plover
Grey Wagtail
Greylag Goose
Herring Gull
Hobby
House Martin
House Sparrow
Iceland Gull
Kestrel
Kingfisher
Kittiwake
Knot
Lapwing
Lesser Black-backed Gull
Lesser Redpoll
Lesser Spotted Woodpecker
Linnet
Little Egret
Little Gull
Little Ringed Plover
Mallard
Mandarin Duck
Marsh Harrier
Marsh Tit
Meadow Pipit
Mediterranean Gull
Merlin
Mistle Thrush
Moorhen
Osprey
Oystercatcher
Peregrine
Pied Flycatcher
Pink-footed Goose
Pintail
Pochard
Red Kite
Red-backed Shrike
Red-crested Pochard
Redstart
Redwing
Reed Bunting
Ring Ouzel
Ringed Plover
Rook
Ruddy Duck
Ruff
Sanderling
Sandwich Tern
Scaup
Sedge Warbler
Shelduck
Short-eared Owl
Shoveler
Skylark
Snipe
Song Thrush
Sparrowhawk
Spotted Flycatcher
Spotted Redshank
Starling
Stock Dove
Swift
Tawny Owl
Teal
Tree Pipit
Tree Sparrow
Turnstone
Twite
Wheatear
Whimbrel
Whinchat
Whitethroat
Whooper Swan
Wigeon
Willow Tit
Willow Warbler
Wood Sandpiper
Woodcock
Woodpigeon
Wren
Yellow Wagtail
Yellow-browed Warbler
Yellow-legged Gull
Yellowhammer
Scale: 1:71,704.1
Derbyshire Wildlife Trust
0 1 2 km


N
0
1
2 km
CBC: A Plan for Nature
Figure 8: Invertebrate and Other Records
Legend
Chesterfield Bourough Council Boundary
Blood-vein
Cinnabar
Clay Fan-foot
Dingy Skipper
Forester
Galium Carpet
Garden Tiger
Grey Dagger
Knot Grass
Large Copper
Latticed Heath
Mottled Rustic
Narrow-bordered Five-spot Burnet
Shaded Broad-bar
Small Heath
Swallowtail
Wall
White Ermine
White-letter Hairstreak
Brown Trout
Bullhead
Eel
Alder Leaf Beetle
Azure Hawker
Dashed Slender Robberfly
Long-horned Soldier
White-clawed Crayfish
Date: 11/10/2023
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:69,958.2

4 Existing Networks and Habitat Distinctiveness

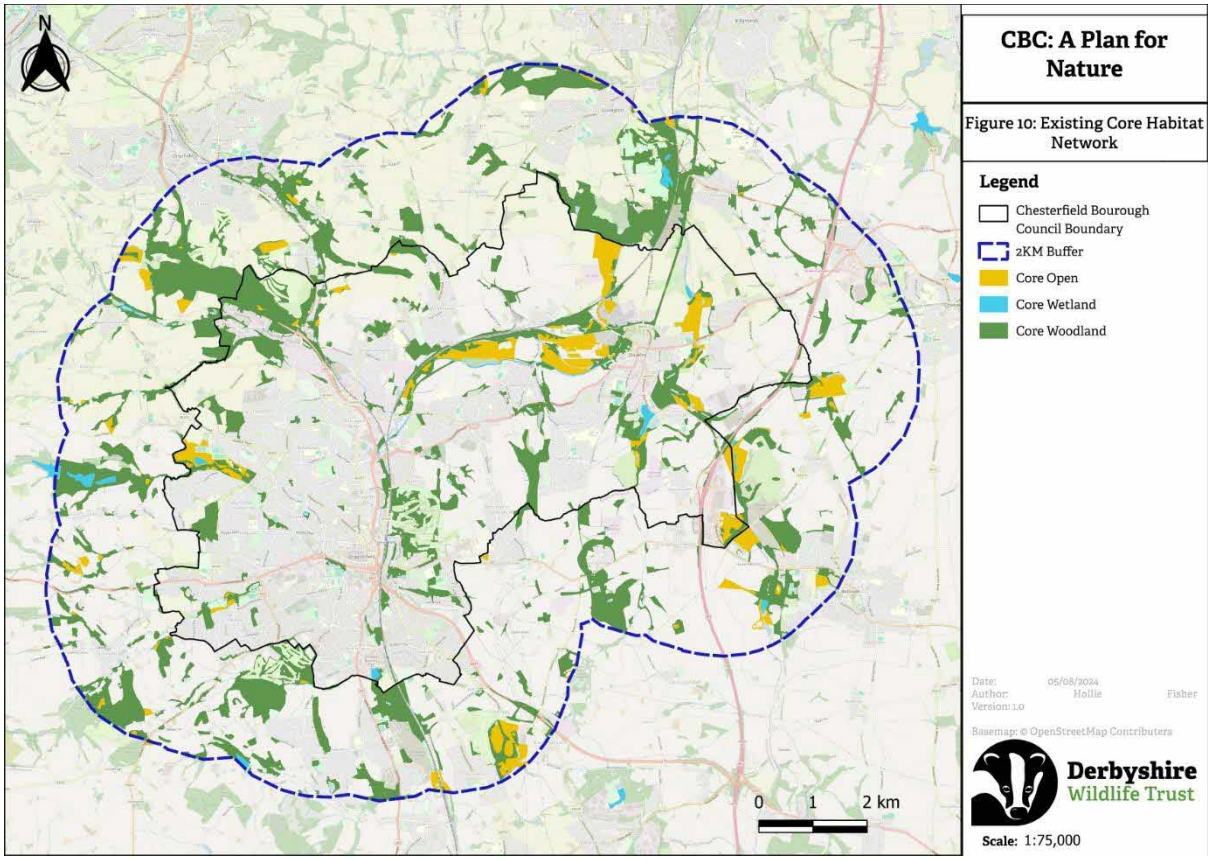
The Chesterfield Borough has an urban and sub-urban landscape dominating the western section of the borough, comprising Chesterfield town and its surrounding residential areas. Towards the east of the borough the land is dominated by agricultural land, with smaller pockets of urban land such as Staveley, Hollingwood and Middlecroft. When looking at the aggregated habitat inventory in Figure 9, the existing network of broad habitats are limited, with few areas of high value grassland and woodland present throughout the borough. Based on this high-level overview, a connected network is restricted, with the majority of landcover consisting of low value habitats. This structure of infrequent higher value habitats, surrounded by a landscape dominated by agriculture and hardstanding continues out into the wider landscape, as can be seen by the 2KM buffer, suggesting opportunities for species to commute through the landscape are likely limited, with Chesterfield potentially posing a major barrier to distribution. Note that this map does not consider the relative quality of the habitats recorded and therefore, the condition of woodlands and grasslands are relatively unknown. This map is intended to provide an overview of habitats present and should not be used as an accurate representation.



Beyond the designated sites there are limited core areas of habitat that are large enough to support viable species populations and few small land parcels that act as corridors or discrete ‘stepping-stones’, this network of core habitats is highlighted in Figure 10. These parcels of habitats are required to be identified and protected under the NPPF, as outlined in section 1.

Based on this imagery, the woodland network appears to be the most substantial, with the wetland network being notably sparse. From these figures, the baseline of a NRN is apparent, with the skeleton of key connecting habitat routes visible. However, it is clear these corridors

are disjointed and sparse. The outskirts of the borough, where it moves into a more rural landscape connecting to North East Derbyshire, support a more substantial corridor of woodland habitats, with key locations such as Linacre, Grasscroft Woods and land surrounding Eckington forming the most strategic locations. Green corridors within the built up areas of the borough are significantly lacking, with existing stands being small and isolated and made up of a low number of urban parks and woodlands.



4.1 Existing Woodland Network

The existing woodland network is the most substantial of the three networks however, overall woodland cover is still low, with many stands being between 0.5 – 2 hectares in size. The core areas of existing wooded habitat are scattered across Chesterfield, with larger expanses located to the southeast of Old Whittington, surrounding the Chesterfield Canal and River Rother. Of the core woodland network within the borough, only 70ha is recorded as being ancient[4], around 10% of the 720 hectares of woodland identified as being part of the core network. Areas of ancient woodland are recorded to the north of Chesterfield, surrounding the vacant Birch Hall Golf Club and to the west of Inkersall Green, next to the Trough Brook.

[4] The Ancient Woodland Inventory is currently under review, following a change in requirements of the size of site for allocation, leading to a significant rise in designated smaller ancient woodlands. This figure is therefore likely to change following the release of the data.

Ancient woodlands are the richest and most complex terrestrial habitat we host in the UK, supporting specialist birds, insects, mammals, plant and fungi communities.

Smaller pockets of woodland are interspaced within the urban, sub-urban and agricultural land throughout the borough, with the main connecting routes being along the railway lines. Their size and isolation mean that the woodlands are likely unable to viably support large populations, particularly of predatory species which typically require expansive, connected networks for hunting. The small sites may act towards creating population 'sinks' in which species are dispersing from larger habitats into the small areas and subsequently failing due to lack of resources, reducing the overall population size.

Woodlands in general are of high biodiversity value, with broadleaf, native woodlands in good condition capable for supporting a wide range of species groups which have coevolved with the trees – resulting in native woodland supporting a quarter of the UKs priority species for conservation (DEFRA, 2022), as well as working to store carbon and reduce flood risk. Research by Friends of the Earth, using the National Forest Inventory dataset (data updated in 2019) shows that the average tree cover for Local Authorities within the UK is 10.3%. Chesterfield are currently below this national average, with the most up to date data suggesting 8% is wooded. This calculation involves all types of woodland including coniferous. Conifer woodland may be of value to some key species and act as opportunities for commuting, however the monocultured structure that is typical of plantation conifer woodlands limits the overall suitability for many groups.

4.2 Existing Open Network

The network of core open habitats is constrained throughout the borough, with main expanses of open habitats being made up of arable, improved grassland and neutral grassland as shown in Figure 9. The current areas of high-quality species rich grasslands are limited to few, extremely small pockets of land throughout the borough, and at present, the connectivity between habitat stands is not substantial enough to create connected corridors, with the gaps between habitats too large for species dispersal (standard dispersal distance for a species representative of open habitats being 500m,Watts, *et al*., 2010). There may be further areas of species rich grasslands that are not recorded within the borough or, alternatively, areas of recorded high-quality habitat that are now in poor condition. Species rich grasslands are key habitats for pollinators, invertebrates, birds, foraging bats, commuting reptiles and amphibians and botanical communities, further, their value is increased when they form a mosaic of habitats with woodland and wetland sites, this type of habitat is mostly absent from the Chesterfield Borough.

Quality grasslands typical of the area include a mixture of neutral grasslands and lowland meadow, as found around Norbriggs and Poolsbrook, as well as a small number of acid grassland stands scattered throughout. Chesterfield also has large levels of Open Mosaic Habitat (OMH) recorded as present, primarily located between Barrow Hill and Hollingwood. OMH is an increasingly rare and valuable priority habitat, that is often at high risk from development, with planning favouring the use of brownfield sites. Once lost, OMH is extremely difficult to recreate manually, and are also often left without disturbance, allowing succession to take hold and reverting the site to grassland or scrub. These habitats can be of extremely high value for wildlife, containing numerous habitats and niches and often providing space for specialist invertebrates and offer key green spaces in typically urban environments.

4.3 Existing Wetland Network

A high-level review of the existing wetland network indicates limited coverage of core wetland habitats, primarily made up of the small patches of rivers and streams within the borough, the relative quality of which is unknown, however, these may form key linkages for species to commute through. In addition, several of the sites recorded within the core open network and LWS designations are recorded as wet and marshy grasslands, thereby fitting into the core sites for wetland species as well. The apparent lack of these additional habitats may be exaggerated due to under recording of wetland habitats including ponds and wet grassland however, historically many wet, marshy areas have been drained to improve agricultural condition and ponds have been removed in margins, fields and gardens.

The scarcity of the wetland network may be due to the increased urbanisation of Chesterfield, paired with the continued intensification of agriculture in the wider landscape. Historic draining of wet grasslands and marshes, as well as the removal of ponds has been a frequent occurrence within the UK in recent history. However, these actions have long term implications on the safety and stability of the residential areas, increasing risk of flooding through the damage and disconnecting of floodplains and lack of wet woodlands and spaces for water to naturally collect in order to slow the flow. Moreover, rivers are frequently disconnected from their floodplains, creating a disjointed and structurally incoherent landscape.

5 Strategic Ecological Gaps, Considerations and Existing Bottlenecks within the Landscape

Fragmentation and habitat loss are the primary causes of biodiversity decline worldwide, leading to reduction in species movements as well as a loss in both species richness and abundance, with human actions being the primary driver behind this change (Haddad *et al*., 2015). Fragmented habitats impact the biotic ecosystem through a reduction in available resources, reduction in gene pools and a lack of environmental stability, reducing the plasticity and resilience of the species within it. In a modern landscape, large expanses of unbroken habitats are rare and therefore, the relative permeability of habitats surrounding core areas for representative species are of high importance.

Where large expanses of uninhabitable environments occur, particularly when present between areas of core habitats, populations of immobile or slow migrating species are at risk of local extinction. The lack of connecting features and migratable habitats isolate populations of amphibians, reptiles, plants, invertebrate and small mammal communities, – meaning that as their climatic niche moves up the county as a result of climate change, the individuals are unable to follow, eventually leaving them in uninhabitable, hostile environments.

A common theme across all three networks is that key barriers are present within the areas of higher urbanisation, in addition, several of these areas identified as the least permeable coincide with the areas within Chesterfield identified as being more deprived such as Duckmanton, Poolsbrook, Staveley and Old Whittington. These figures identify a pressing need to diversify these residential areas and prevent risk of green deprivation.

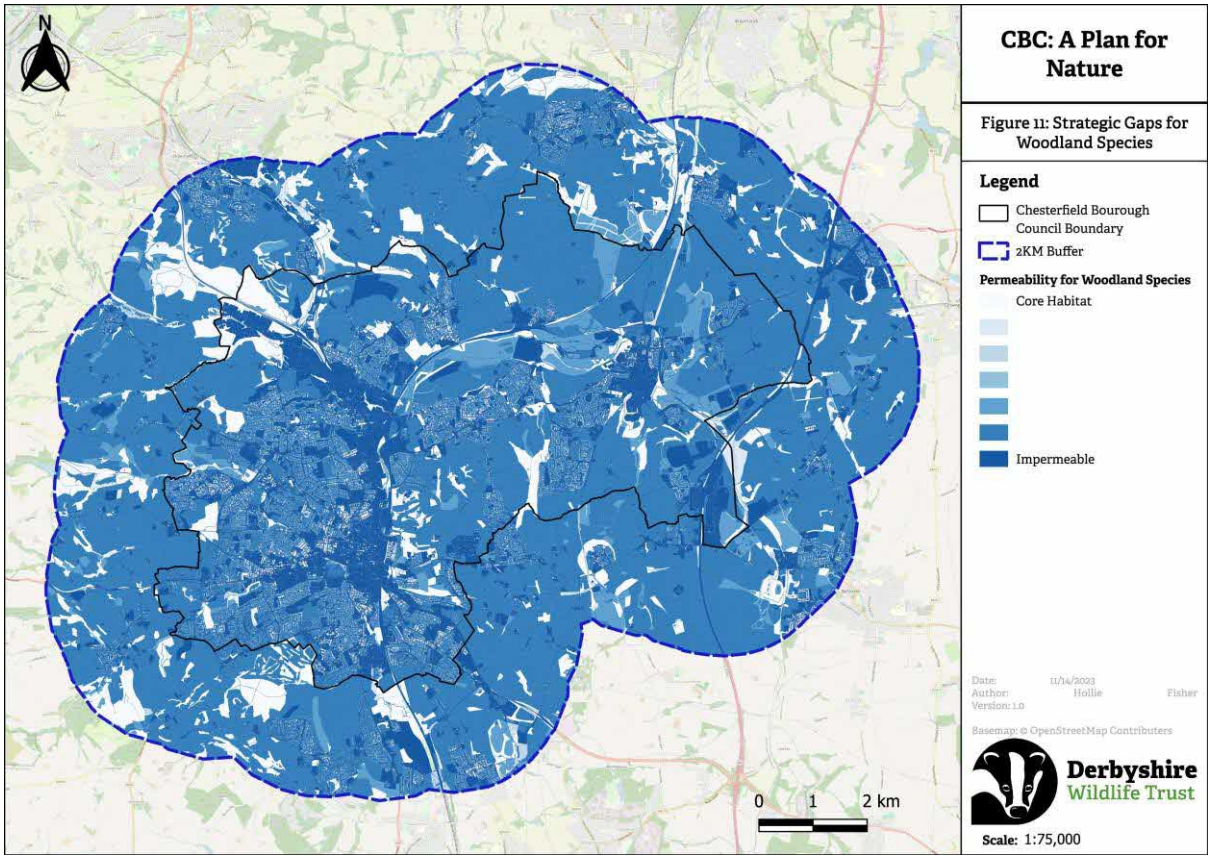
5.1 Strategic Ecological Gaps within the Woodland Landscape

Figure 11 illustrates the current habitat gaps and barriers in the woodland network. The map is represented on a scale, from a core, highly permeable habitat *(i.e*. woodland) to impermeable (*i.e.* hardstanding).

Despite the woodland network being the most substantial across the borough, the dominant surrounding areas are primarily made up of impermeable, or highly unsuitable habitats, being predominately hardstanding and agricultural land. Therefore, it is likely that dispersal opportunities for species typical of woodland habitats are low, potentially leaving populations isolated to specific areas or needing to bypass Chesterfield altogether in order to move up the county. This presents major challenges for several key reasons, firstly that it may lead to a lack of genetic diversity within existing population strongholds; secondly, it constrains populations that are succeeding, limiting the population growth to the carrying capacity of the specific site they are in; finally, major barriers in habitat networks increases risk of local extinction for species, potentially trapping species in sites that are no longer suitable and reducing the overall plasticity and stability of the environment.

Primary barriers within this network include the residential and built up areas, as found within the town centre, as well as the surrounding farmland, with increased opportunities following along the main linear features of the borough including the canal, the railway and the main roads. Key routes existing along these busy structures such as the roads and railways presents its own challenges, as many species will not cross these structures which means that available routes are narrow, experience high levels of disturbance and include the risk of collision and loss of life.

Some species typical of woodland will commute through an open habitat if the conditions are suitable, for example, if the sward is varied and tussocky, integrated with hedgerows and tree lines. As a rule, hedgerows and treelines are under recorded within the UK, as a result the opportunities for dispersal may be under recorded if ecologically valuable networks of hedgerows are present within the farmland and residential areas.

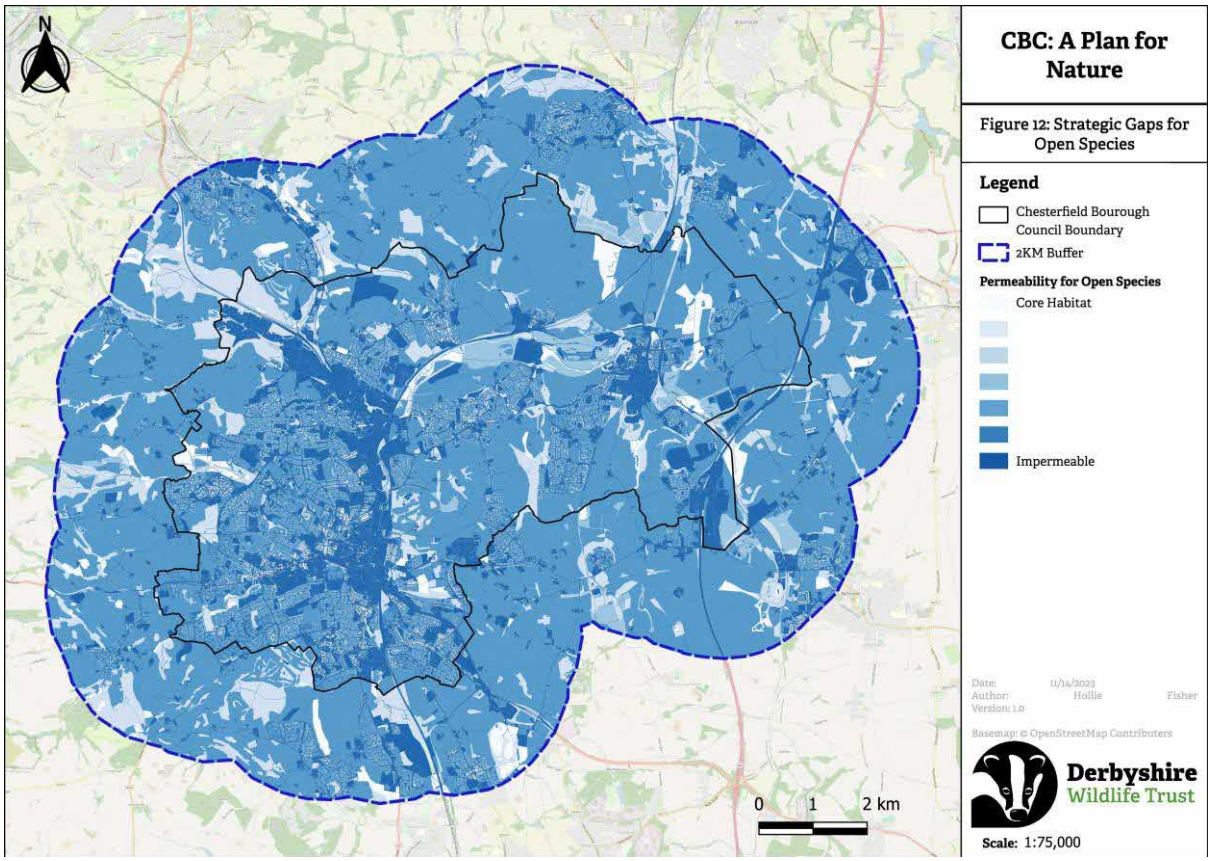


5.2 Strategic Ecological Gaps within the Open Landscape

Figure 12 illustrates the habitat gaps and barriers in the open habitat network. The map is represented on a scale, from a core, highly permeable habitat (*i.e.* species rich grassland) to impermeable (*i.e*. hardstanding).

Similar to the above, the relative availability of highly permeable land for species typical of open habitats is relatively low, with limited sites of high quality grassland and open sites. However, the borough as a whole provides more opportunities for movement of species typical of open habitats than woodland as these species are more likely to cross the modified grassland and arable landscapes to reach neighbouring sites. As a rule, hardstanding, modified grassland and arable fields are not suitable to support populations due to the lack of structural diversity, limiting species ability to shelter, hunt or forage however they may use them to commute. Crossing habitats such as these will typically only occur over short distances due to the risks associated with moving through an expansive area with no place for shelter, increasing the threat of predation. Therefore, the urban and agricultural landscape may be relatively permeable should the gardens and field margins contain stands of tussocky grasslands or shrubs, a factor which is largely unknown.

The major barriers are present in Chesterfield town centre, as well as the large built up areas including Staveley and Whittington. Despite this, opportunities are present which may allow species to move through the borough, particularly through Tapton and Poolesbrook, however this could be further improved.



5.3 Strategic Ecological Gaps within the Wetland Landscape

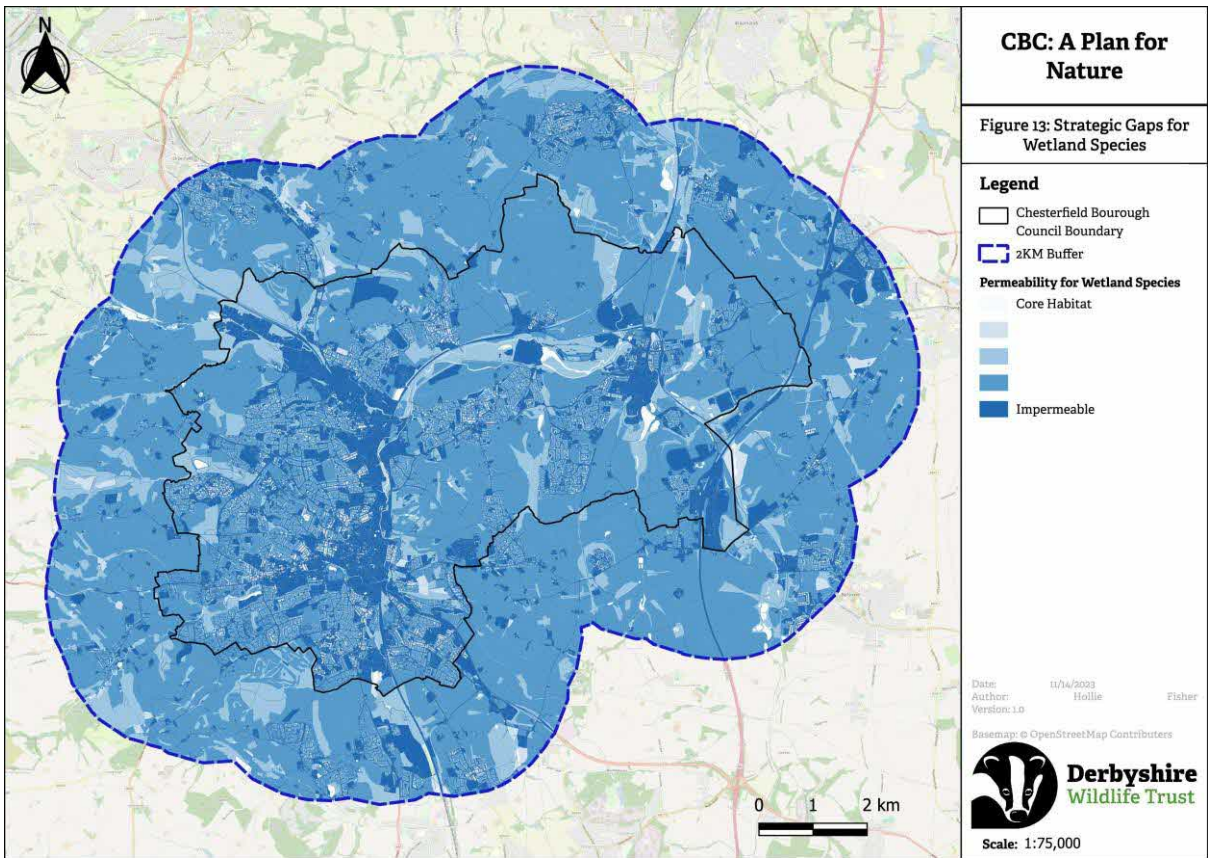
Figure 13 illustrates the habitat gaps and barriers in the wet habitat network. The map is represented on a scale, from a core, highly permeable habitat (*i.e*. reedbed) to impermeable (*i.e.* hardstanding).

As can be expected from the lack of wetland habitats present, the borough presents a major barrier to species typical of wetland habitats, with little to no opportunities for species to disperse. The section along Chesterfield canal contains several associated wetland habitats including open water and wet grasslands, acting as one of the few strongholds for movement within the borough.

Ponds, ditches and small streams are often under recorded and therefore, relative permeability may be under represented however, unrecorded ponds and wetland habitats would need to be supported by a cohesive network of other connecting features such as hedgerows, tree lines and tussocky grass verges to be effective. In addition, the land use that makes up most of the borough are strongly associated with the loss of wetland habitats such as ponds and marshy areas, with garden ponds and agricultural waterbodies seeing a sharp decline following the continued movement towards agricultural intensification and manicured gardens.

Amphibious species will typically not travel more than 500m and therefore, where the network of ponds and standing bodies of water is sparse, populations will continue to decline.

Chesterfield as a whole likely currently poses a major barrier within the landscape for wetland species.



5.4 Agricultural Land Classification

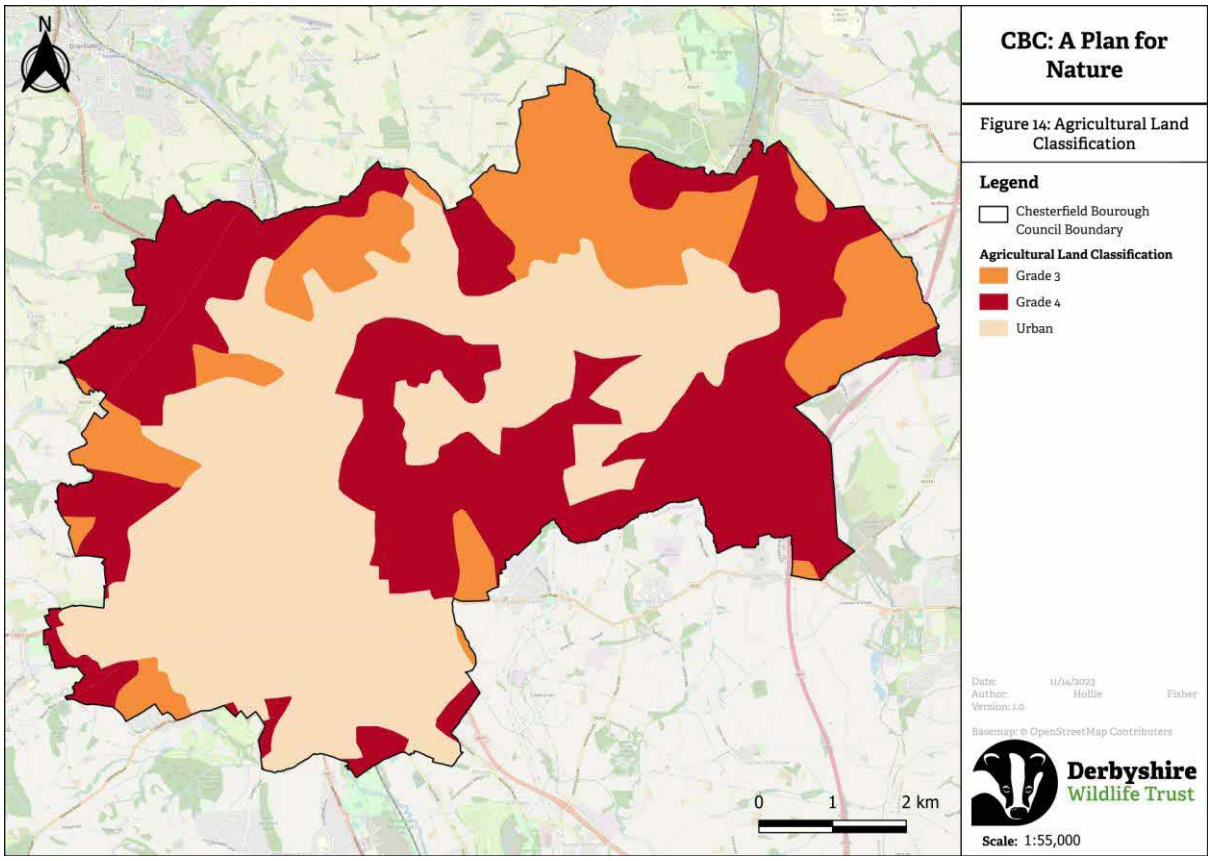
The quality of land for agricultural purposes is a key determining factor when considering strategic spatial opportunities and BNG. The Agricultural Land Classification classifies land into five grades according to the extent to which physical or chemical characteristics impose long term limitations on a site for food production. Factors include climate (temperature, rainfall, aspect, exposure, frost risk) and site (gradient, micro-relief, flood risk) and soil (depth, structure, texture, chemicals, stoniness).

Grade 1: Excellent quality agricultural land
Grade 2: Very good quality agricultural land
Grade 3: Good to moderate quality agricultural land
Subgrade 3a: Good quality agricultural land
Subgrade 3b: Moderate quality agricultural land
Grade 4: Poor quality agricultural land
Grade 5: Very poor quality agricultural land.

Grades 1 to 3a are classified as Best and Most-versatile land and the NPPF guidance prioritises keeping these areas for agricultural production. Where agricultural land is less productive there is a higher likelihood of uptake of the BNG system by farmers.

As shown in Figure 14[5], a large proportion of the borough that is not currently occupied by urban areas is classified as poor quality land for agriculture. This indicates that an alteration of land use from farming to alternative enterprises focused on nature-based economies, including BNG, is a viable possibility – with the most suitable areas focused on Norbriggs, Poolsbrook and Duckmanton.

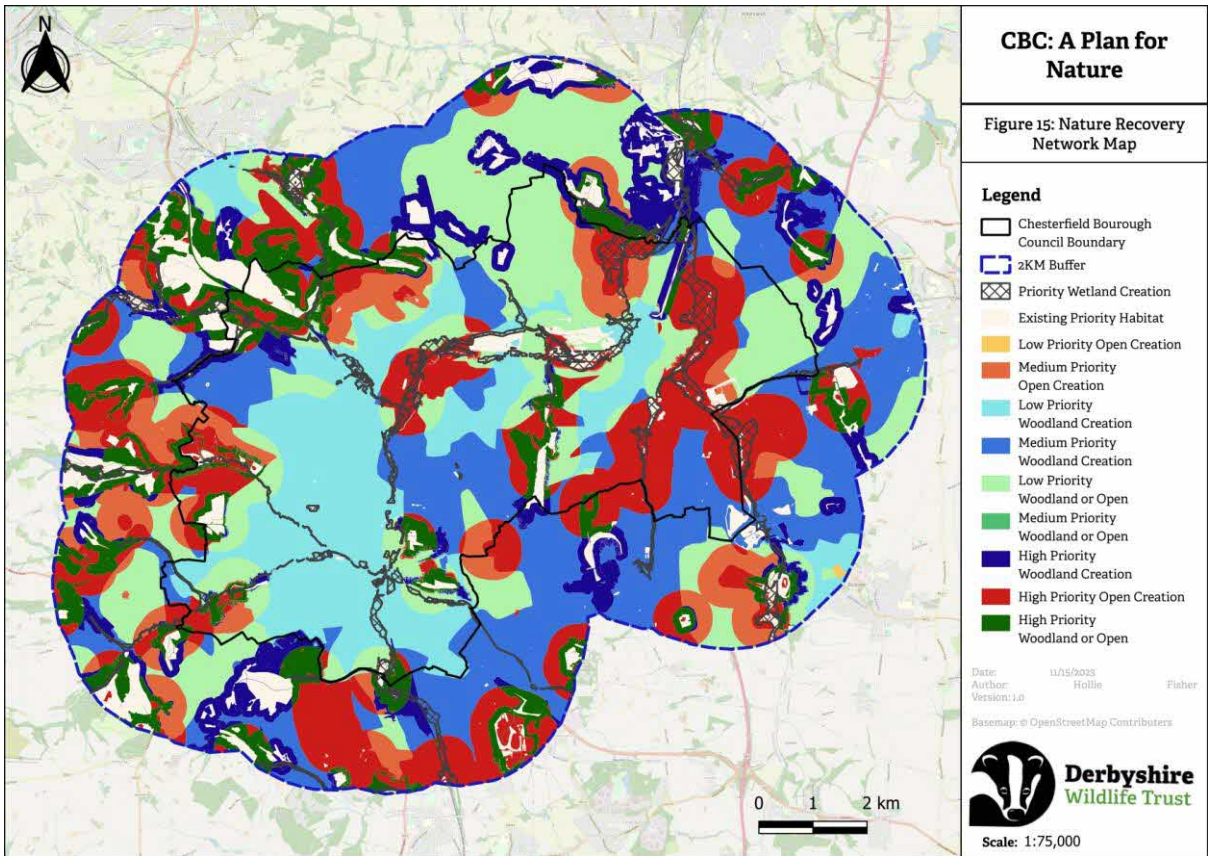
Farming in areas of lower agricultural quality is often reliant on government schemes and subsidies, with an estimated 42% of UK farms making a loss without subsidy support (National Audit Office, 2019). Recent studies suggest that the least productive 20% of UK farmland produces only 3% of calories and therefore, removing 9% of this low-quality farmland and returning it to nature would see a reduction in calorie production of just 1% (National Food Strategy, 2020).



[5] Note key limitation within the dataset for the ALC, as the majority of the data within the Chesterfield borough is only classified as 'provisional'.

6 Biodiversity and Network Opportunities

The final output of the NRN modelling is shown in Figure 15 and identifies low, medium and high priority areas for the creation of open and woodland habitats. The wetland network forms one blanket layer of recommended wetland creation to be paired with the woodland and open creation layers. This identifies key areas for wet open habitats such as wet grassland, marsh and reedbeds and wet woodland habitats.



Referring to the habitat network modelling detailed above, this section of the report will identify key areas and opportunities for habitat recreation and restoration, outlining important habitats, areas and proposed methods of delivery. These identified areas can be integrated into upcoming planning and policy strategies within the council to be formally recognised as areas of high strategic significance for natures recovery, linking with the Biodiversity Net Gain metric.

Habitat creation and restoration will support in species recovery by aiding in dispersal and population expansion. It will also improve the overall stability of the environment, increasing resistance against the impacts of climate change and supporting the delivery of numerous ecosystem services including carbon sequestration, Natural Flood Management (NFM) and public wellbeing.

6.1 Creation of an Open Nature Recovery Network

To increase flow of grassland species, the creation and restoration of open habitats should be prioritised in several key areas, namely; Holmebrook Valley Country Park and the land surrounding Ashgate Plantation, Walton Park, Tapton Golf Club and Spital Park, Sheepbridge Industrial Estates surrounding land, land surrounding Chesterfield Canal primarily between

Old Whittington and Brimington, Chesterfield Hospital land surrounding West Wood, Norbriggs Flash and Poolsbrook Country Park. See Figure 16 for a visual guide.

There are several key habitat types and actions that should be prioritised within the creation of open habitat corridors. These will be further explored in the below section however, key opportunities include:

The creation of lowland meadow and species rich grasslands and wet and marshy grasslands within the landscape;

Creating mosaics of habitats and transitioning between woodland and grassland through scattered trees;

Utilising existing greenspaces including the golf courses where small changes in management can have large impacts;

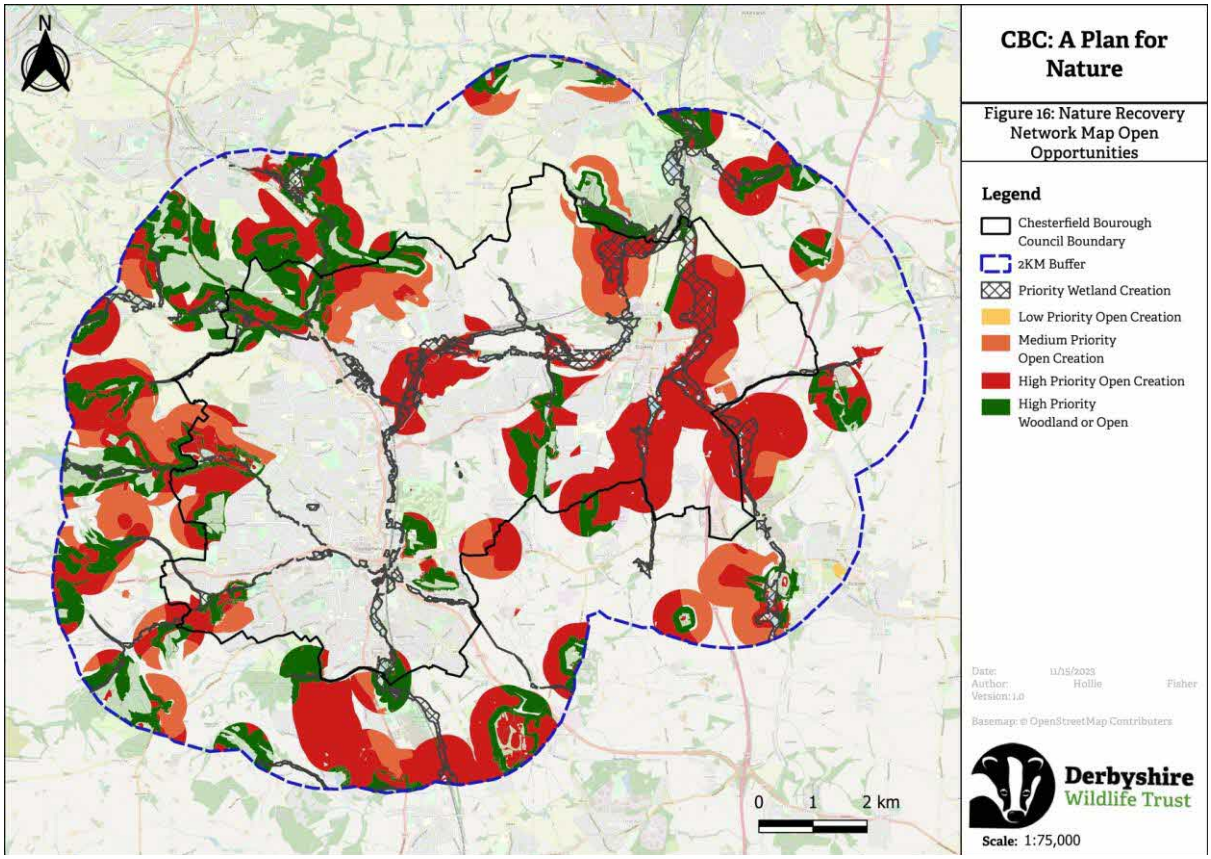
Maximising opportunities within small spaces of land that are regularly used by the public to create a feeling of increased access to nature including the hospital grounds, road verges, and green parcels within the town centre, moving Chesterfield towards being a greener, more sustainable town and prioritising community access to nature and wellbeing;

Create pollinator highways through the urban areas of the borough through pollinator friendly planters;

Reviewing management practices of parks and gardens; and,

Exploring opportunities around regenerative agriculture or environmentally friendly agriculture for the wider landscape.

See Figure 16 below for an overview of the priority areas. Where possible, land within these areas of high strategic significance should be restored for nature, with the council supporting and encouraging this work wherever possible, through planning policy, funding support, information exchange, increasing awareness and community action.


N
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CBC: A Plan for Nature
Figure 16: Nature Recovery Network Map Open Opportunities
Legend
Chesterfield Bourough Council Boundary
2KM Buffer
Priority Wetland Creation
Low Priority Open Creation
Medium Priority Open Creation
High Priority Open Creation
High Priority Woodland or Open
Date: 11/15/2023
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:75,000

6.2 Creation of a Woodland Nature Recovery Network

Small parcels around the outskirts of the borough are identified as high priority for increased tree cover, however large expanses of land are highlighted as low or medium priority for wooded habitat types.

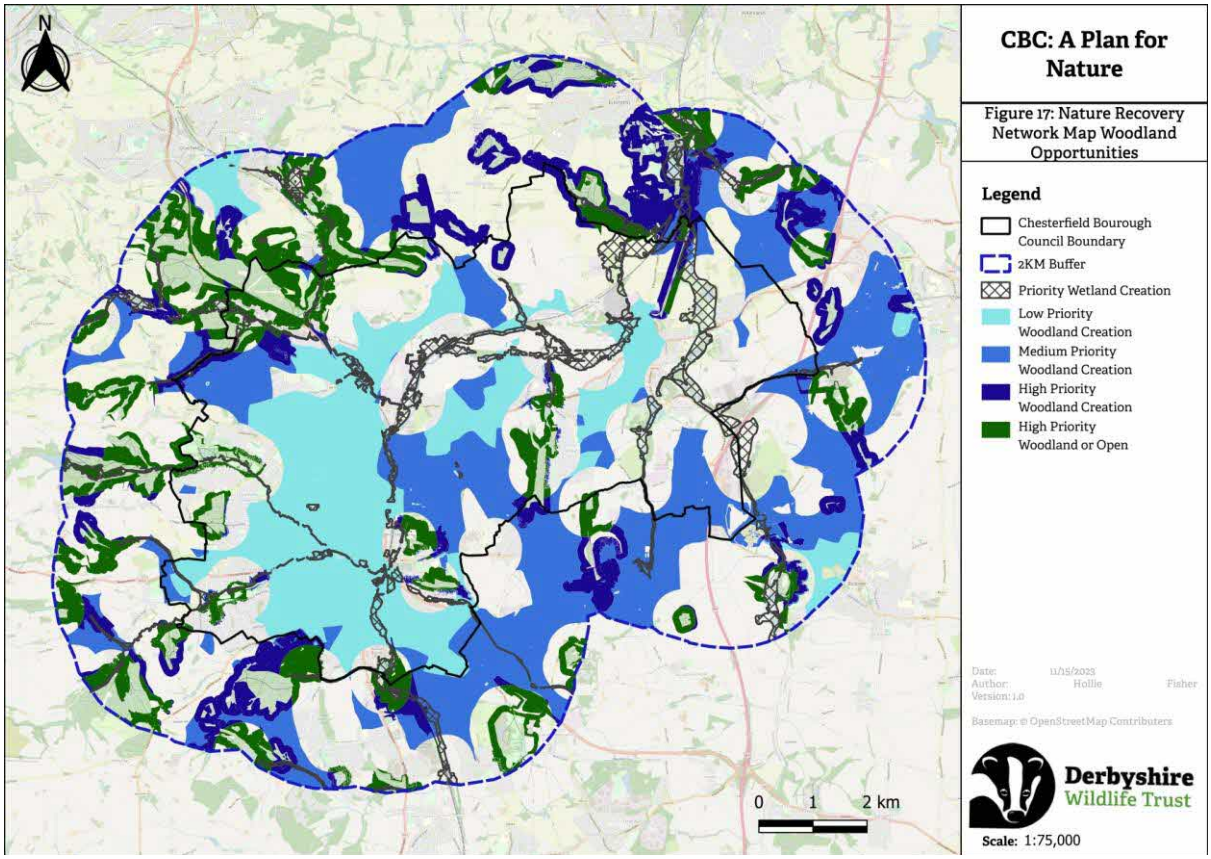
Areas of the highest priority include the land surrounding Great Central Line Linear Park, the fields adjacent to Whinnybank Wood which lies just north east of the borough, expanding Hopewell Wood above Barrow Hill, expanding Grasscroft Wood above New Whittington, surrounding the brook to the immediate east of Troughbrook Road in Hollingwood, surrounding West Wood by Inkersall Green, south of Spital Park, and land surrounding Sheepbridge Industrial Estate.

The increase of a wooded landscape does not necessarily mean extensive woodland cover, key areas of work should also include increasing cover and quality of hedgerows and tree lines, traditional orchards, creating open parkland and deciduous woodlands as well as scrub and scattered trees.

There are several key habitat types and actions that should be prioritised within the creation of woodland habitat corridors. These will be further explored in the below section however, key opportunities include:

Maintaining a focus on NFM, prioritising the creation of riparian and wet woodlands;
Creation of well maintainined community orchards;
Review and update management plans for council owned woodland;
Increasing the cover of urban and street trees within the built up areas of the borough, ensuring that appropriate, native species are used;
Seeking to improve hedgerow and tree line cover – both habitats provide excellent opportunities for wildlife if managed appropriately and take up relatively little space, meaning the greenspaces present can be maximised; and,
Increasing the cover of scattered trees within large expanses of open habitats to open up a route for woodland typical species to commute across.

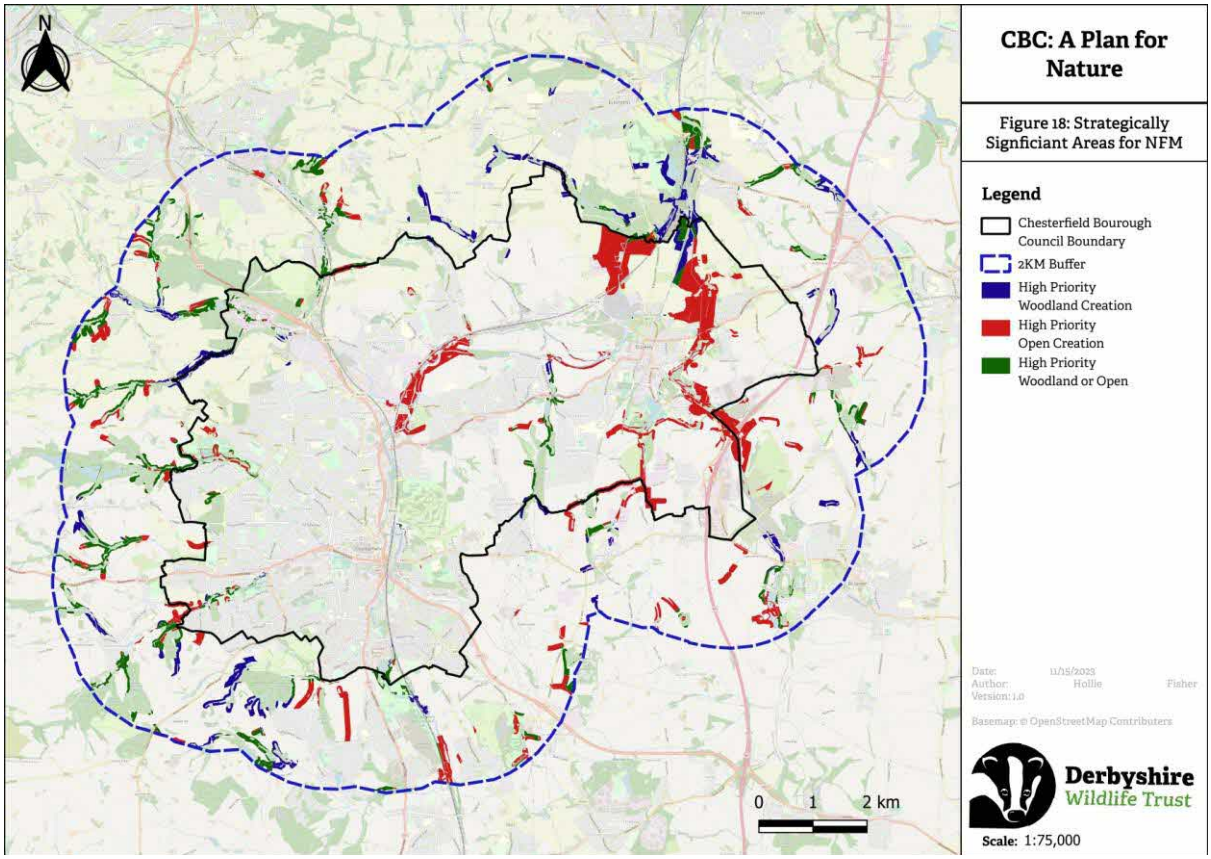
See Figure 17 below for overview of priority areas for woodland and tree cover creation and restoration.



In addition to the existing NRN created by DWT, the Environment Agency have created a map which identifies priority areas to create woodland and alleviate flood risk (Working with Natural Processes[6]). This map has been overlaid with DWT's NRN to identify the areas of the highest strategic significance for creating tree cover and other natural flood management (NFM) schemes to improve ecosystem services within the area, shown in Figure 18 below.

As climate change continues to cause increased occurrences of extreme weather, it is likely that flooding events will become more common; the damage caused by the flooding in Chesterfield and North East Derbyshire in Autumn of 2023 highlights how important it is to take proactive action to slow the flow and naturally manage flood risk. The map identifies Poolsbrook Country Park, Norrbriggs Flash, fields to the north east of Barrow Hill, Ringwood Lake, Chesterfield Canal and Bluebank Pools, Holmebrook Country Park and Somersall Park as priorities for action to reduce flood risk. Actions within these areas will aim to improve the quality of both the banks and the floodplain and include planting of riparian woodland, creation of wetland, as well as increasing surface roughness and restoring habitats, installing leaky dams and remaindering flowing waterbodies.

6 https://www.gov.uk/flood-and-coastal-erosion-risk-management-research-reports/working-with-natural-processes-to-reduce-flood-risk



6.3 Creation of a Wetland Nature Recovery Network

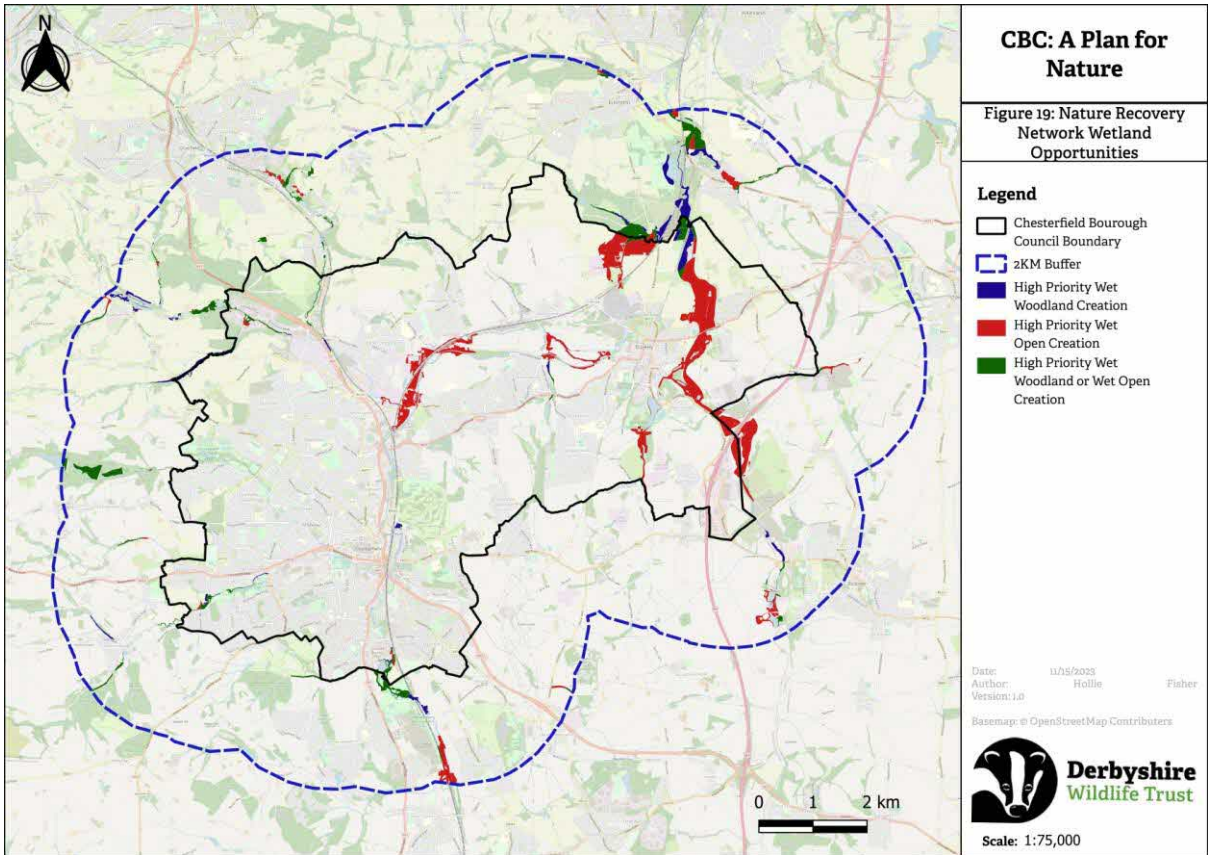
Figure 19 identifies areas of high strategic significance for wetland habitat creation and restoration. The layout of these sites is similar to the proposed priority areas for NFM covered in Figure 18 above.

Two key routes are identified within this map for the creation of a wetland NRN, as can be seen on the below map, key areas are along Chesterfield Canal with a particular focus on Bluebank Pools, and the length of the Doe Lea River, including the lands surrounding Norbriggs Flash. Additional smaller areas include Barlow Brook in Sheepbridge Industrial Estate, Mcgregors Pond, Sudd Brook along the borough boundary and the tributary of the River Hipper through to Somersall Park.

The existing wetland network in Chesterfield is currently lacking however, the council already own and successful manage a number of key wetland sites including a section of the canal, Brierley Park and Norbriggs, as well as several smaller riparian features.

There are several key habitat types and actions that should be prioritised within the creation of wetland habitat corridors. These will be further explored in the below section however, key opportunities include:

Regularly assessing the management and condition of existing wetland sites to ensure the existing network of sites in good condition as wetland species may be isolated in these individual areas due to a lack of connectivity;
Creating woodlands and tree lines along riparian features;
Expanding existing wetland sites and seeking to rewet and reconnect floodplains;
Increasing the distribution of standing waterbodies including ponds and scrapes, not only in the rural areas but also within the urban green spaces and residential landscapes.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CBC: A Plan for Nature
Figure 19: Nature Recovery Network Wetland Opportunities
Legend
Chesterfield Bourough Council Boundary
2KM Buffer
High Priority Wet Woodland Creation
High Priority Wet Open Creation
High Priority Wet Woodland or Wet Open Creation
Date: 11/15/2023
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:75,000

7 Strategic Biodiversity Opportunities for Habitat Creation and Enhancement

This section identifies expansion targets for key habitats and species for CBC, as has been previously identified within the preceding BAPs, giving updated goals and targets for the borough.

The first table provides a target for habitat creation or restoration for 2050. The long-term focus to ensure 30% of the borough is managed for wildlife is ambitious but achievable and in line with Government targets to manage 30% of land for nature. The designated sites currently in favourable condition make up 55.8ha, 0.85% of the borough in total, this combined with the known priority habitats which are assumed to be in favourable condition outside of the designated sites makes up 567.3ha, 8.6%. The figures covered in table 3 make up a total of 1350ha of land, thereby bringing the coverage of good quality spaces for nature up to the targeted 30%.

The table includes a column for ‘key targets’; for many of the habitats, particularly the more complex habitats, the council’s main involvement in driving creation and restoration will be through continued partnership with relevant organisations such as DWT and Natural England as well as improving communications with farmers and landowners through hosting and supporting knowledge shares and events. An additional measure in which the council can support directly in the creation and enhancement of these habitats is through improving landowner accessibility to surveying and advice through LWS funding, considering partially funding expert advice and surveys for non-designated land and providing financial incentives for people with designated LWS areas to maintain the site in favourable condition.

Habitat	Estimated existing coverage of valuable habitat	2050 Target for new creation or restoration	Key Targets
Wildflower-rich grassland	115ha	300ha	Identify and catalogue existing areas of acid, calcareous and neutral habitat, using this knowledge to inform management, improvement and creation plans for adjacent habitats. Repurpose existing areas of low distinctiveness amenity grassland into wildflower meadows containing appropriate species for the soil type Encourage wildflower-friendly management for public green spaces and gardens, including reduction in mowing frequency and limiting the use of pesticides/herbicides. Raise awareness of the ecological benefits of wildflower-rich grasslands. Implement wildflower-friendly management practices for road verges. If appropriate, facilitate conservation grazing in place of mechanical mowing practices
Lowland meadows		300ha	
Wet grassland		200ha	Improve management practices in existing habitats. Install signage to inform visitors of the ecological value of wet grassland, particularly regarding breeding birds.
Rivers and streams	8.5ha	50ha	Facilitate management of invasive non-native species- particularly himalayan balsam (*Impatiens glandulifera*) and mink (*Neovison vison*)- to protect and make space for native riparian species. Increase availability for professional survey and assessment through LWS work. Create wildlife ponds in residential areas. Launch a project to inspire the reinstating of garden ponds. Support and promote DWT Team Wilders ‘Pond in a Pot’.
Standing waters- lakes, ponds and canals		50ha	

			Encourage sympathetic management in sites where this is not already in place (e.g. fishing lakes). Raise public awareness and install informative signage emphasising the value of these habitats. Encourage members of the public to record and submit wildlife sightings. Improve management practices to increase habitat suitability for native fish, birds, white-clawed crayfish (*Austropotamobius pallipes*) and water voles (*Arvicola amphibius*).
Broad-leaved woodland	414ha	165ha	Raise awareness of the Woodland Carbon Code and the English Woodland Creation Offer as well as woodland maintenance grants for **restoration** and **creation**. In relevant areas signpost DWTs Nature Based Solutions Project. Increase landowner accessibility to ash dieback surveys through grants. Plant new woodlands on council managed land and survey / improve management of existing council woodlands.
Hedgerows	NA	100km	Launch a campaign to reinstate garden hedgerows. Create more hedgerows within the towns and villages to improve connectivity. Improve management of existing hedgerows.
Swamp, tall-herb fen and reedbeds	27.5ha	35ha	Encourage sympathetic management in places where these habitats are present but may be negatively impacted by existing management practices (e.g. fishing lakes).
Urban and post-industrial habitats	NA	50ha	Create wildflower planters and bee hotels to support pollinators. Raise awareness of the importance of making space for wildlife in urban environments. Install bat boxes, bird boxes, swift bricks and other wildlife shelters. Encourage developers to incorporate this into new buildings. Consider reducing lighting where appropriate to minimise disturbance to nocturnal species and save energy.

Gardens and allotments	NA	150ha	Launch campaigns to encourage wildlife-friendly gardening practices. This could include installing ponds, hibernacula & bee hotels, encouraging 'weed-friendly' gardening and reduction in mowing frequency, and highlighting the damage caused by pesticides/herbicides. Spread awareness of the importance of hedgehog-friendly gardens, especially regarding fencing and garden connectivity. Encourage people to observe and submit records of wildlife in their gardens.
Traditional orchards	NA	50ha	Create and appropriately manage traditional orchards within Public Open Spaces, in partnership with biodiversity groups and the community.

Table 3. Priority Habitat Expansion Targets for 2050

Table 4 provides an overview of key methods to expand the range of local priority species, as listed in the original BAP. This is intended to give an up-to-date assessment of range expansion methods and considerations for future projects and funding. Similar to the above, direct council involvement will be best placed through continued partnership with relevant stakeholders, raising awareness through communication and signposting landowners to relevant projects and prioritising habitat connectivity.

There are a range of additional species within the borough not covered within this report that are of high local value and are currently under threat or locally extinct, these species include but are not limited to; adder, common lizard, grass snake, slow worm, dingy skipper, brown long-eared bat, skylark and marsh tit. As with most native species, key methods to support the recovery and longevity of the populations is through the creation of connected wildlife corridors, improving the naturalness and plasticity of the landscape and creating larger, healthier wild spaces.

Species	Range Expansion Methods.
Otter	Increase formal survey efforts. Ensure underpasses are provided on new and (where possible) on existing roads to prevent accidental killings. Encourage buffer zones on farmland by fencing off stock from the river to prevent damage to the bank and reduce risk of run off.
Hedgehog	Connect urban and sub-urban areas via 'hedgehog highways' to increase population distribution. Encourage community science recordings submitting their records to the Derbyshire Biological Records Centre (DBRC).
Curlew	Increase surveying to establish where populations currently remain. Improve communications with farmers on appropriate time for cutting / managing fields and hedgerows. Establish field margins to allow grasses and broadleaves to set seed and carry birds through the winter. Create scrapes and wet grasslands within fields. Generalist predator control in selected areas to replicate top line predators regulating mesopredator populations. Wildlife Trusts joint Curlew Project – Curlew Recovery Partnership.
Lapwing	
Linnet	
Swift	Increase surveying effort. Encourage new development to include swift bricks to their plans where possible.
White Clawed Crayfish	Increase survey effort to establish where populations currently remain. No signal crayfish were recorded within this data search; however, a borough wide removal of signal crayfish should be undertaken if populations are found from survey effort. Creation of ark sites.

Table 4. Priority Species Range Expansion Targets for 2050

In addition to these species, it is recommended that the council pick two focus species to target their efforts and to raise awareness. This species will act as an umbrella species,

meaning that conservation efforts focused on this project will not only benefit the species in question but also a wide range of additional habitats and species groups. This report recommends water vole and the small heath butterfly as the primary species for consideration.

7.1 Water Vole

Water voles are a charismatic species, and many populations are under recorded due to their elusiveness. Chesterfield Borough is known to have a population of water vole, with records present over the last 20 years indicating a stable population, but there are a range of actions that the council can undertake to improve their population and protect them. Furthermore, water vole can act as an umbrella species for a range of species including otter, white clawed crayfish, aquatic invertebrates, dragonflies, fish and many bird species, meaning actions to improve habitat for water vole also enhance the overall condition of the river.

Chesterfield Borough Council own much of the canal within the district, so, direct action can be easily taken. In addition, the council can support other landowners by providing appropriate information, signposting for further help and incentives for landowners who take appropriate action.

Key actions include:

- Encourage local groups and the public to increase monitoring efforts with camera traps and submitting their records to DBRC.
- Increase formal survey effort to establish where populations currently remain of both water vole and mink.
- Catchment wide mink control.
- Create an advisory group for interested landowners to share knowledge.
- Ensure new developments have a focus on minimising and mitigating pollution and nutrient leeching.
- Create and appropriately manage terrestrial habitats adjacent to rivers including wet grassland, woodland and scrub to provide supporting niches for water vole populations.
- Encourage buffer zones on farmland by fencing off stock from the river to prevent damage to the bank and reduce risk of run off.
- Use water vole as a key species to promote and raise awareness of the issues facing water courses.
- Remeandering of modified channels and removal of weirs.

7.2 Small Heath Butterflies

Small heath butterflies, despite their name, are found using a variety of habitats such as grasslands including road verges, moorland, and woodland rides. The data search revealed a small population of this species restricted to the western and southern section of the borough and its surroundings, with records from 2006 to 2022 indicating a constant population. Habitat enhancements for small heaths also will enhance the overall condition of habitat for a range of pollinator and bird species.

Chesterfield Borough Council have the provision to enhance areas within the urban and suburban landscape in the public areas of Chesterfield, Hollingwood and Staveley and their surroundings. Furthermore, the council can support landowners by providing information and signposting for further help and incentives for landowners who take appropriate action.

Key actions include:

Encourage local groups and the public to increase monitoring efforts and submitting their records to DBRC.

Increase formal survey effort to establish where populations currently remain.

Create opportunities for small heath and other pollinators within the urban and suburban areas within the borough with methods such as;

- Creating planters within towns with a diverse species mix ensuring flowers are present throughout the year.
- Allowing public areas such as churchyards, cemeteries, parks, sports grounds to have a mix of wild flower areas along with the more managed areas.
- Enhance wildlife corridors such as canals, railway lines and footpaths to become more vegetated, with flowing species.

Ensure new developments have wilder areas within their plans that are valuable to small heaths and other pollinator species.

Use the small heath butterfly as a key species to promote and raise awareness of the issues facing pollinator species.

8 Strategic Biodiversity Opportunities for Habitat Creation and Enhancement

There are several key opportunities and methods for CBC to consider for the creation and restoration of the NRN detailed above. This includes BNG, the establishment of key habitat corridors within urban and residential areas, and partnership working with existing projects and initiatives to drive habitat creation.

Below details a series of proposed methods, interventions and projects that should be put forward for consideration by the council, concluding in a prioritised, proposed action plan in section 10. This section outlines a wide range of potential opportunities, ranging from generic interventions that would be beneficial for all councils, through to bespoke suggestions, specific for the landscape of Chesterfield.

8.1 Urban Landscape

Chesterfield borough is a largely urbanised landscape. As a result, much of the influence the council will have will be focused on the integration of green urban spaces and integration with the community. The importance of this is amplified by the poor socio-economic background found within many of Chesterfields communities, as well as the continued drive for further development.

8.1.1 Priority Spatial Areas for Restoration within the Urban areas of the Borough

From reviewing figures 15 – 19, it is apparent that the areas of high priority for creation and restoration primarily sit on the outskirts of the built up area, with the town forming a major barrier for species dispersal. The integration of pollinator routes and greenspaces across the town will not only lessen the impact of this barrier, but also create a more aesthetically pleasing location to live and work, as well as educating the community. The town centre itself is identified as low priority for the creation or enhancement of wooded habitats. Methods to achieve this within a built up setting include integration of street trees and community orchards, identifying and targeting areas of POS and disused land for tree planting, as well as the establishment and restoration of native, species rich hedgerows as opposed to fence lines. Focus must be paid to expanding and connecting existing wooded habitats as well as appropriate management of existing woodland, including regular reviews of current management strategies to ensure best practice and utilising current funding schemes such as the English Woodland Creation offer and MoreWoods.

Moreover, the riparian habitats that flow through the centre are identified as high priority habitats for restoration, including the River Rother, Holme Brook and Chesterfield Canal. The riparian habitats present already form excellent commuting opportunities for numerous species, however many of our flowing waterbodies are in extremely poor condition. Through focusing on improving the quality of these sites, ensuring to encapsulate their neighbouring habitats to widen the corridor, the habitats will not only benefit the movement of species, but also provide a myriad of ecosystem services, primarily natural flood management and nutrient mitigation.

Finaly, utilising spaces within the urban areas to create and enhance grasslands and floristic diversity is an accessible and impactful way to make the most out of spaces. Methods to achieve this are varied, many of which will be covered in more depth further in the document, including sympathetic management of verges, nature friendly raised beds and flower pots,

encouraging wildlife friendly gardens, and reviewing current management of existing greenspaces.

8.1.2 Green Infrastructure

Green infrastructure (GI) is an innovative way of bringing wild spaces into urban settings, increasing carbon sequestration, reducing flood risk, improving mental health, cooling urban areas, building economic growth by attracting businesses and investors, and providing ecological steppingstones. GI initiatives vary in scale and nature, including the incorporation of street trees and green roofs as well as larger GI corridors such as canals, rivers and parks. As a predominately urban space, integrating green infrastructure into the matrix of Chesterfield provides a major opportunity for the borough.

In addition to the subsections below, a primary goal should be to improve and solidify statutory guidance, this will be further detailed in the Planning and Policy section which will outline implementing the Wildlife Trust 'Homes for People and Wildlife' guidance documents into statutory guidelines. This should not only be considered in housing, but also taken into account within the expansion of industrial sites, as well as redevelopment of existing buildings and brownfield, ensuring that nature is considered at all stages of planning.

A number of key considerations for GI are listed in the subsections below, these are all strategies to be considered in both new developments and enhancing existing built structures. Through delivering good quality green infrastructure across Chesterfield, the natural capital value of the borough will also expand, with GI aligning well with the Biodiversity Net Gain framework (with Sustainable Urban Drainage, green walls and roofs and planters all accounting for BNG units), feeding into improved wellbeing and access to nature, as well as urban cooling. Moreover, with the primarily urban landscape that is found in Chesterfield, utilising small spaces and creating green sites within the built infrastructure will form a crucial aspect of the towns Nature Recovery Network when looked at in a more granular scale; a factor that should be taken into consideration within the Local Nature Recovery Strategy for the area. In short, the below items should be integrated into the town's planning and design, ensuring weighting is given to incorporating these items within development through the planning system. Natural England have released a Green Infrastructure Principle (2023) which provides further information on targets, policy and procedures, including a detailed description of the various benefits GI provide to a community.

8.1.2.1 Green Roofs and Living Walls

Green roofs and living walls can be used to reduce water runoff and lower temperatures, thereby reducing flood risk and the cost of air conditioning, simultaneously improving mental health and increasing property value. New developments should aim to incorporate these systems wherever possible, following the lead of larger cities such as Derby who, in partnership with DWT will roll out of their 'green bus shelters' on which the council will put living roofs on 45 new bus shelters, creating food sources for habitats and pollinating insects.

8.1.2.2 Sustainable Urban Drainage (SUDs)

Sustainable Urban Drainage (SuDS) features mimic natural drainage regimes, reducing flood risk and improving water quality, they are required as the hard, sealed surfaces of urban areas prevent water from soaking into the ground, leading to rapid runoff and eventual flooding from areas being overwhelmed by surface water.

Better design, regulation and monitoring of new SuDS will increase their overall impact; many features found within new estates are often barren depressions in the ground, with little aesthetic or functional value. However, when designed effectively, these can be nature rich reedbeds, integrating species rich grasslands and hedgerows into the small space to maximise biodiversity value. When coupled with a public footpath along the boundary, these sites can create high value green spaces for the residents.

8.1.2.3 Planters and Raised Beds

The town centre, plus many of the surrounding residential areas often have raised planters or hanging baskets scattered across the area. Typically, as is often the case within town planters, these are filled with ornamental plants, or occasionally mini wildlife projects are undertaken here however insufficient management and follow up often leave these spaces in poor condition. Changing the management of these to include a wide range of native, pollinator friendly plants can be a simple yet effective way of boosting resource availability within the urban areas, improving the aesthetic value, and educating residents. Moreover, these beds could be used to create herb planters, or mini community allotments, working with the local residents to create a space that works for everyone.

8.1.2.4 Better Use of Greenspace

Natural England's Good Quality Greenspace Guidelines[7] outline a national goal for all residents to be within 15 minutes walk of a 'good quality greenspace'. By better utilising the numerous parcels of land that the council both own and manage, integrating GI into the council's planning and policy, steps can be taken to achieve this. Further proposals in line with this goal are detailed in the sections below.

8.2 Planning and Policies

One of the primary goals of this document is to improve and solidify statutory guidance relating to biodiversity within the borough, ensuring that nature is accounted for at all stages of planning, from initial site allocation through to development design, implementation and monitoring; looking to integrate green infrastructure into all new developments, going above and beyond on BNG requirements and implementing the Wildlife Trust 'Homes for People and Wildlife' guidance documents into statutory guidelines.

BNG is likely to be a key aspect of habitat restoration in the UK over the coming years because of the Environment Act (2021). BNG is an approach to developments that aims to leave biodiversity in a better state through requiring an (at least) 10% uplift in biodiversity on development schemes in England requiring planning permission, when measured against the Government's prescribed metric. The 10% uplift can be achieved on-site, or off-site (or a combination), with the application of the prescribed metric making it more favourable to the developer to provide biodiversity uplift on-site, over off-site. The functioning of the metric ties in with 2010 "Lawton Principles" which sets out principles for enhancing strategic-scale nature recovery networks (for example across Boroughs and Districts) – Planning authorities should consider how locations for off-site BNG provision could most optimally enhance existing NRNs. In addition to the BNG process, more generally given national and local planning policies, developers must demonstrate that they've taken all reasonable steps to integrate

[7] https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Home.aspx

biodiversity into their site plans, through the mitigation hierarchy. All developments should first try to avoid, then mitigate or, as a last resort, compensate for biodiversity loss. The BNG process is to:

Quantify development impacts on biodiversity of the development site and ensure that (after application of the mitigation hierarchy) there is an (at least) 10% uplift of biodiversity score when compared with the original site; and,
Manage and maintain the biodiversity compensation for a period of thirty years.

As a scheme, BNG presents an opportunity for councils to offer high integrity solutions to demand for developments; presenting new sources of income which can be used to provide a range of additional ecosystem and cultural services.

8.2.1 Section 106 and Conservation Covenants

Local Planning Authorities will need to secure BNG for future developments through an appropriate legal framework, this may be either Section 106 of the Town and Country Planning Act (1990) or a Conservation Covenant under the Environment Act 2021.

Section 106 is a legal agreement between Local Authorities and developers which set out planning obligations to mitigate against the impact of unacceptable development impacts; they consist of financial contributions made prior to the development to benefit the local community and area. Potential payments set out within these obligations may include payments towards the creation or restoration of habitats, reserves and public open spaces and could be used by the council to secure financial contributions from developers for habitat creation.

8.2.2 Potential Development Site Allocation

By taking a proactive, pre-emptive approach within the planning system, Chesterfield are effectively following the mitigation hierarchy to first avoid and reduce impact, ahead of mitigation and enhancement. This can be achieved through a range of measures.

8.2.2.1 Review existing allocations

An initial step would be to review existing allocated sites within the Local Plan, undertaking a high level assessment of the baseline value of these sites, not only in relation to what habitats will be lost, but also in regards to where the site is currently located within the NRN. For example, should an existing allocated site be within the high priority corridor for creation or enhancement of grassland, despite the existing site quality being low; consider integrating this habitat throughout the development design, preventing the build from forming a major barrier.

Being a predominately urban borough, it is likely that current or future allocated sites will be on brownfield land. Brownfield sites are often high priority for re-development as they offer accessible land in urban areas, and are frequently favoured in national and local planning policy over greenfield sites, due to preventing urban sprawl. However, when brownfield sites have been disused for a number of years they often hold high biodiversity value. The lack of fertilisers and thin soils make them a haven for diverse plant communities, with the abundance of invertebrates, amphibians, reptiles, bird and mammals that is associated with these diverse habitats. Many brownfield sites are allocated in Local Plans, however, a shift in opinion and policy surrounding these sites would be beneficial to protect the habitats and their contribution to the wider biodiversity network. It is recommended that where brownfield sites have existing biodiversity interest, redevelopment should be carefully considered, if not avoided, this should be delivered through a review of existing allocated sites, delivered through ecological

assessments by suitably qualified professionals. The open mosaic habitats often found on brownfield sites is an extremely difficult habitat to manually create and so once lost, cannot be restored elsewhere; with the mandatory inclusion of BNG within planning, developing these areas will become increasingly difficult and expensive, meaning developments will be more financially sustainable when carried out on poorer quality habitats.

8.2.2.2 Formally Identify Priority Areas in Local Plan

Under existing DEFRA guidance, until the formal County Local Nature Recovery Strategy has been officially adopted, LPAs can seek to establish spatial multipliers within the BNG metric for their own areas. By utilising the NRN within this report and formally identifying the priority areas for the creation and restoration of open, wetland and woodland habitats within the council's planning policy, potential developments that fall into the high priority zones (as per the NRN map) would be required to set the strategic significance multiplier within their BNG metric to 1.15 when calculating baseline units. As a result, development sites in these areas would result in a higher baseline value, should they contain these habitats, thereby resulting in bigger and better offsetting to achieve the 10% net gain. Moreover, landowners seeking to establish habitat bank sites would be able to create more units on smaller parcels of land within these areas, thereby making habitat creation through BNG more profitable, and therefore more appealing. In summary, by identifying these areas within planning policy, it will both act as a disincentive for development to occur within these high priority areas (or encourage better offsetting and design), as well as acting as an incentive for habitat creation. This action could be further supported through the creation of a 'Wildbelt' designation, as is covered in further detail below.

Through delivering this, the LPA will be taking an active role in preventing major barriers being formed for species dispersal, a factor that will become increasingly important as climate change continues to restrict and change a species available climatic niche.

Moreover, the defined areas of existing core habitat networks, presented in Figures 4 and 10 allow the council to meet the guidance set out in the NPPF to 'identify, map and safeguard components of local wildlife-rich habitats'. By integrating these datasets together, the council can establish a strategy to protect existing sites, and connect them through the creation of strategically located wildlife corridors.

8.2.2.3 Wildbelt Designation

A Wildbelt designation is a new, non-statutory designation proposed by the Royal Society of Wildlife Trusts. This designation is suggested as a means to identify, and offer some level of protection to those sites that may currently be of poor ecological value, but high priority for connectivity. As outlined above, this designation could further support the intention to formally identify those high priority areas within the planning system. However, this designation has the potential to include a wider scope of sites than those covered within the 'high priority' areas identified through the NRN, as is covered within the referenced briefing document[8]. Within the briefing it is proposed that the designation includes an 'opting-in' option, where landowners can put forward parcels of land to receive this additional level of protection. For example, public areas of greenspace or parcels of land that are of local importance to the community

[8] https://www.wildlifetrusts.org/blog/sue-young/planning-changes-england-needs-wildbelt-protect-land-recovery

can be put forward as 'Wildbelt', levelling up greenspaces and helping to create a more resilient, dynamic landscape and reducing the threat of green deprivation.

8.2.2.4 Call for Sites

During the summer of 2022, Chesterfield Council opened a 'Call for Sites', providing sites to be put forward for natures recovery, instead of just new development. This submission included two main categories; 'Site Suggestions' proposed from the public of which the ownership is largely unknown, and 'Call for Sites Submissions' as put forward from developers, land agents and land owners, however most of these sites were primarily put forward for development, including nature recovery aspects only as a requirement for residential developments.

This initial call for site resulted in a total of 34 'Site Suggestions' for potential biodiversity sites as well as five 'Call for Sites Submissions', submitted for biodiversity, covering a total of 456ha. These sites were subject to an initial sifting, removing any areas covered by sports and recreation, existing designated sites, or recorded priority habitats, as well as removing any sites that overlapped with existing council owned land, another site, or falling below 0.5ha in size. Overlapping sites were merged where appropriate or boundaries edited. This resulted in a prioritised list of 13 sites, which include all five 'Call for Sites Submissions', as well as a further 8 'Site Suggestions'. These sites were then subject to a condition assessment aiming to identify which sites are of the highest suitability for BNG, to identify parcels of land that are currently of low ecological value but are strategically located to provide a range of ecosystem services, focused on connecting and expanding existing habitats and improve access to good quality greenspaces for the community. The methods used as part of this assessment are outlined in Appendix B. The outcomes from this condition assessment have been provided to the council to assist with the formal Call for Sites assessment process.

It is proposed that the highest scoring sites are subject to further, detailed scoping – identifying the ownership of those high priority 'Site Suggestions' and engaging with the landowner as an initial phase, as well as targeting the owners of the highest scoring 'Call for Sites Submissions' (Land South of Newbold Road and Land to the South of Bamford Road) and reviewing the suitability of establishing the sites as habitat banks as opposed to residential development, including a pre-emptive UKHAB and Condition Assessment survey carried out by a suitably qualified ecologist to scope opportunities.

The Call for Sites carried out in 2022, whilst effective, could be more strategic and impactful if redone in future years. It is suggested that in future, targeted call for sites are carried out, focusing on those areas proposed as 'Wildbelt' as outlined in the section above, targeting landowners with the aim of establishing habitat banks in the best area for nature's recovery. This action could also be reversed, with call for sites for development being targeted within the areas of lowest priority and lowest value, creating a pipeline of development that is already following the mitigation hierarchy to firstly avoid the negative impact. To achieve this successfully, the council would need to create strong, understandable and effective communication and advertisement around this, ensuring it reaches the correct people and the outcomes are understood.

8.2.3 Above and beyond the 10% Standard Target

It is recommended that the council lead by example by going above and beyond in BNG requirements for developers, implementing a minimum 20% uplift in units as opposed to 10%.

10% Net Gain provides a suitable enough buffer to ensure there is no net loss, accounting for errors or assumptions within the calculator, but by going above and beyond this, CBC set a precedent, joining other LPAs leading the way in this area including Maidstone in the South East. This ensures all developments are achieving real, notable benefits for nature, vastly reducing the threat development poses to wildlife. By implementing this change, it wouldl incentivise developments to be more ecologically conscious onsite due to the structure of the mitigation hierarchy and the flow of works.

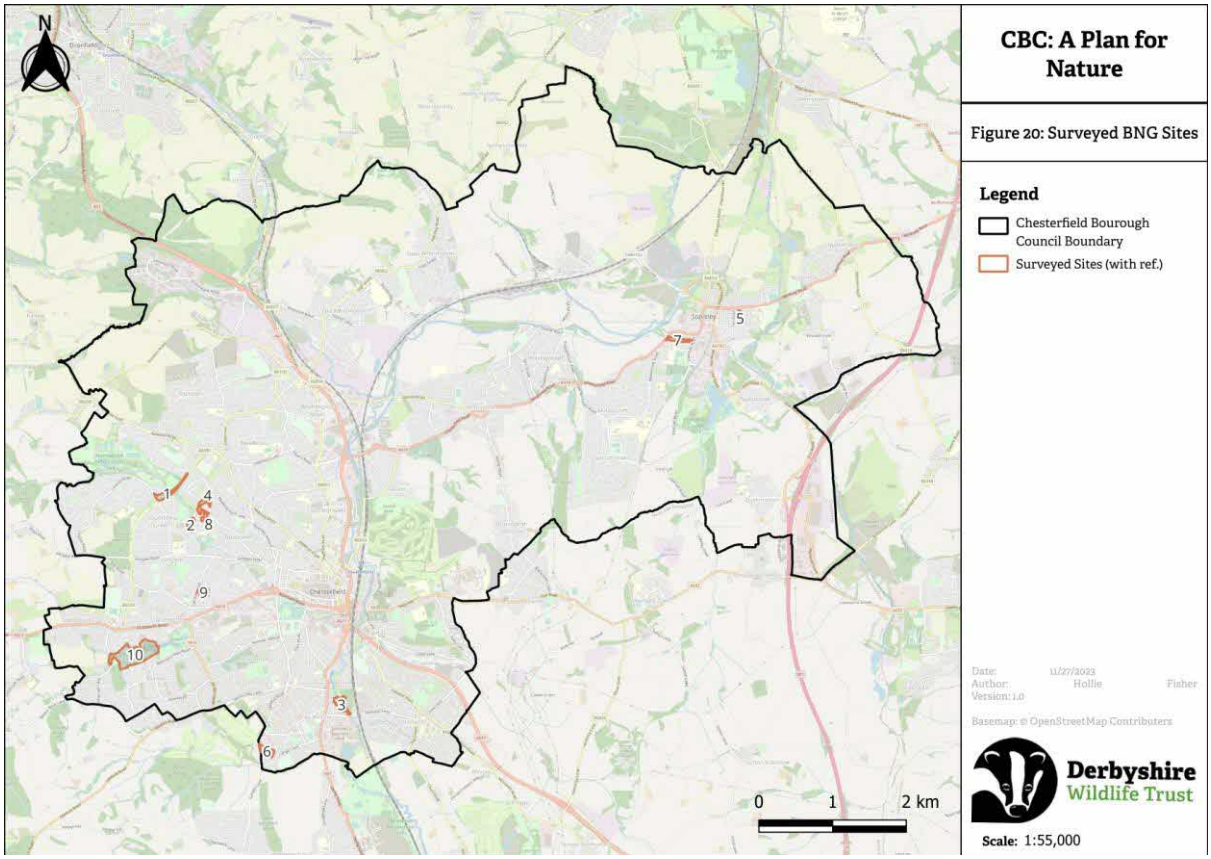
It is recommended that the council commit to a critical review for delivering above a 10% minimum net gain, identifying potential costs, benefits and opportunities associated, as well as outlining key steps required to achieve this. As an urban borough, Chesterfield sees a high influx of planning and new developments, putting the ecosystem under higher strain than may be found in other areas of the county.

8.2.4 Biodiversity Net Gain on Council Land

Land in public ownership submitted by CBC has been assessed for suitability for restoration and subsequently surveyed for its potential for BNG. The council own a wide variety of land including open green space, several designated wildlife sites, housing and amenities. The council carried out an initial sift of their landholdings, removing any sites deemed by the council as unsuitable. The remaining sites were then subject to a desktop condition assessment aiming to identify which sites are of the highest suitability for BNG, aiming to identify parcels of land that are currently of low ecological value but are strategically located to provide a range of ecosystem services, focused on connecting and expanding existing habitats and improve access to good quality greenspaces for the community. The methods used as part of this assessment are outlined in Appendix B.

This assessment identified a total of 19 high priority sites, as shown in *Appendix E - Desk Results of Potential BNG Sites*. Of the 19 priority sites, a total of 10 sites were surveyed for their BNG potential, based on preliminary scoring and an understanding of BNG requirements and the landscape as a whole. These sites are mapped and presented spatially in Appendix E.

The 10 sites surveyed are identified in Figure 20, an overview of recommendations are covered in Table 5, with full details provided in *Appendix F - Detailed BNG Assessments.* These recommendations and their associated scores are indicative and intend to outline which sites have the highest suitability to be taken forward for BNG and used to create a biodiversity bank. Where a site is selected for BNG, if the area is currently POS, the community must be involved in guiding the decision making around the design and implementation of the habitat creation. The BNG system is purposefully designed to prevent the loss of high-quality habitats and therefore, higher uplift is observed when creating or enhancing nonpriority habitats; in addition, offsets are delivered through a like for like basis, meaning that a lost habitat should be replaced by something similar or of high value. This means that when creating habitat banks, a larger area of the land will be used to offset habitats more likely to be lost through development, with open spaces and grasslands being one of the primary habitats impacted. Larger habitat banks can integrate more complex habitats within ‘safer’ habitat stands, whilst still receiving a net gain in units.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CBC: A Plan for Nature
Figure 20: Surveyed BNG Sites
Legend
Chesterfield Bourough Council Boundary
Surveyed Sites (with ref.)
Date: 11/27/2023
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:55,000

Map Ref.	Site Name	Size (ha)	Baseline Units	Potential Uplift Units	Suitability for BNG	Recommended Habitat Created	Additional Notes
1	Land off Loundsley Green Road (HolmeBrook Park)	2.09	12.92 Habitat Units	+7.64 Habitat Units	High. Baseline habitats relatively poor quality but grasslands contain indicators that grassland may be able to support higher diversity of species given changes in management.	Enhancing grasslands to good quality other neutral, planting some species suitable for wet ground to enhance this feature as well as a low level of scattered trees and scrub across the site.	
2	Holmebrook Valley Trail	1.10	5.06 Habitat Units	+1.15 Habitat Units	Low. The land suitable for uplift is relatively small, resulting in low unit uplift.	Expanding out the existing woodland across the modified grassland as well as improving condition of woodland, creating a mixture of scrub and mature tree cover.	River section not assessed under MORPH survey for BNG due to the size.
3	Rother Washlands South	2.29	8.58 Habitat Units	+6.05 Habitat Units	Moderate. The site is strategically located and habitat enhancement within this area would likely have positive impacts on natural flood management and the dominating habitat is currently low quality, allowing for good uplift. However, the site is heavily used by the public for recreation and so may have a negative social impact.	Removal of invasive species to improve condition of existing valuable habitats. Restoration of floodplain and increasing surface roughness across the modified grassland, aiming to incorporate a mixture of marshy grassland and expanding the existing wet woodland.	Community involvement in design and planning would need to be substantial and may need to retain some area as amenity.
4	Land off Pennine Way	1.48	6.75 Habitat Units	+6.32 Habitat Units	Moderate. The site is medium in size however, the woodland is unlikely to be able to be improved to good condition and therefore, all	The site had high levels of public use and so exploring the opportunity to create a publicly engaging site is recommended, for example aiming to create lowland	

					uplift in units would be from the grassland.	meadow with footpaths throughout, potentially including the creation of a wildlife pond to enhance the mixture of habitats.	
5	Land by Netherthorpe School	0.95	2.72 Habitat Units	+3.57 Habitat Units	Moderate. The site is relatively small however, baseline value is poor meaning reasonable potential for uplift. Being such an urban site, it may be a suitable location to create a community orchard, increasing access to fresh fruit for the community.	Enhancing mixed scrub through suitable management and creation of a community orchard which would include ecologically valuable grassland as well as fruit trees.	Community buy in must be high for community orchards to succeed.
6	Land off Moston Walk	1.44	3.76 Habitat Units	+6.57 Habitat Units	High. The existing habitats are poor quality and habitat creation on site would deliver the Lawton Principles of 'bigger' by expanding an existing habitat immediately adjacent. Clear communication and engagement would be needed by the surrounding residents, particularly due to several extending their gardens into the site boundary.	Expanding the neighbouring habitat of acidic grassland with scattered scrub would be of extremely high ecological benefit, creating an expansive area rich in floristic diversity.	The priority habitat of lowland, dry acid grassland is extremely hard to create and maintain and therefore, a target of other lowland acid grassland will likely be more viable. pH will need to be taken to assess viability. If not viable, lowland meadow is recommended instead.

7	Land off Barlow Road	1.21	5.72 Habitat Units	+5.83 Habitat Units	Low The site is relatively small however, uplift could be achieved through enhancing the existing habitats.	The grassland could be sown and managed to create a more diverse floristic mix, however significant uplift is unlikely.	
8	Land off Peak View Road	0.63	1.52 Habitat Units		NA. Whilst the existing habitats are poor quality, the size of the site is very small, meaning creating a substantial habitat bank on the site would be difficult.	Addition of scattered trees and widening the corridor of scrub, allowing it to develop into a treeline would be of ecological benefit.	
9	The Pearson	1.15	2.26 Habitat Units	+3.03 Habitat Units	High. The baseline habitats are very low, with huge scope for improvement. The site is relatively small however, the site is in a current state of disrepair and therefore, BNG may provide an opportunity to improve the site for the community in a way that is financially viable, despite uplift being low.	The site could be used to create a community space, with allotment plots, community orchards and good quality grasslands, providing engagement and access to nature.	
10	Somersall Park	11.3ha	57.34 Habitat Units	+37.47 Habitat Units	High. The site is large and has a mixture of very poor quality habitats, as well as valuable habitats in poor and moderate condition that could be uplifted. The size of the site presents a larger opportunity to create more intricate, varied habitats.	As the site has such high levels of public use and is a valuable open space, areas of the site will likely need to be retained as modified grassland and amenity space. Outside of this, the existing valuable habitats including the woodland, scrub and neutral grassland can be enhanced to good quality, varied sites, with mosaics and ecotones between them, removing invasive species,	As the site has high public usage, public consultation is a necessity ahead of finalising proposals.

						rewetting areas, improving species diversity and increasing niche availability. Aiming to move the existing neutral grassland to lowland meadows. A site supporting a mosaic of scattered scrub and tree clusters and diverse grasslands is proposed, creating a nature reserve within this urban environment.	

Table 5. Overview of CBC owned BNG Assessments

8.2.5 Design of New Developments

As well as utilising BNG (covered in the section above) and implementing green infrastructure such as green roofs and species rich grass verges, new developments can create wildlife friendly spaces in their landscaping through the implementation of native, appropriate species as opposed to ornamental plants. Broad measures to include within statutory guidance include for all new developments:

Provision of low-level, bat friendly lighting on all sites;

Above and beyond measures around landscaping such as native trees and scrub in all greenspaces, as well as pushing for the integration of more diverse greenspaces in residential areas such as allotments or wildlife gardens;

Gardens to include a mixture of native grasses and plants including fescues, bents, buttercups and clovers as opposed to dominance of perennial rye;

Create hedgehog tunnels throughout garden fences;

Wildlife rich SuDS features that provide additional services;

Use of renewable energy;

Wildlife permeable boundaries such as hedgerows as opposed to walls and fences between greenspaces;

Extensive footpath and cycle routes;

Inclusion of swift and bat bricks to provide nest spaces and roost locations; and,

An appropriate mix of bird and bat boxes in suitable locations.

Through setting a standard within the planning system of expectations within new developments in Chesterfield, the council will be actively involved in reducing the threat development has on nature, ensuring that new developments within the borough are diverse, permeable, forward thinking sites. Through integration of wildlife from the outset, Chesterfield will become populated with residential and industrial estates that not only support in nature's recovery, but also provide a range of ecosystem services, from improved wellbeing and access to nature through to effective natural flood management and carbon sequestration.

8.2.6 Additional Policies

At a minimum, it is proposed that the council carries out a review of the existing environmental policies it currently holds, seeking to contract an independent, qualified body to deliver a critical review of their contents. Through this, the council can ensure that their existing policies and procedures are appropriate, up to date, and of a high standard, routinely reviewing and updating these policies in line with national guidelines.

In addition, the following policies are proposed for the council to consider:

Peat Free Policy on all council owned and managed sites
Green Infrastructure Policy within planning – establishing standards within planning for minimum requirements of GI, including both space and quality
Green Energy Policy for new developments, setting ambitious local targets for renewables.

8.3 Provision of Additional Ecosystem Services

Ecosystem Services are the direct, and indirect contributions the ecosystem provides for people. These services are wide ranging and cover four main areas;

Provisioning: tangible goods such as renewable energy and food

Regulating: such as carbon storage, natural flood management, improved air and water quality

Cultural: ways in which nature positively impacts people's health and wellbeing such as recreation, knowledge and learning and tourism

Supporting: forming the basis of the other three key services which allows the ecosystem to function, including photosynthesis, nutrient cycling and healthy soils.

The below section will highlight further key opportunities relevant to Chesterfield to support in the provision of ecosystem services.

8.3.1 Access to Nature and Community Engagement

It is recognised that connecting people with nature has multiple benefits, contributing to positive mental and physical health whilst stimulating interest in the natural world leading to positive actions for wildlife (Jones 2023). Green deprivation, lack of engagement, access and awareness to nature are all further exacerbated in urban areas with poor socio-economic backgrounds; this, combined with proven links between poor social and economic inequality and mental health identifies the need for prioritising nature connectedness in these areas.

The borough of Chesterfield has been identified to contain a total of 6 neighbourhoods that fall within the 10% most deprived in England, with the borough as a whole being within the 10% most deprived local authority area for health and disability deprivation. Moreover, Chesterfield is above average for both the county and the region of East Midlands for the number of households without access to a vehicle, and the number of individuals with no qualifications, outlined within the State of the Borough, 2023 report.

DWT have worked closely with the council over recent months, carrying out several meetings and workshops with CBC's existing communities team to identify what actions are most needed. The below sections outline key recommended actions for the council to take forward in relation to providing increased access to nature, building on the existing work carried out by the team. This should be carried out in conjunction to the existing work being undertaken by the team, and does not undermine any proposals for smaller projects or partnerships proposed from the before mentioned workshop.

8.3.1.1 Community Organising

Community organising is a movement in social and community action, focused on allowing the community themselves to lead on the change they want to see, with community organisers such as councils or NGOs facilitating this change; listening, connecting with and motivating people. Community organisers encourage a bottom up approach to change, providing the groups they are working alongside with the tools to make the changes they want to see. It can be a different way of working for many organisations, requiring community workers to take a step back from driving their own agendas and instead, listening and collaborating with those they are trying to help.

It is proposed that CBC explore the possibility of upskilling staff in the power of community organising, supporting the further professional development of their existing team and taking steps to becoming an inclusive, collaborative council to incite effective change.

8.3.1.2 Sustainable Transport and Access

Data provided by CBC Community Team on their focus areas of highest deprivation revealed that these areas typically have significantly higher numbers of households with no access to a car or vehicle. As a result, families living in these areas risk becoming isolated and confined to their immediate surroundings, highlighting the requirement for alternative forms of transport. This may include public transport, however, other options could include considering a cycle scheme, increasing access to bikes. Not only will both of these actions improve transport links for these groups, it also supports sustainable transport, reducing emissions by lessening the number of people reliant on cars such as taxis or lifts from others.

Moreover, networks of public footpaths around these places can be improved and expanded, creating flat, inclusive walkways that link the residential areas into nature rich spaces such as LNRs and greenspaces. Creating mini nature trails within smaller greenspaces within residential areas, including interpretation boards will further this, allowing people to feel closer to nature and become more engaged without needing to travel.

8.3.1.3 Team Wilder

DWT currently support mobilisation of action groups through Team Wilder, a campaign to support local groups and individuals in acting for wildlife, including campaigning for *Grow Don't Mow* and creating new action groups. There are a number of ways in which the borough could utilise Team Wilder, including:

Supporting the establishment of new Biodiversity Groups, as well as creating and maintaining contact with existing groups, aiming to create an open line of communication and ensuring the communities thoughts and opinions are heard in what they feel to be important;

Regular workshops and events, the themes and focuses of which are influenced through online surveys, meaning the groups can get further support in areas they deem appropriate;

Utilise signage and interpretation panels available through Team Wilder to increase engagement;

Advertising for parish or borough wide *Grow Don't Mow* campaigns, as well as *Go Potty for Wildlife*, or other Team Wilder actions (https://www.derbyshirewildlifetrust.org.uk/map-your-action);

Monitoring biodiversity on key sites through citizen science, working alongside the records centre and the biodiversity groups to create clear, effective data collection methods;

Using existing toolkits and resources created by the team to share within the community and improve education and awareness;

Implementing bat and bird boxes, insect houses and wildlife ponds in public spaces; and,

Creating and supporting a campaign to implement hedgehog gaps in fences between gardens.

8.3.1.4 Biodiversity and Community Groups

Local biodiversity groups typically have a large amount of influence within the community, as they are made up of local landowners and residents and often hold strong personal links to

the wider community. These groups can deliver on the ground work, engaging with local landowners, taking over management of key sites and collecting important data. The creation and support of both existing and new local biodiversity groups should be prioritised, particularly to support the appropriate management of land within private ownership. It is imperative to involve the local community in what is happening within their own area with thorough consultation as local projects must have public support to ensure success and longevity.

Different communities and groups of differing socio-economic backgrounds require different approaches and it cannot be delivered through a one size fits all mentality, feeding into the recommendation for Community Organising training to be carried out within the council. At present, the coverage of biodiversity groups within the borough, as well as the council's relationship with existing groups are both limited. As a result, supporting the creation of new groups and seeking to build relationships with existing ones should be prioritised. Priority areas for the creation of community action groups is within the residential areas, aiming for each village or town to hold their own group as well as well as ensuring areas of existing high priority are either covered by these groups or have their own dedicated team.

There are several ways in which these groups can be further utilised in achieving nature's recovery, these include leading on the management of key sites such as public open spaces, local wildlife sites *etc*., increasing data collection capacity through recording species records and submitting these to the record centre, improving the accuracy of the nature recovery network map by ground truthing the results, delivering biodiversity days to engage the public as well as supporting in 'Team Wilder' events such as *grow don't mow, go potty for wildlife* and supporting the community in having a more nature friendly garden.

8.3.1.5 Wilder Education

The importance of introducing children to wildlife and allowing them space to be in nature is becoming increasingly recognised within the UK. As a result, there is a rise in the popularity of forest schools and outdoor classes. Wilder education can also extend further than this, such as youth groups, adult education and recreational activities such as foraging and bushcraft courses, volunteering opportunities and guided nature walks. Outdoor activities such as those outlined above are often associated with more rural surroundings however, Chesterfields predominately urban landscape does not mean that it is lacking in opportunities for outdoor education.

Where possible, provisions should be made available to support schools in establishing forest schools and outdoor learning, through funds, knowledge sharing, loaning of equipment and raising awareness. For schools to successfully deliver these, they need council buy in; through grants to kickstart projects, evaluating mowing regimes in areas managed by the council and access to advise and engagement opportunities, as well as signposting to existing support, such as through DWT and the work we currently carry out in wilder education.

A wider array of nature focused volunteering and recreational activities could be provided by CBC, including establishing volunteer work party days on greenspaces, carrying out tree planting, wildflower seeding, bug house creation or bioblitz activities. Not only would this support the council in improving the condition of greenspaces for wildlife, it would encourage public buy in and increase community engagement with wildlife. Through partnership with trusted providers, training courses and activities focused on green skills can be advertised within the district; using council owned land as the venue. This could include guided wildlife walks around the areas of higher ecological value such as Norbriggs Flash, simultaneously

providing opportunities for people to upskill in identification, engage with their local environment, and highlight the importance of urban greenspaces.

8.3.2 Natural Flood Management and Water Quality

Due to climate change and urban sprawl, flood risk is increasing, the impacts of which were felt within Chesterfield and its surrounding area during the Autumn of 2023, following severe flooding within the borough. Through targeting areas for NFM, taking proactive measures as well as reactive, the long-term risk of flooding can be reduced, providing numerous additional ecosystem services including increasing catchment resilience to climate change, increasing carbon sequestration and improving water quality. Numerous actions can be taken to reduce flood risk within the borough and restore wetland habitats, priority suggestions include:

Utilising figures 17, 18 and 19 to identify areas of highest priority for woodland creation and wetland restoration. Two of the areas identified to be the most strategic for wetland recovery include Poolsbrook County Park and Norbriggs Flash – both of which are currently owned and managed by the council. These two sites already both contain wetland features. For Poolsbrook it is recommended that a focused survey and assessment is carried out on the site with the aim of improving and enhancing the habitats within the red line boundary. For Norbriggs, the land currently designated as a LWS is already of high ecological value, including swamp, wet woodland and species rich grasslands. Here, it is proposed that the site is extended, assessing the suitability of the surrounding land to restore the floodplain. The land immediately surrounding the existing LWS is currently owned by a mixture of CBC and Derbyshire County Council and therefore this may be a viable approach.

Critical review of current management practices for council land that borders riparian habitats, including Somersall Park, Rother Valley Washlands and Breckland Woodlands and assess pollution risk and nutrient neutrality, including current use of chemicals, creation of vegetated buffer strips along the edges of waterbodies and assessing litter and waste in the area, creating focus volunteer days to remove pollutants.

Work with DCC, DWT and the other relevant bodies to restore Chesterfield Canal, the River Rother and River Whitting, all of which run through Chesterfield. Seeking to reconnect floodplains, create riparian woodlands as buffer planting, and increase surface roughness within grasslands.

Consider suitability for creation of leaky dams within riparian habitats in woodlands to slow the flow of water.

Increase cover of woody species and surface roughness through the creation of new woodland, scattered trees, hedgerows and tree lines, as well as moving away from heavily mown grassland towards areas with a greater sward diversity.

Increase public awareness of the impacts of flooding and the various ecosystem services that could benefit them through implementing NFM strategies through blogs, information boards, social media and fliers.

Riparian zones should be targeted for restoration to prevent and reduce pollution run off, improving the overall quality of the water. Key areas for focus to have the greatest impact include the River Whitting around Sheepbridge and the River Poulter in the area that surrounds the canal, as well as land surrounding Norrbriggs Flash, the area of the Doe Lea river around Poolsbrook, Walton and Somersall Park and Rother Valley Washlands.

8.3.3 Carbon Capture, Carbon Emissions and Air Quality

The majority of proposed actions within this document will actively improve the borough's ability to capture and store carbon emissions, through creating a healthier, more complex environment. Key priorities focused on the borough's emissions, storage capacity and overall air quality include:

Avenues of broadleaf trees along streets, particularly where buildings are present on both sides of the road;
Green roof / green walls;
Sustainable Urban Drainage;
Hedges or tree buffers along roads to provide barriers to traffic pollution;
Tree planting on the opposite side of a road to a building to disperse pollution rather than allowing it to build and concentrate;
Internal audit of the council's current emissions, enabling clear targets and measures to be set to achieve Carbon Net Zero.

8.3.4 Council Owned Land

The council either own or have influence over many land parcels, intervening on these sites and changing management is one of the simplest and most effective ways that the council can have direct and immediate impact on the landscape.

Where there are large parcels of land that are not suitable for BNG, *i.e.* the habitats present are already of moderate value; these sites should be systematically surveyed and provided with a long term management plan focused on creating a balance between the local community and wildlife; additionally, where management plans already exist, review the biodiversity value and alter to create diverse, visionary sites of high biodiversity and community value – ensuring that the management is in line with best practice. Any sites surveyed for this project that were not deemed to be suitable for BNG have been provided with guidance on alternative management practices that would benefit by being delivered through partnership with the community.

Additional measures for the council to take within their own practices include becoming a pesticide free borough, leading by example and stopping all use of chemicals both on their own land and on land under their management, as well as undertaking an audit of all departments within the council, identifying how the council themselves can be greener, including reducing unnecessary waste and carbon footprints.

It is proposed that the areas of council land which fall within the residential areas identified as high areas of deprivation are prioritised for interventions and management that will benefit the community. This includes creation of allotments, community orchards, or just improving the quality of habitats to increase access to nature. Suggestions for interventions across council land are listed below, where specific sites identified where suitable.

8.3.4.1 Community Allotments

Allotments provide an interesting and diverse habitat for many species, providing both late and early resources for pollinators, wildlife ponds and hedgehog routes as well as increasing community wellbeing. Where possible, consider disused land or amenity grassland for the creation of community allotments, encouraging the involvement of local groups and schools. An achievable aim is to ensure all residential areas have a community allotment, consider

using the NE Good Quality Greenspace targets of all residents living within a 15 minute walk of a good quality greenspace for the creation of community allotment sites, prioritising areas of poorer socio-economic backgrounds within the first five years.

As owners of allotments, the council could also have a responsibility to influence operations on these sites, such as implementing bans on chemicals, reviewing allotment rules on hedgerow maintenance, supporting in the implementation of wildlife ponds. Where allotments are present, consider maintaining one plot for the wider community, such as allowing the plot to be managed by a school, carrying out wellbeing activities on site and increasing education within the younger generation on sustainable food production, pollination and pollution.

Allotment plots do not have to be large portions of land, and similar interventions could be delivered through raised planters in parks, creating herb planters and wellbeing zones, maintained in collaboration with the community.

8.3.4.2 Community Orchards

Creation of community orchards would provide a myriad of benefits for both people and wildlife, creating excellent resources for pollinators, birds and small mammals, as well as creating fresh fruit resources for the public and a space for public access. Orchards do not need a lot of space, however they do require high levels of management and risk damage or destruction from anti-social behaviour. Community orchards are often of the highest benefit in areas of high deprivation however, face the highest risk of damage in these spaces.

To be of high value, the orchards should not only incorporate a range of fruiting and flowering tree species, but also a species rich ground flora, managed positively as a grassland. The trees must be maintained, and fruit harvested annually to keep the site in positive condition. It is proposed that initial orchards are established where the council has existing links with community groups and input in existing areas of poor condition, aiming to establish links with other communities, schools or groups to create new sites.

These would be best placed around Tapton, Brimington and Duckmanton which are all identified as priority areas for woodland cover and tree planting.

8.3.4.3 Woodlands

At present, the council own and manage a small number of woodland sites, including Westwood at Inkersall and Poolsbrook. Woodlands provide numerous benefits, not only for wildlife but also for the public. It is recommended that the current condition of these woodlands is assessed and an audit of the existing management practices carried out. If the woodlands are not currently in an existing management scheme or grant, the council can apply for funding to pay a qualified ecologist to complete a Woodland Management Plan Grant, which would allow the woodland to be eligible for funding to support in the long term management and maintenance.

It is recommended that the current management of these sites is considered, not only for their ecological benefit but also natural flood management and public access.

8.3.4.4 Recreational Facilities

Several of the land parcels owned or managed by the council have community and recreational value and significant changes to their management for nature conservation purposes is not feasible. However, where possible there may be small-scale actions that are

viable and should be prioritised, particularly around the edges of recreational sites which will mean that the areas can be functional for both the public and nature. Key methods include:

Reducing mowing regime where possible to a two-cut management approach (March and September), only retaining key areas as short, amenity grassland;
Plant unused field corners with native shrubs, trees and flowers;
Creation of microhabitats such as log piles and hibernacular; and,
Create hedges and tree lines as boundaries as opposed to fences and walls or change management of these existing habitats, including rotational cuts every two – three years (outside of nesting bird season) and ensuring buffer strips of vegetation of at least 2m.

8.3.4.5 Road Verges and Amenity Grasslands

Some road verges across Derbyshire have been formally recognised as being of high biodiversity value and through appropriate management there are likely to be many more that can be designated LWS status.

At present, CBC are currently considering a green verges initiative across the borough, carrying out a mixture of relaxed mowing and active enhancement, as well as retaining some areas as amenity. By carrying out these changes in management, the council can create wildlife corridors through the area, creating commuting routes for pollinators and small mammals as well as foraging for birds and other species. It is recommended that the areas targeted for initial change in management are those that have responded positively in the past to No Mow May schemes, and the areas of higher deprivation are those targeted for active enhancement. In addition, the council should aim to target sites which connect up existing LWS and LNR sites, creating mini nature recovery networks.

To ensure positive outcomes, interpretation panels and clear communication will be required, particularly in those areas which will receive relaxed mowing but no seeding, as these will in the first instances become rank grasslands and not wildflower verges. It is proposed that communication is shared on the importance of this habitat type for wildlife, as well as identifying the positive reasons why the council is carrying this out. Moreover, the sites could also include community involvement, such as carrying out bioblitz events with local school or youth groups to see how many pollinators are now using the sites compared to the amenity grasslands; considering hosting an event where local residents can receive native seeds for their own garden to further the pollinator routes.

Finally, active monitoring is recommended to form a solid evidence base of the impact of this work, identifying three sites for survey – one to be retained as amenity, one for relaxed mowing and one for enhancement, and carrying out baseline assessment of species richness and pollinator assemblage, as well as repeat surveys post intervention.

8.3.4.6 Industrial Estates and Hardstanding

Hardstanding areas can still be of benefit to wildlife, taking inspiration from the Team Wilder approach, and creating space for wildlife in all areas you can. Proposals for these areas include:

Green verge strategies
Encouraging the integration of bird and bat boxes on buildings
Reviewing the lighting to reduce impacts on bats
Pollinator friendly planters

Working with businesses using the industrial areas to raise awareness of things they could be doing to increase biodiversity, including engaging with DWT for support, or offering volunteer days to their staff and encouraging involvement in local biodiversity projects. Inspiration can be taken from companies such as Toyota who have established a 'green grid' around their site at Burnaston in partnership with DWT, creating pollinator highways within their factory grounds.

8.3.4.7 Parks and Gardens

There are several public parks and gardens within council ownership such as Somersall Park and Queens Park. Many of these sites are unlikely to be suitable for BNG and should therefore be subject to a full ecological survey by a suitably qualified ecologist and an updated management plan created. It is important that the sites are surveyed prior to a management plan being created as this will ensure that the right management is happening for the right habitats, preventing loss of existing quality habitats. Management plans will also need to take wider environmental considerations into account where they apply. These sites should take on a community focus, creating spaces for outdoor learning, nature tots, wilder wellbeing and recreation. Queens Park may suit being put forward as an initial priority, being central and with high foot traffic, as well as several existing habitats available on site already.

8.3.4.8 Residential Estates

The council has ownership over several residential areas including much of Boythorpe, Inkersall and Poolsbrook, There are many initiatives that could be trialled within these areas, several of which are covered within section 8.2 and include supporting Team Wilder initiatives and aiming to create a greener village. Key opportunities to include in this project are:

Pollinator friendly and native flowerpots and beds, taking inspiration from groups that have successfully implemented this into their own areas including Hartington Biodiversity Group;
Creating community ponds with interpretation boards, prioritising pond creation in school grounds and in public parks;
Offering initiatives for residents to access bird or bat boxes for their homes, wildflower seeds or wildlife gardening resources;
Green verges;
Increasing street trees and hedges; and,
Inspiring initiatives such as 'most nature friendly garden' within the communities.

8.3.4.9 Living Churchyards

Living Churchyards are based on the idea of using the existing greenspace of churchyards to create space for wildlife, adjusting the mowing regime and planting appropriate species to create habitats and niches. Largely, this can be carried out through supporting community action and engaging the local churches with biodiversity groups and projects such as 'Eco Church' which aims to connect churches with nature and award those that are delivering good work.

Staveley cemetery is owned by the council. The community associated with the church should be consulted, putting these sites forward as flagship 'Living Churchyards' aiming to be designated by Eco Church and designated as LWS by creating a nature friendly, inviting churchyard, acknowledging other churches in the area as examples of best practice.

Actions suitable for maintaining a balance between wildlife and churchyard include planting native shrubs and flowers around the boundaries, reducing hedgerow management, creating 'wild' areas, reducing mowing regimes, supporting the youth groups to create bug boxes, hedgehog homes, bird boxes *etc*., sowing wildflower seeds along footpaths and moving away from ornamental church yards to pollinator rich sites. Many churches are mown by the council regardless of ownership, therefore facilitating a meeting between the management teams and representatives of the church as well as individuals with ecological expertise to implement new methods of management is to be considered as a priority.

8.3.4.10 Footpaths and Walkways

Footpaths and their associate verges are often excellent means of connecting habitats and creating continuous corridors between areas. Some footpath verges and embankments within Derbyshire are already of high ecological value due to the quality of the hedgerows and grasslands that line them, identifying them as designated wildlife sites.

Where the management of these verges are under council influence, it is highly recommended that current management protocols are evaluated and changed where possible, aiming to survey and improve entire networks and identifying areas where hedgerow, tree and woodland strip planting would be appropriate as well as possible areas for either alteration of mowing or the inclusion of green hay or appropriate seeds may create species rich grasslands. Many of these areas have lost floristic diversity in recent years, being subject to trampling and inappropriate mowing, increasing nutrient enrichment of the grasslands and reducing suitability for specialist species. Further consultation may be needed with the county council on many of these areas, working collaboratively to make changes.

8.4 Additional Strategic Opportunities

8.4.1 Local Wildlife Sites

Local Wildlife Sites are extremely important in Derbyshire's network of habitats and sites. However, one of the major limiting factors of this is that landowners of LWS do not get support for maintaining their sites in good condition or improving them, nor is there negative consequences for landowners who damage or even destroy these important sites. A key recommendation moving forward would be for the council to not only increase their current understanding of existing condition of LWS and increase the number of designated sites through a rise in survey efforts, but to consider providing a grant or support for landowners to encourage appropriate management of these sites. Furthermore, the same should be considered for landowners or local groups who want to kickstart new habitats, with small scale grants for those landowners to establish wildflower grasslands, rent appropriate kit or pay for expert support and advice.

The Wildlife Trusts have put forward a suggestion for LPAs to create the designation of a 'WildBelt' as opposed to Green Belt[9]. A Wild Belt designation would aim to provide recognition and designation to areas of land that are important to the creation of an NRN but, would not currently quality for LWS designation by formally identifying these areas within planning and

[9] https://www.wildlifetrusts.org/blog/sue-young/planning-changes-england-needs-wildbelt-protect-land-recovery

policy. It is proposed that this designation is used to identify land shown as high priority for creation within the NRN that is not currently of high ecological value.

8.5 Funding and Support

In the UK we are currently at a turning point in terms of funding for habitat creation and restoration, with new schemes such as BNG and Environmental Land Management (ELMS) currently in trial and an expansion in other green finance initiatives, allowing ecological restoration to become a financially viable option for landowners. The below section provides an overview of green finance opportunities that may be suitable for the council, including an assessment of the suitability for BNG within council owned land.

8.5.1 Carbon Capture

The buying and selling of carbon credits is a government led initiative to increase woodland cover and peatland protection within the UK. This is led by the Woodland Carbon Code (WCC) and the Peatland Code (PC), which adhere to core global standards but are tailored to suit the UK's domestic legislation to ensure compliance with relevant UK regulation. Both the WCC and PC are voluntary markets aiming to market the financial value of ecosystem services provided by woodland and peatlands including carbon capture and flood alleviation and to financially support the creation and restoration of these habitats so they have the capacity to carry out these ecosystem services.

Both codes work by allowing private investors and companies to offset their carbon emissions by committing long term investment in the creation and restoration of these two diminishing habitats. It provides the investors with a guarantee of a certified, viable project, whilst creating a financial incentive for landowners to carry out the work.

WCC is an ideal opportunity for large and medium sized landowners looking to manage their land for nature, without a financial loss as it supports woodland creation on all land over 1ha in size. This scheme can be layered on top of the English Woodland Creation Offer which funds the creation and maintenance of woodlands for the first ten years, with WCC providing financial support over a longer timeframe.

8.5.2 English Woodland Creation Offer (EWCO)

EWCO is a new initiative to fund woodland creation and natural regeneration on land over 1ha. The scheme provides funding for capital items, ten years of maintenance payments, contribution towards actual cost of installing infrastructure and optional additional grants where the woodland will deliver public benefits such as flood management, up to a limit of £10,200 per hectare.

In addition, the scheme does not need to be for one solid ha of woodland, it can be for small parcels of woodland within one land holding that collectively make up to 1 ha, meaning this can be a good opportunity for farmers or landowners that need to use their land for production and may only have small sections available, allowing the creation of small corridors.

8.5.3 Woodland Management Grant

The Forestry Commission currently provide a £1500 grant to landowners of existing woodland – the grant is intended to pay for a consultant to provide a formal Woodland Management Plan. Once this plan is in place, the woodland is eligible for funding and support under Countryside Stewardship.

9 Potential Threats and Challenges

The UK's exit from the European Union has generated significant levels of change across a wide range of policy areas (agricultural subsidy, planning policy, wildlife-related legislation etc.) and significant uncertainty remains in terms of policy frameworks and economic consequences. As climate change leads to increased freak weather events and rising sea levels, it is possible that landlocked counties such as Derbyshire may experience greater pressures for development as people are displaced from coastal towns. This would increase the pressure on remaining wild spaces and reduce the capacity to create and expand new networks.

The mandatory requirement for 10% BNG in the Environment Act presents huge opportunities for natures recovery however, the system has several constraints and there may be challenges which should be taken into consideration when planning its implementation, these are outlined in Table 6.

Constraint or challenge	Potential Impact	Example
Assumptions and calculations within the metric combined with human error within surveying mean that 10% may not have actually been implemented.	Without LPAs going beyond the mandatory 10%, we will likely be seeing more no net loss as opposed to gain.	The metric and condition assessments involve several assumptions and can be broad brush within their application.
Increasing demand for land for habitat enhancement or creation.	Lack of available land. Costs and competition for land.	Realisation of potential financial incentives to BNG causing higher competition for land.
Limited requirements for long term monitoring mean sites may not be positively managed, particularly in on site offsetting.	Long term net loss in biodiversity in areas previously assumed to be positive.	There is currently no register for onsite net gain, small parcels of habitats added into edges of development risk being left after the initial few years post development.
Does not apply to Nationally Significant Infrastructure Projects.	Habitat loss	HS2 and other NSIPs continue to threaten habitats without measurable compensation.

Table 6. Potential Challenges to BNG

Moreover, as a densely populated borough, supporting numerous residential areas, including several areas of poor socio-economic status. As a result, there is a risk of potential conflict

over change in land use, with poor engagement or even backlash from the community. As a result, it is of the highest priority that residents and local groups are included throughout the process, particularly in situations where land use will be changed or interventions implemented. The best approach would be through Community Organising methods, listening to the needs and interests of the community using it, as well as focusing on clear, informative and engaging methods of communication; allowing residents to better understand the various benefits nature recovery will have on them.

10 Conclusion and Action Plan

CBC has the foundation to establish a borough that is diverse, sustainable and robust, delivering numerous ecosystem services focused around access to nature, flood risk, carbon capture and air quality. As a primarily urban borough, the council have the opportunity to focus on planning and development to firmly integrate green infrastructure into the framework of the future of the town, creating ambitious, forwarding thinking policies and interventions that will actively drive natures recovery. There are clear opportunities for the council to link nature to the socio-economic development of the borough as well, seeking additionality by integrating the community into planned works.

The habitat mapping and modelling discussed in the above sections display key locations that are strategically significant for the creation and enhancement of open, wetland and woodland habitats; creating and strengthening nature recovery networks. The mapping identifies a focus on increasing tree cover across the borough, as well as a drive for wetland creation and restoration, restoring floodplains and rewetting habitats as well as joining up the scattered network with higher quality grasslands, woodlands and hedgerows. The below sections outline a proposed vision for how the area will look by 2040 if the proposed actions are put into place, and a summary of priorities for the first 5 years.

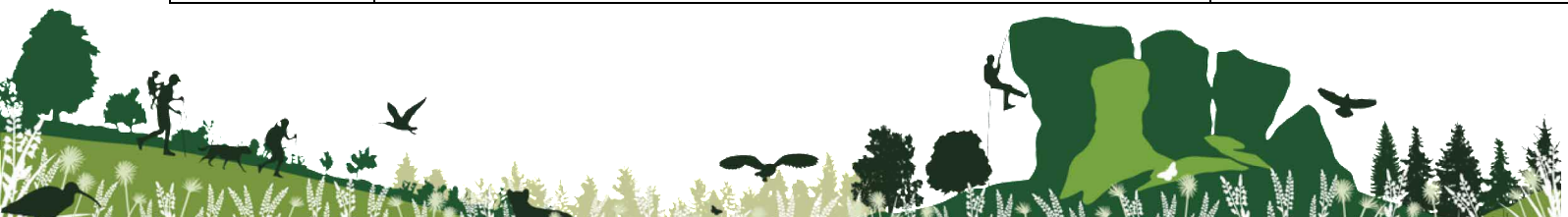
10.1 Vision for 2040

Chesterfield is now leading the way in Urban Rewilding in Derbyshire, where sustainable planning and dynamic forward thinking has led to a landscape where residents, industry and wildlife coexist. The greenspaces are alive with pollinators, and people feel connected to wildlife though an increase in access to nature. Natural flood management interventions are common across the borough, creating a more sustainable and resilient landscape that is beneficial to people and nature alike.

10.2 Proposed Action Plan

The above report covers a wide range of aspects, all of which will be beneficial to wildlife if delivered correctly, key priorities to be delivered or to begin implementation within the next five year are summarised below in table 7. It is proposed that the council review these actions and identify which best to take forward as an initial measure.

Focus Area	Proposed Actions	Threats or Challenges
Planning and Policy	Integration of ambitious and relevant new policies including: targets for green energy for new developments and green infrastructure, aligning with Natural England's Green Infrastructure Framework (Natural England, 2023); this should be partnered with a formal review of the boroughs current standing within the NE guidelines for all residents to be within 15 minutes walking distance of 'good quality greenspace'. Create a 'Wild Belt' designation for land that is identified as high priority within the NRN for connectivity but is not currently of ecological value, reducing the risk of further fragmentation of valuable habitats and formally identifying these areas within planning. Review existing allocated sites within the local plan and consider ecological impact / offsetting required, with a particular focus on Open Mosaic Habitats. Critical review and consideration of implementing a minimum 15 or 20% minimum net gain policy across the borough.	Additional constraints to development may lead to potential pushback from developers meaning that policy wording would need to be strong. Countering this would involve engaging LPAs where this is already in place and consultation with neighbouring councils to mobilise greater ambition across Derbyshire. There is often lack of understanding surrounding brownfield and greenfield sites, with many people feeling that brownfield sites are of no ecological value. Again, strong messaging and evidence would be needed around this, ensuring ecological assessment by qualified ecologists is used to support decision making.
Community Engagement	Community Organising training for inhouse team Review of accessibility within borough – connectivity and condition of footpaths, creation of mini nature trails, cycle schemes.	Ensure to avoid a 'one size fits all' mindset when engaging with different communities, possibly using facilitators or partnered workshops to reduce conflict.



and Wilder Wellbeing	Increase engagement with youth and school groups or improve accessibility to support and funding from other organisation.	Lack of effective communication and engagement will risk poor uptake in projects, reducing likelihood of success.
Designated Sites and Habitats	Focus on creation schemes that achieve additionality in regards to ecosystem services, particularly Natural Flood Management and access to nature. Creating funding schemes or projects to support LWS or pLWS owners, *i.e.* providing increased access to experts for support and advice on green finance opportunities and / or grants to kickstart habitat creation / restoration. Increase capacity for LWS surveying to allocate more sites and increase knowledge on current condition.	Effective communication and engagement with community impacted is a necessity. This is a relatively new approach so some risks and opportunities are unknown. DWT are developing a project focused on funding for LWS, with possible collaboration opportunities in future. Risks of lack of response and engagement from landowners.
Council Land	Maintain focus on access to nature by reviewing and setting target for all residents to be within 15min walk of good quality greenspace. Prioritise creation of spaces which have community and wildlife value such as community orchards and allotments. Pursue Green Verge initiative. Review existing management plans against best practise guidelines to assess if changes can be made to increase conservation value, aiming for a balance of accessibility, wellbeing and ecology. Ecological survey and bespoke, ambitious management plans for two flagship open spaces.	Existing equipment from traditional management may no longer be suitable and staff may need to be upskilled in certain areas. Lack of community engagement on land changes can generate complaints so residents must feel an ownership over their open spaces.

Table 7. Summary of Priorities

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Appendix A. Mapping Methodology

11.1 Baseline Habitat Maps

Existing habitat data sets (Table 1) were collated and reviewed using QGIS and Anaconda Python to form an aggregated habitat inventory. The inventory was created by merging all existing habitat data into a single digital file, using OS Master Map as a base and sorting datasets based on their reliability. For each land parcel, any overlapping layers that covered at least 40% of the parcel were compared using a dataset hierarchy, based on the general reliability and dataset age. See Table 1 below for overview of reliability, the lower the score the higher the relative reliability. The scores are an ordinal scale, currently spanning 0 – 11 as this covers the number of categories the present dataset is required to distinguish between. Any data identified as 0 does not classify that data as 100% reliable, it indicates it as the most reliable source of data within this set.

Data Source	Reliability Score
Ancient Woodland Inventory	11
Countryside Stewardship Options	9[1]
Environmental Stewardship Options	0[1]
Land Cover Map	10
National Forest Inventory	7
National Trust Phase 1 Data	2
DWT Phase 1 Data	8
Priority Habitat Index	5
Wood Pasture and Parkland Index	6
Traditional Orchard Inventory	3
Master Map	0[2]
LWS Habitat Data	1

Table 1. Reliability of Datasets Used in Creating a Baseline Habitat Layer

11.2 Habitat Distinctiveness

Habitat distinctiveness was mapped using QGIS, based on the final habitat layer, as described in the above section. Each of the three key ecological networks (open, woodland and wet) have important, core habitats that comprise the central part of the networks and are of the highest value to their associated species. These core habitats can act as a population source for species, from which further habitat creation and network expansion will allow these species to disperse across the landscape. See Table 2 for broad categories of core habitats for the three networks.

Network	Core Habitats
Open	BAP / Section 41 priority grassland and heathland habitats
Woodland	All ancient and semi-natural woodland
Wetland	All BAP priority and non-priority wetland habitats

Table 2. Identification of Core Habitats

11.3 Nature Recovery Network Modelling

The NRN map was created by using baseline and core habitat data files and assigning every habitat a permeability score for the three networks, *i.e.* an estimated cost of movement to a generic species; the higher the score, the less permeable the habitat is for the representative species. the habitats are scored on a scale of 1 (core habitat) to 50 (major barrier, impermeable habitat). See Table 3 for breakdown of permeability scores for each of the three networks.

Network	Permeability	Habitat description	Score
Open	Full	Core Habitat	1
	High	Semi-improved grasslands: high floristic richness, relatively unmodified with strong vertical structure.	1
	Medium	Semi-natural habitats: little modification with some vertical structure, lower floral species richness, narrow species rich strips, or open treed habitats	5
		Little modification but with limited vertical structure, wet conditions, or heavy shading	7
		Moderate modification, limited structure and limited floral species richness, heavy shading	10
	Low	Heavily modified habitats with very little structure	20
		Artificial and hostile habitats	50
Wood	Full	Core habitat	1
	High	Secondary woodland and woodland-like habitats: relatively unmodified with strong vertical structure.	1
	Medium	Unimproved semi-natural habitats: little modification or vertical structure	3
		Unimproved semi-natural habitats: little modification but with limited vertical structure	5
		Semi-improved habitats: moderate modification	10
	Low	Heavily modified habitats with very little structure	20
		Artificial and hostile habitats	50
Wet	Full	Core habitat	1
	High	Secondary woodland and woodland-like habitats: relatively unmodified with strong vertical structure.	1
	Medium	Unimproved semi-natural habitats: little modification, some vertical structure	5
		Unimproved semi-natural habitats: little modification but with limited vertical structure	7
		Semi-improved habitats: moderate modification	10
	Low	Heavily modified habitats with very little structure	20
		Artificial and hostile habitats	50

Table 3. Permeability Scores Assigned to Habitats for Ecological Networks

At this stage, further input datasets were required to identify key ecological and physical factors to create opportunities and constraints layers. This includes:

OS Terrain 50 (Digital Elevation Model);
Agricultural Land Classification;
EA Flood Zones (1-3);

Soil Drainage; and,
Heritage sites / Historical Environmental records.

The model included figures on the standard dispersal distances for species representative of open, wetland and woodland habitats. Using the original Forest Research methodology (Watts, *et al.,* 2010), the standard dispersal distance for each of these network types was set at 500m. This methodology is based on using generic focal species. A generic focal species is described in Eycott *et al*. (2007) as '*a conceptual species, whose profile consists of a set of ecological requirements reflecting the likely needs of real species …… should encompass the needs of most (but not all) real species that need to be considered in the landscape plan or evaluation*'. Further, the standard dispersal distances were then combined with an opportunity buffer around the core habitats. For the open and woodland networks, land within a certain distance of a core habitat was considered higher opportunity for expansion. For open networks this was set at 500m and woodland was set to 1000m.

The habitat data was ranked by its relative opportunity or constraint and was input into a python script alongside the above parameters. This created raster files of all available opportunity and constraint data for each network. Finally, these outputs were input into a final python script which added all opportunity rasters together, multiplying the result by each constraint raster in turn for all three networks. For the open and woodland network opportunity rasters, each is split into three categories, high, medium, and low opportunity for expansion, for the wetland network, the opportunity raster is split by threshold values to give high priority opportunities.

Appendix B. Criteria Assessment Methodology for CBC A Plan for Nature

11.4 Overview

The following criteria will be used to assess council's Land in Public Ownership and Call for Sites, provided by Chesterfield Borough Council (CBC). The criteria combines the assessment of the NRN modelling, undertaken by Derbyshire Wildlife Trust with opportunity mapping and other datasets, including additional opportunity mapping layers from external organisations. The aim of this assessment is to identify which sites are of the highest strategic significance for becoming bank sites for Biodiversity Net Gain (BNG), based on their current location in the landscape. This aims to use the RSWT Draft Principles for BNG to identify low quality sites that are in a strategic location for connectivity, shortlisting which sites are to be considered for a field based assessment.

11.5 A working methodology to identify key opportunities

11.5.1 Initial sift

An initial quality control sift of the shapefiles was undertaken. This included:

Deleting duplicate shapefiles to remove any unnecessary data; and,

Using QGIS data processing tool 'check validity' and subsequently fix any awry polygons.

Additionally, a search occurred to remove all sites that:

Are entirely covered by sports and recreation facilities (where these sites had potentially suitable space surrounding the margins of the amenity features, the sites were retained for consideration);

Are entirely covered by an existing designated site;

Are entirely covered by existing high-quality habitats *i.e.* woodland; and,

Where the entirety of the site is identified within the NRN core habitat network.

11.5.2 Criteria Weighting

Each criterion was scored between **No Impact** through to **Major Positive**, identified through numerical values of 0 to 3, see Table 1 and Table 2 for overview of the scoring system. The sites were then sorted based on score and those that received the highest scores were considered to be sites of the highest strategic significance for habitat creation. Those sites of the highest strategic significance were then assessed through professional judgement and consultation with CBC to identify which sites are to be subject to ground truthing and ecological assessment, including a BNG condition assessment to indicate suitability, as per the DEFRA guidelines.

The level of positive impact is split into three levels, minor, moderate and major, this phasing was done to reflect the suitability of an area for connectivity, therefore identifying areas of the highest strategic significance. For example, using the Lawton Principles of Bigger, Better and More Joined Up, we know that creating new habitat that is directly adjacent to an existing site will have the highest ecological impact. Creating standalone sites that are not immediately connected to one another are still ecologically valuable as steppingstone sites, however, due to dispersal distances of species, the likelihood of species being able to travel between sites decreases as the distance increases, reducing the level of positive impact had. Thereby meaning, more weight is provided to those sites that play a strategic part in the creation of a local NRN, including those in close proximity to priority habitats and core sites.

Weighting	Description
0	No Impact
1	Minor Positive Impact
2	Moderate Positive Impact
3	Major Positive Impact

Table 1. Overview of Weighting System

One of the criteria each site is assessed against is Derbyshire Wildlife Trust's NRN modelling. This dataset integrates the assessment of a broad range of environmental and ecological criteria including drainage opportunities, soil type, topography and existing core networks to identify areas of high, medium and low priority for habitat creation. For more information on the NRN modelling and assessment please refer to Appendix A.

As well as scoring based on location, the assessment also provides an indication of whether a specific core habitat type (woodland, wetland or open) is strategically significant. For example, sites that fall into the Environment Agency Working With Natural Processes to Reduce Flood Risk (WWNP) dataset are identified as priority areas for Natural Flood Management, such as woodland and wetland creation and restoration of floodplains.

The sites of the highest strategic significance for BNG are those that are both of low ecological value in their current condition and contribute towards the creation of an NRN due to close proximity to existing sites, meaning that their overall net gain in biodiversity will be high.

Table 2 outlines the criteria used to assess the sites. This table is split into three key sections: weighting on if the sites intersect with key datasets, weighting based on the relative distance between the sites and specific data and criteria based on the size of the site. The section based on intersecting data is focused on existing Opportunity maps including DWT's NRN, Natural England's Habitat Network map and Environment Agency WWNP map, these are not assessed based on distance as they have already been subject to internal assessment and are therefore identified by overlap. This allows the sites to receive a maximum score of 30, if it meets all criteria.

Additional weighting was also given to sites which fell into priority target zones for the council.

Criteria		Weighting		Notes
Layer	**Specific Attribute**	**Numerical**	**Specific Habitat**	
Touch / Overlap				
NRN Opportunity Map (open and woodland layer)	Low Priority	1	Woodland and open	The NRN layer identifies priority creation areas for the two broad habitats of woodland and open.
	Medium Priority	2		
	High Priority	3		
NRN Opportunity Map Wetland Layer	Covered by the Wet Network Threshold layer	3	Wetland / wet woodlands	Layer to be used in conjunction with open and woodland layer.
	Not covered by the Wet Network Threshold Layer	0		
Natural England Habitat Network Map	Fragmentation Action Zone	3		
	Network Enhancement Zone 1	3		
	Network Enhancement Zone 2	2		
	Network Expansion Zone	2		
Flood Risk 2 & Flood Risk 3	Does not intersect with either flood zone	0	Woodland / wet woodland and wetland creation.	Increasing surface roughness and tree planting will serve as natural flood management.
	Intersects with flood zone 2	2		
	Intersects with flood zone 3	3		
Risk of flooding from surface water	High (1 in 30)	3	Woodland / wet woodland and wetland creation.	Increasing surface roughness and tree planting will serve as natural flood management.
	Medium (1 in 100)	2		
	Low and very low (1 in 1000 and below)	1		
Environment Agency WWNP dataset	Intersects Riparian Woodland potential	3	Tree Planting	Increasing surface roughness and tree planting will serve as natural flood management. WWNP dataset designed to use natural processes to reduce flood risk and improve water quality.
	Intersects Wider Catchment Woodland Potential	3		
	Intersects Floodplain Woodland potential	3		
	Intersects Floodplain Reconnection potential	3	Wetland	
Distance				

Statutory and Non-Statutory Designated Sites	Intersects/touches or is within 50m	3	Expansion of existing network if possible	Bigger, Better and More Joined Up.
	50-250m	2		
	250-500m	1		
	>500m	0		
Priority Habitats	Intersects/touches or is within 50m	3	Expansion of existing network if possible	Bigger, Better and More Joined Up.
	50-250m	2		
	250-500m	1		
	>500m	0		
Ancient Woodland Inventory	Intersects/touches or is within 50m	3	Woodland	Bigger, Better and More Joined Up.
	50-250m	2		
	250-500m	1		
	>500m	0		
Site Size				
Site Size (ha)	<1ha	1		Larger sites will have a greater impact and will provide more habitats
	1-5ha	2		
	>5ha	3		

Appendix C. National Character Areas

NCA	Overview	Environmental Opportunities			
Derbyshire Peak Fringe and Lower Derwent	The Derbyshire Peak Fringe and Lower Derwent is a picturesque transitional area between the natural beauty of the Peak District National Park to the west and the largely urban, formerly mined Derbyshire Coal Measures to the east. Often referred to as the Gateway to the Peaks, this area is underlain mostly by the Carboniferous geology of the eastern Coal Measures and by Millstone Grit (sandstones) in the west – through which the rivers at the heart of this NCA have cut their valleys. The area is rich in semi-natural habitats, intimate and dramatic landscapes, views and vistas. The transition between uplands and lowlands provides pathways for species to migrate in response to a changing climate. Ogston Reservoir, originally created to compensate for low water levels in the rivers, is of major importance for avifauna – and for passage migrants in particular. Cromford Canal, originally built as a transport route for the mills, is also now of importance for its aquatic flora. Small areas of the neighbouring Peak District's Special Areas of Conservation and Special Protection Areas extend into this NCA. Biological and geological Sites of Special Scientific Interest, as well as local sites for nature conservation and geology, are also found within this NCA.	Protect and manage the adaptive capacity of this transitional National Character Area, and its geodiversity and biodiversity value. Manage and increase the broadleaved native woodland resource for multiple benefits including biodiversity, atmospheric carbon regulation, soil erosion, controlling water run-off and contributing to coherent habitat networks, while protecting intrinsic landscape character.	Protect, manage, and plan for change to the area's distinctive historic environment, including as a framework for sustainable development – also for the contribution that the Derwent Valley Mills World Heritage Site makes to the local economy, for sustainable energy production and for climate change mitigation	Manage the National Character Area's recreational assets for multi-functional and accessible opportunities for outdoor enjoyment, sustainably serving local and sub-regional demand, and thus helping to manage wider visitor pressures on sensitive areas of the Peak District National Park.	Protect and enhance the rivers Derwent, Amber and Ecclesbourne (and their flood plains) – as well as the National Character Area's reservoirs and more minor watercourses – for their role in providing a water supply and regulating water flow, and for their biodiversity, landscape, and recreational value.

NCA	Overview	Environmental Opportunities			
Yorkshire Southern Pennine Fringe	The Yorkshire Southern Pennine Fringe is a transitional landscape from the upland areas of the Southern Pennines NCA in the west through to the low-lying land of the Nottinghamshire, Derbyshire and Yorkshire Coalfield NCA to the east. The most striking aspect of the landscape is the mingling of predominantly 'gritstone' industrial towns and villages with the strong valley forms and pastoral agriculture of the Pennine foothills. The gritstone industrial buildings and settlements bring a sense of visual unity to the landscape. The landscape is dominated by industrial buildings and structures such as factories, chimneys, railways and canals. The NCA is characterised by steep slopes that are cut through by narrow rivers, notably the Don, the Calder, the Hebble Brook and the Colne in the north and the Sheaf, the Rivelin and the Loxley in the south near Sheffield, which open up into valleys on lower land. The river corridors provide links through the NCA from the uplands into the towns and cities in the valleys, supplying not only water for the large population in these areas but also opportunities for people to access and enjoy the natural environment and for species movement through the landscape.	Protect and manage the rich industrial heritage – including historical settlement patterns and local vernacular styles, as well as the industrial and municipal buildings that were built with wealth when the industry thrived, such as the World Heritage Site at Saltaire – which links the history of the area to the landscape features, to enhance sense of place and history and inspire local communities through increased access and recreation opportunities.	Manage flood plains and wetland habitats to regulate water flow and availability, and to enhance water quality and biodiversity. Increase the river and riparian habitat networks, for example along the Calder, the Don and the Colne in the north and along the Sheaf, the Rivelin and the Loxley in the south, and ensure good linkages with the networks of woodland and semi-natural habitats for the species they support and to improve the resilience of these habitats to climate change.	Protect the distinctive landscape character with its contrasts between open pastures on hill tops, woodland on valley sides and the settlements nestled in the valley bottoms. Manage the arable and pastoral farmland and the areas of woodland to improve their contribution to biodiversity, food provision and landscape character, to improve soil and water quality, and reduce soil erosion.	Plan to optimise opportunities for access to the natural environment for the large urban populations in the area, making the most of key landscape features to redefine sense of place in the changing landscape and encouraging implementation of well-designed and managed green infrastructure, sustainable urban drainage systems and good use of planting to screen urban edges.
Nottinghamshire, Derbyshire and Yorkshire Coalfield	The Nottinghamshire, Derbyshire and Yorkshire Coalfield is an area that has seen great change over the past few centuries. The impact of widespread industrialisation and development on the landscape and settlement pattern within the NCA is clear,	Restore and enhance existing areas and create new landscapes through the inclusion of woodland and networks of green infrastructure to raise the	Protect and manage the archaeological and historical environment to safeguard a strong sense of cultural identity and heritage, particularly	Conserve, enhance and expand areas and corridors of semi-natural habitat such as grasslands and woodlands to create a functioning ecological network that links	Manage, enhance and extend wetland habitats associated with the rivers Aire, Calder, Dearne, Don, Rother and Erewash and their tributaries to increase

NCA	Overview	Environmental Opportunities			
	influencing the visual and ecological landscape. Over half of the NCA (64 per cent) is currently designated as greenbelt land; this maintains some distinction between settlements and represents areas that are often under pressure for development and changes in land use. Very little of the NCA is designated for geology or nature conservation, but instead the landscape is dotted with many pockets and patches of habitat where species find refuge.	overall quality of design and location of new developments. Regeneration and restoration of industrial sites should seek to create green infrastructure that links fragments of the natural environment, leading to a functioning network for wildlife and access and recreational amenities for people	mining heritage, and use the area's distinctive sense of place to inspire interpretation and new development. Engage local communities with their past by enhancing the early, industrial and mining landscapes through restoration of key features of sites and improving access and interpretation.	the fragmented patches of habitats through urban and sustainably farmed environments, thus assisting species and habitat adaptation to climate change, reducing soil erosion and diffuse pollution.	the landscape's ability to naturally and sustainably manage flooding, improve water quality, and increase the resilience of these habitats, the riverine landscape and associated species to climate change.

[redacted]

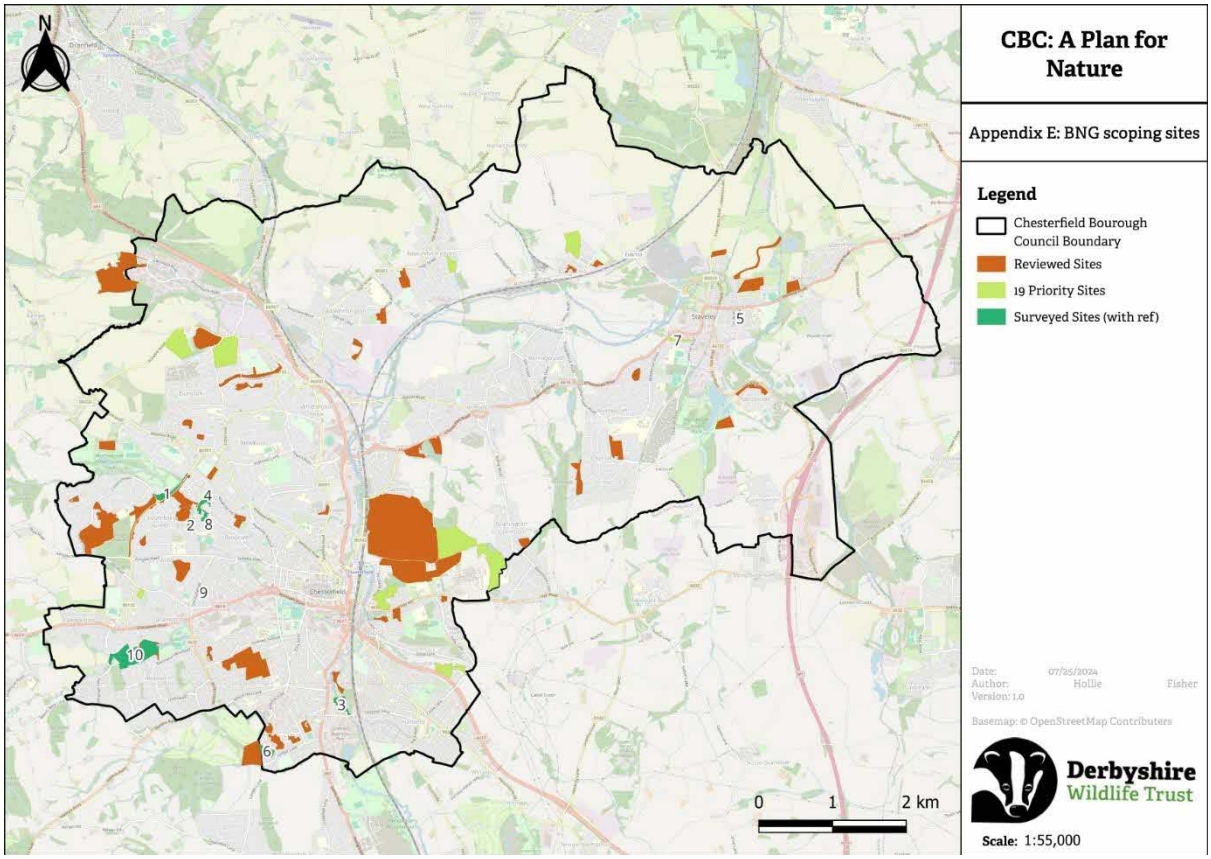
Appendix E. Desk Results of Potential BNG Sites

The scores in this table are taken from the criteria listed with Table 2. in Appendix B. The maximum a site could score is 30. (Those in green are those chosen for site based assessments). These are presented spatially in a map below.

Site Name	Score	Surveyed
Land off Bowness Road	3	
Land by Stagecoach Depot	5	
Land off Hady Lane	5	
The Pearson	5	Y
Land by Newbold Working Men's Club	5	
Land by Keilder Wood	5	
Land off Peak View Road	6	Y
Inkerman Playing Fields	6	
Middlecroft Green (Circular Road)	6	
Boythorpe Cemetery and Park	6	
Land off Kendal Road	6	
Land off Newbold Back Lane	6	
Brimington Crematorium East	6	
land at end of Wingerworth Way	7	
Barrow Hill Playing Field	7	
Barrow Hill Central (By Barrow Hill Memorial Hall)	7	
Mendip Crescent Green	7	
Land off Harehill Road	7	
Spital Cemetery	7	
Land North of Barrow Hill	7	
Playing Field off Newbold Back Lane	8	

Land off Barlow Road	8	Y
Inkersall Green	8	
Land off Wetlands Lane	9	
Land off Old Road	9	
land off Moston Walk	9	Y
Land by Netherthorpe School	9	Y
Coniston Road West	9	
Brushfield Park	9	
langer Field	9	
Land off Pennine Way	10	Y
Land East of Wingerworth Way	10	
Loundsley Green Park	10	
Rother Washlands North	10	
Land along Loundsley Green Road	11	
Coniston Road East	11	
land off Albert Road	11	
Brimington Crematorium West	11	
Land off Newbridge Lane	12	
Hady Hill Farm	12	
Land East of Chesterfield Royal Hospital	12	
Land at junction of Dunston Road & Dunston lane	13	
Spital Park	13	
Tapton Park Golf Club South	13	
Tapton Park Golf Club North	13	
Rother Washlands South	13	Y

Brearly Park	13	
Land off Heathcote Drive	14	
Brimmington Common	14	
Holmebrook Valley Trail	14	Y
Land off Eckington Road	14	
Land near Holme Hall School	14	
Land East of Dunston Hall Garden Center	15	
Holmebrook Valley Park	15	
Land West of Dunston Hall Garden Center	16	
Somersall Park North	18	
Land by Poolsbrook Country Park	18	
Inkersall Community Fields	18	
Poolsbrook	19	
Land off Linacre Road	19	
Land off Burnbridge Road	20	
Field Margin by Norbrigg Flash	21	
Land west of rushen mount	21	
Land off Loundsley Green Road (Holme Brook Park)	22	Y
Somersall Park	24	Y
Land off Bent Lane	25	
Norbriggs	26	
Rocecarr Woodland	28	



Appendix E. BNG Assessed Sites

Appendix F. Detailed BNG Assessments

Each site that was surveyed for BNG suitability is described below, with baseline biodiversity value and proposed uplift outlined for each site. The calculations included below are indicative and are designed to outline which sites have the highest suitability to be taken forward. Where a site is selected for BNG, if the area is currently POS, the community must be involved in guiding the decision making around the design and implementation of the habitat creation.

Site 1. Land off Loundsley Green Road (Holmebrook Park)

<table>
<tr><td>Map Reference: 1</td><td colspan="2">Location: Linacre</td><td>Size: 2.09ha</td></tr>
<tr><td colspan="4">Description: A narrow area of greenspace largely consisting of modified grassland, scattered with small stands of trees. The grassland is relatively species poor, with high nutrient levels, however, the section to the south west is noted as a ‘wildlife area’ and is managed through less frequent cutting, leading to a slight increase in species and sward diversity. Within this section, the grassland contains infrequent indicators of wet soil, including soft rush, as well as rare indicators of higher quality neutral grassland including silverweed and meadow vetchling. The woodlands support extensive bare ground and nutrient enrichment and contain a mixture of hawthorn, alder, sycamore and ash.</td></tr>
<tr><td colspan="4">Habitat Connectivity: High.
The site is bordered by a large woodland corridor, much of which is designated as a local wildlife site. The site is identified on the NRN as high priority for both woodland and open habitat creation.</td></tr>
<tr><td colspan="2">Main Habitat Type:</td><td colspan="2">Habitat Condition:</td></tr>
<tr><td colspan="2">Modified Grassland</td><td colspan="2">Poor</td></tr>
<tr><td colspan="2">Modified Grassland</td><td colspan="2">Good</td></tr>
<tr><td colspan="2">Other Woodland; broadleaved</td><td colspan="2">Moderate</td></tr>
<tr><td colspan="2">Rural Trees</td><td colspan="2">Good</td></tr>
<tr><td colspan="4">Habitat Enhancement or Creation Potential: Retaining existing woodland and enhancing the poor quality modified grassland onsite to moderate condition other neutral, with the ‘good’ modified as good quality other neutral. Whilst units could be produced on this site, the scope for high quality habitats or more diverse communities is limited.</td></tr>
<tr><td colspan="2">Approximate Baseline Units:
12.92 Habitat Units</td><td colspan="2" rowspan="2">Potential Net Unit Change:

+7.64 Habitat Units</td></tr>
<tr><td colspan="2">Approximate Post Intervention Units:
20.56 Habitat Units</td></tr>
</table>

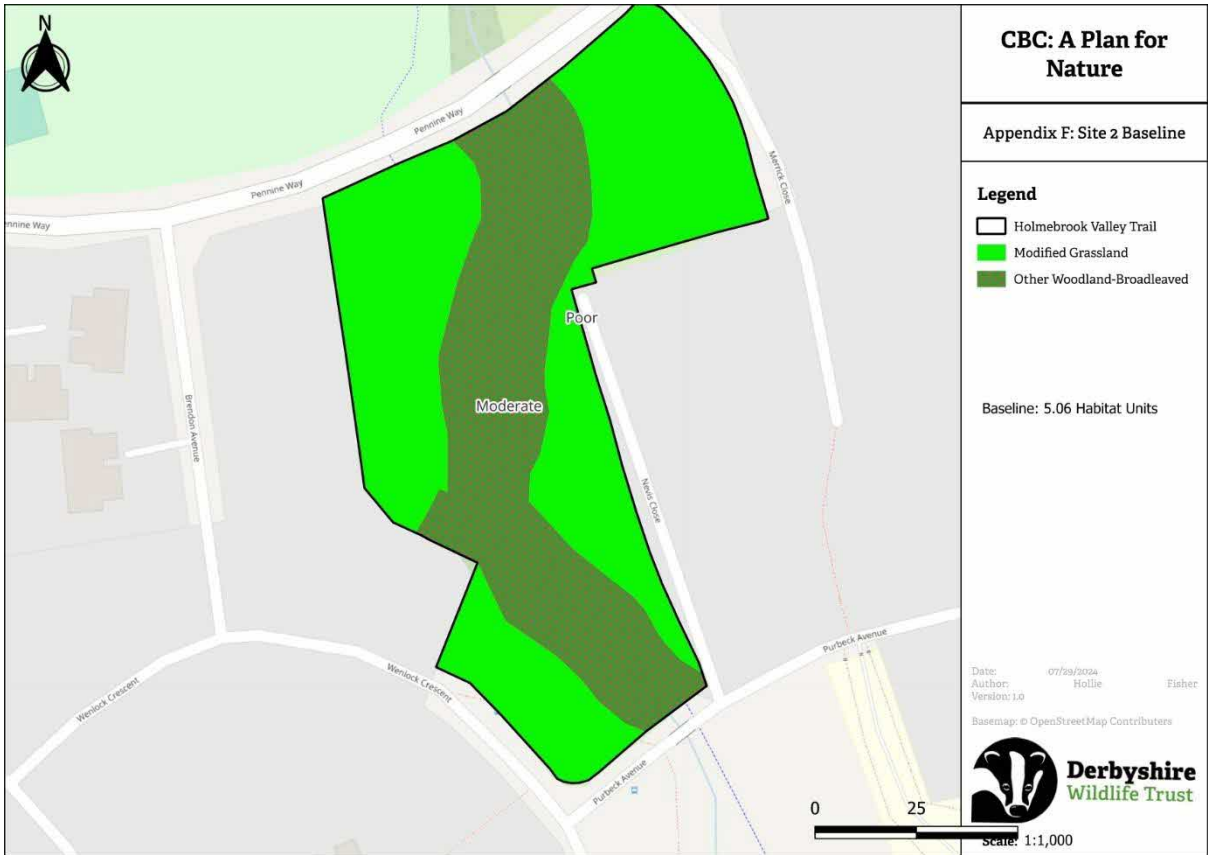

N
Poor
Good
Good
Moderate
0 25 50 m
CBC: A Plan for Nature
Appendix F: Site 1 Baseline
Legend
Land Off Loundsley Green Road
Modified Grassland
Scattered Trees
Other Woodland-Broadleaved
Baseline: 12.92 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:2,000

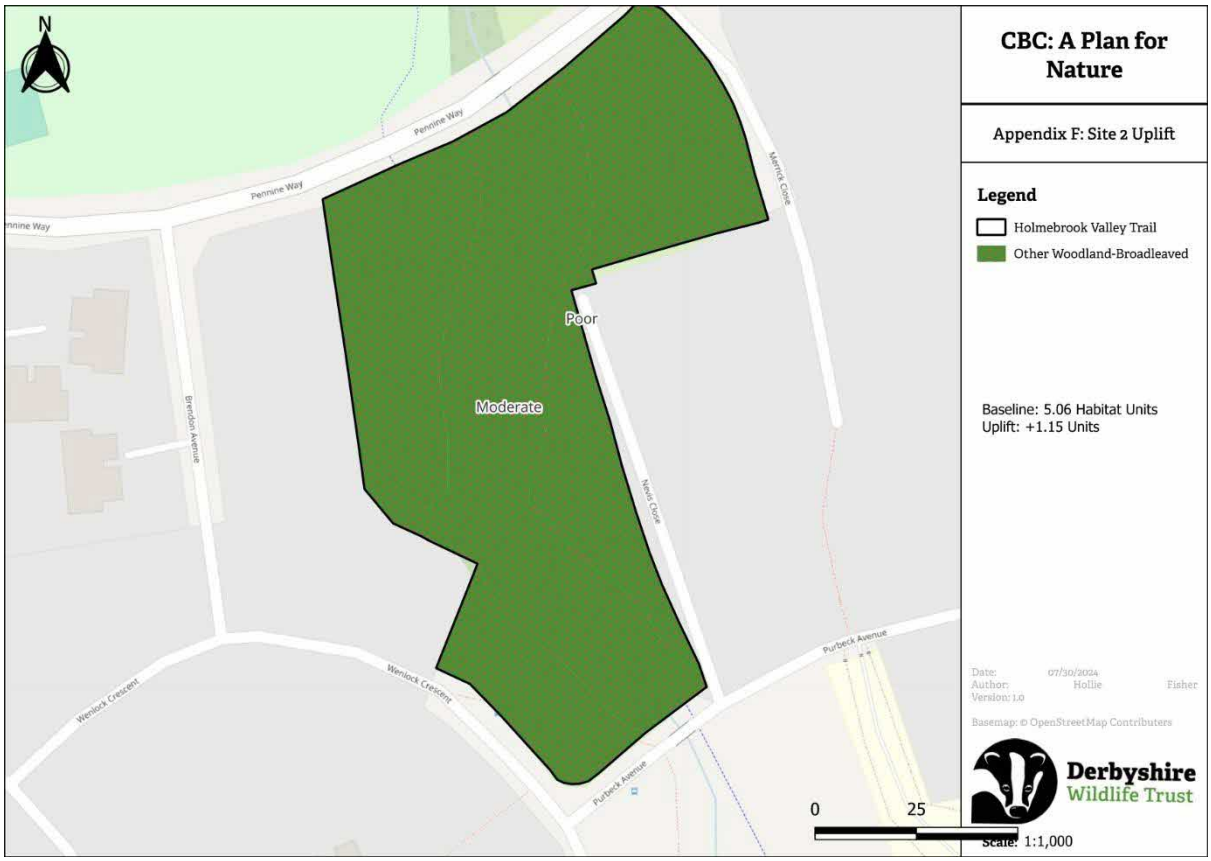

N
Moderate
Good
Good
Moderate
0 25 50 m
CBC: A Plan for Nature
Appendix F: Site 1 Uplift
Legend
Land Off Loundsley Green Road
Other Neutral Grassland
Scattered Trees
Other Woodland-Broadleaved
Baseline: 12.92 Habitat Units
Uplift: +7.64 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:2,000

Site 2. Holmebrook Valley Trail

<table>
<tr><td colspan="2">Map Reference: 2</td><td>Location: Linacre</td><td>Size: 1.1ha</td></tr>
<tr><td colspan="4">Description: A public park that runs either side of Holme Brook, a fast flowing waterbody. The waterbody is bordered by a narrow strip of woodland, frequented by bramble and containing a mixture of ash, hawthorn, willow, alder and beech. Modified grassland lies either side of the woodland corridor, the grassland is heavily managed, with physical damage evident across much of the boundary of the site.</td></tr>
<tr><td colspan="4">Habitat Connectivity: High.
The riparian woodland corridor that is present on site expands out both north and south, with the brook flowing through much of the borough.</td></tr>
<tr><td colspan="2">Main Habitat Type:</td><td colspan="2">Habitat Condition:</td></tr>
<tr><td colspan="2">Modified Grassland</td><td colspan="2">Poor</td></tr>
<tr><td colspan="2">Other Woodland; broadleaved</td><td colspan="2">Moderate</td></tr>
<tr><td colspan="4">Habitat Enhancement or Creation Potential: Creation of other broadleaf woodland in poor condition within the existing grassland. Note that financial gains from this would likely be low due to small size of site and low unit uplift however it would deliver ecosystem service provision. Site may be more suitable for other habitat creation schemes such as EWCO or community tree funds.</td></tr>
<tr><td colspan="2">Approximate Baseline Units:
5.06 Habitat Units</td><td colspan="2" rowspan="2">Potential Net Unit Change:

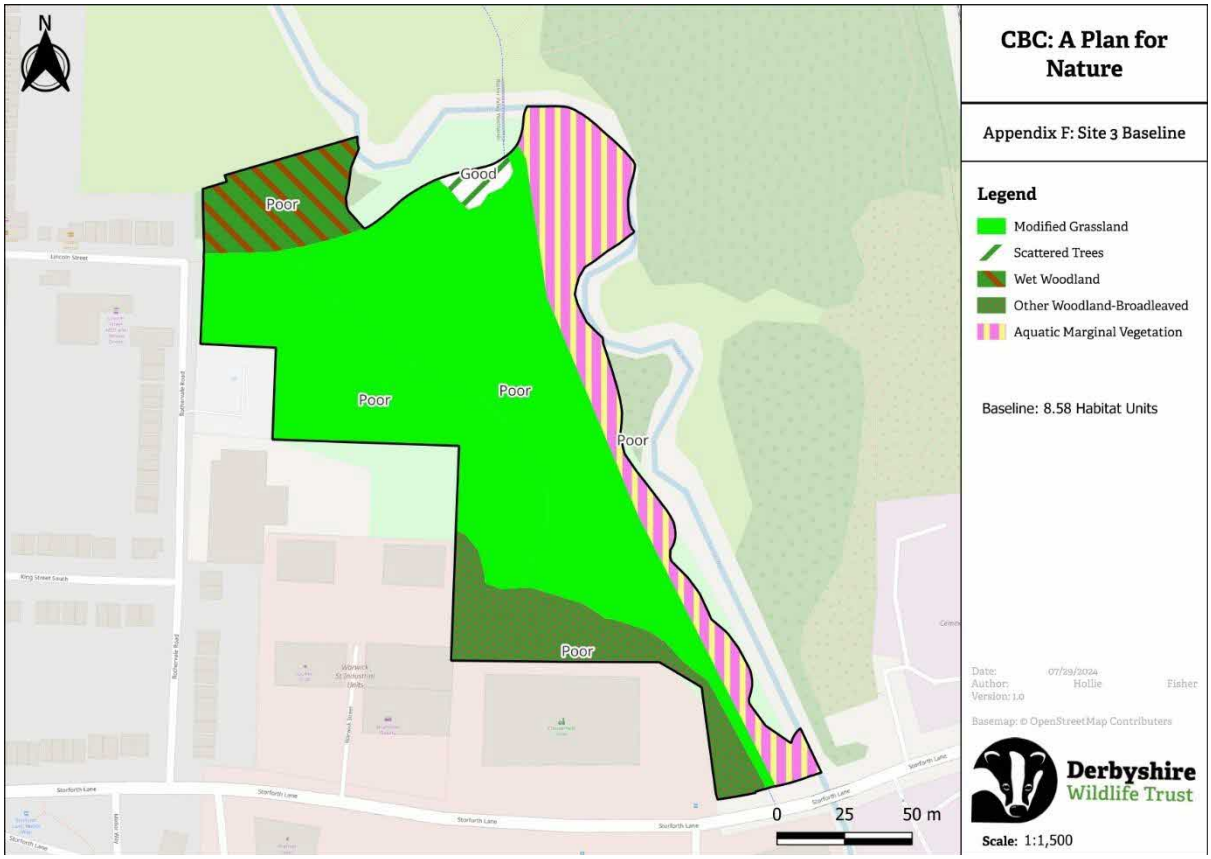
+1.15 Habitat Units</td></tr>
<tr><td colspan="2">Approximate Post Intervention Units:
6.20 Habitat Units</td></tr>
</table>

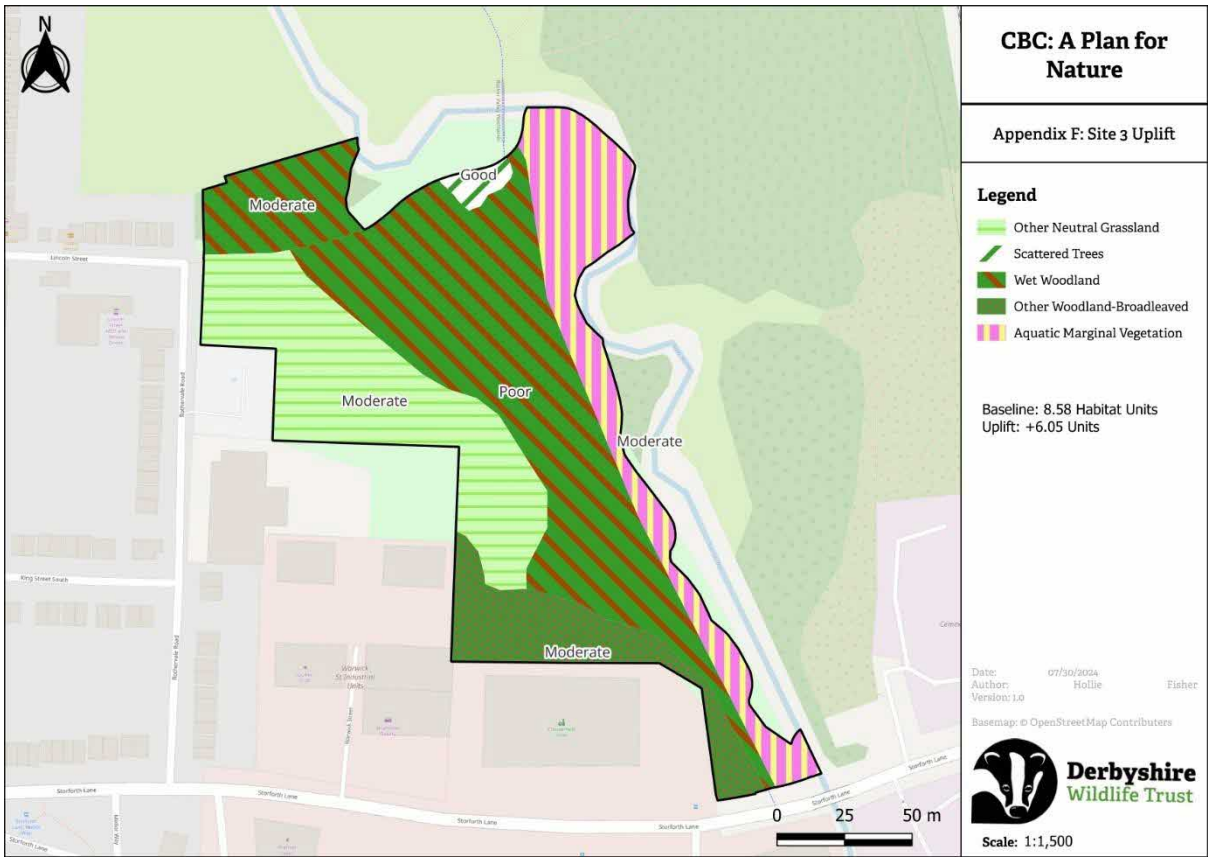

N
Pennine Way
Merrick Close
Poor
Moderate
Brendon Avenue
Neats Close
Purbeck Avenue
Wenlock Crescent
0
25
CBC: A Plan for Nature
Appendix F: Site 2 Baseline
Legend
Holmebrook Valley Trail
Modified Grassland
Other Woodland-Broadleaved
Baseline: 5.06 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,000


N
Pennine Way
Merrick Close
Poor
Moderate
Brendon Avenue
Neats Close
Purbeck Avenue
Wenlock Crescent
0
25
CBC: A Plan for Nature
Appendix F: Site 2 Uplift
Legend
Holmebrook Valley Trail
Other Woodland-Broadleaved
Baseline: 5.06 Habitat Units
Uplift: +1.15 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,000

Site 3. Rother Washlands South

Map Reference: 3	**Location:** Hasland	**Size:** 2.29ha
Description: A well used public green space that adjoins the River Rother. The majority of the site is made up by heavily managed modified grassland, with additional compartments of wet woodland, other broadleaved woodland and a section of tall ruderal with scattered trees along the riparian edge. The woodlands are dense and relatively diverse however, nutrient enrichment is high across the entire site, with extensive stands of both Himalayan balsam and giant hogweed.		
Habitat Connectivity: Moderate. The site is adjacent to a moderately sized broadleaf woodland and is located on the floodplain of the River Rother. The wider landscape is predominately urban and the habitat corridor that surrounds the riparian zone becomes relatively narrow further along the river. The site is identified as high priority for the restoration of wetland habitats.		
Main Habitat Type:	**Habitat Condition:**	
Other woodland; broadleaved	Poor	
Wet Woodland	Poor	
Modified Grassland	Poor	
Rural Tree	Good	
Aquatic Marginal Vegetation	Poor	
Habitat Enhancement or Creation Potential: Enhancing existing woodland, wet woodland and aquatic communities through targeted removal of invasive species, including rotational felling and appropriate restocking, plus the expansion of the existing wet woodland across 0.9ha of the modified grassland. Proposed to convert 0.5ha of modified grassland to moderate condition wet, other neutral grassland. Note that as this area is highly used, community involvement in final habitat design is a necessity.		
Approximate Baseline Units: 8.58 Habitat Units	**Potential Net Unit Change:** +6.05 Habitat Units	
Approximate Post Intervention Units: 14.63 Habitat Units		


N
Good
Poor
Poor
Poor
Poor
Poor
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 3 Baseline
Legend
Modified Grassland
Scattered Trees
Wet Woodland
Other Woodland-Broadleaved
Aquatic Marginal Vegetation
Baseline: 8.58 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,500

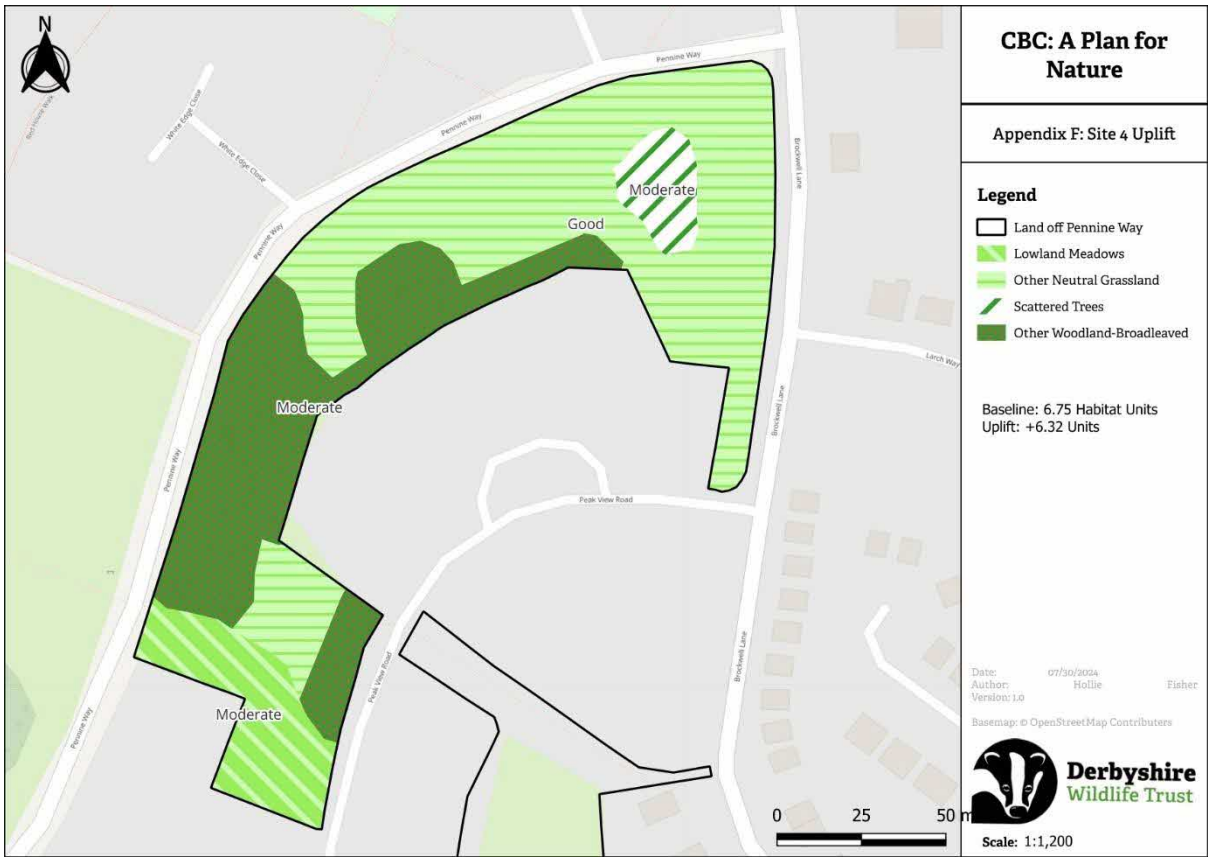

N
Good
Moderate
Moderate
Poor
Moderate
Moderate
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 3 Uplift
Legend
Other Neutral Grassland
Scattered Trees
Wet Woodland
Other Woodland-Broadleaved
Aquatic Marginal Vegetation
Baseline: 8.58 Habitat Units
Uplift: +6.05 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,500

Site 4. Land off Pennine Way

<table>
<tr><td colspan="2">Map Reference: 4</td><td>Location: Linacre</td><td>Size: 1.48ha</td></tr>
<tr><td colspan="4">Description: A greenspace comprising of a mixture of grassland, small woodland cover and scattered trees. The majority of the grassland is made up of frequently mown modified grassland, with a small section to the south west identified as species poor other neutral grassland. This area receives less frequent management and supports low levels of floristic diversity including knapweed, yarrow and birds foot trefoil. The wooded section contains large amounts of ornamental plants and garden escapes, as well as sections of fly tipping and damage to the ground.</td></tr>
<tr><td colspan="4">Habitat Connectivity: Moderate.
The site is located within a cluster of other greenspaces and just outside of a long woodland corridor from the north.</td></tr>
<tr><td colspan="2">Main Habitat Type:</td><td colspan="2">Habitat Condition:</td></tr>
<tr><td colspan="2">Modified Grassland</td><td colspan="2">Poor</td></tr>
<tr><td colspan="2">Other Neutral Grassland</td><td colspan="2">Poor</td></tr>
<tr><td colspan="2">Other Woodland; broadleaved</td><td colspan="2">Moderate</td></tr>
<tr><td colspan="2">Rural tree</td><td colspan="2">Moderate</td></tr>
<tr><td colspan="4">Habitat Enhancement or Creation Potential: Retaining existing woodland and enhancing modified grassland to good quality other neutral, as well as the existing other neutral to moderate lowland meadow, proposed through supplementary seeding in year 1, followed by a suitable mowing regime. Footpaths throughout are strongly recommended, integrating engagement and interpretation signs etc.</td></tr>
<tr><td colspan="2">Approximate Baseline Units:
6.75 Habitat Units</td><td colspan="2" rowspan="2">Potential Net Unit Change:

+ 6.32 Habitat Units</td></tr>
<tr><td colspan="2">Approximate Post Intervention Units:
13.07 Habitat Units</td></tr>
</table>


N
Moderate
Poor
Moderate
Poor
Pennine Way
Peak View Road
Brockwell Lane
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 4 Baseline
Legend
Land off Pennine Way
Other Neutral Grassland
Modified Grassland
Scattered Trees
Other Woodland-Broadleaved
Baseline: 6.75 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,200


N
Moderate
Good
Moderate
Moderate
Pennine Way
Peak View Road
Brockwell Lane
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 4 Uplift
Legend
Land off Pennine Way
Lowland Meadows
Other Neutral Grassland
Scattered Trees
Other Woodland-Broadleaved
Baseline: 6.75 Habitat Units
Uplift: +6.32 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,200

Site 5. Land by Netherthorpe School

Map Reference: 5	**Location:** Lowgates and Woodthorpe	**Size:** 0.95
Description: A small, heavily managed area of amenity grassland, bordered by a line of dense mixed scrub along the western side, dense bramble scrub in the south and supporting occasional scattered trees along the southern edge.		
Habitat Connectivity: Low. The site is predominately surrounded by residential buildings and contains limited connecting features. Core open and wetland habitats are present within the wider landscape, with Netherthorpe Flash approximately 200m south of the site.		
Main Habitat Type:	**Habitat Condition:**	
Modified Grassland	Poor	
Mixed Scrub	Moderate	
Bramble Scrub	Poor	
Line of trees	Moderate	
Habitat Enhancement or Creation Potential: Retaining existing bramble scrub and enhancing mixed scrub to good condition by rotational cutting to create a mixture of ages and supplementary planting to diversify, plus enhancement of grassland into moderate traditional orchard. Note that to qualify as moderate the grassland must be contained in an ecologically good condition, through seeding and cutting. This would include planting of suitable fruit trees, establishing a group to maintain and pick the fruit, seeding of a meadow mix and rotational cut and remove of arisings.		
Approximate Baseline Units: 2.72 Habitat Units	**Potential Net Unit Change:** + 3.57 Habitat Units	
Approximate Post Intervention Units: 6.29 Habitat Units		


N
Moderate
Poor
Poor
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 5 Baseline
Legend
Land by Netherthorpe School
Modified Grassland
Dense scrub
Baseline: 2.72 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:1,000


N
Good
Moderate
Poor
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 5 Uplift
Legend
Land by Netherthorpe School
Traditional Orchard
Dense scrub
Baseline: 2.72 Habitat Units
Uplift: +3.57 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:1,000

Site 6. Land off Moston Walk

<table>
<tr><td colspan="2">Map Reference: 6</td><td>Location: Rother</td><td>Size: 1.44ha</td></tr>
<tr><td colspan="4">Description: An area of open greenspace largely surrounded by residential buildings. The site is predominately modified grassland, the site currently receives infrequent cutting resulting in structural diversity however, number of species per m2 well below 6 on average, resulting in it identified as poor quality. A small, dense woodland, standing trees and hedgerows are found along the outskirts of the site and a small number of the neighbouring houses have extended their gardens in to the field, resulting in the creation of a lawn along the edge. The site is identified on the NRN as high priority for open habitat creation and tree cover.</td></tr>
<tr><td colspan="4">Habitat Connectivity: High.
The site is immediately adjacent to an area of lowland dry acid grassland and scattered scrub, which is identified as an existing LWS.</td></tr>
<tr><td colspan="2">Main Habitat Type:</td><td colspan="2">Habitat Condition:</td></tr>
<tr><td colspan="2">Modified Grassland</td><td colspan="2">Poor</td></tr>
<tr><td colspan="2">Other Woodland; broadleaved</td><td colspan="2">Moderate</td></tr>
<tr><td colspan="2">Native Hedgerow</td><td colspan="2">Poor</td></tr>
<tr><td colspan="2">Native Hedgerow with Trees</td><td colspan="2">Good</td></tr>
<tr><td colspan="2">Native Hedgerow with Trees</td><td colspan="2">Poor</td></tr>
<tr><td colspan="4">Habitat Enhancement or Creation Potential: Enhancing modified grassland to moderate other lowland acid grassland and retaining existing woodland. pH will need to be taken from the soils to assess if expansion of the neighbouring acidic grassland is viable. If not, enhancement to lowland meadow is recommended, allowing scattered numbers of trees and scrub to develop. To create the grassland, seeding is recommended in year 1, preferably taking green hay or seeds from the neighbouring acid grassland site.</td></tr>
<tr><td colspan="2">Approximate Baseline Units:
3.88 Habitat Units</td><td colspan="2" rowspan="2">Potential Net Unit Change:
+6.57 Habitat Units</td></tr>
<tr><td colspan="2">Approximate Post Intervention Units:
10.45 Habitat Units</td></tr>
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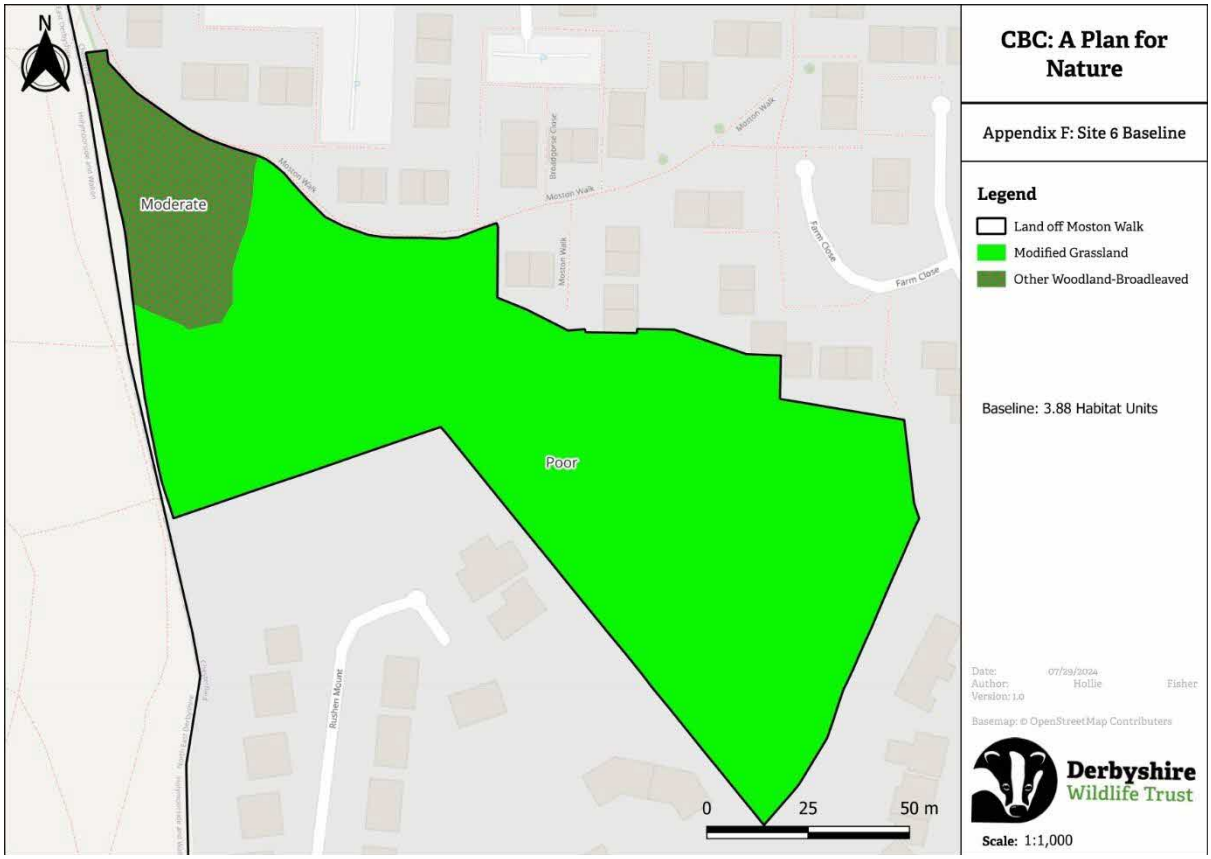
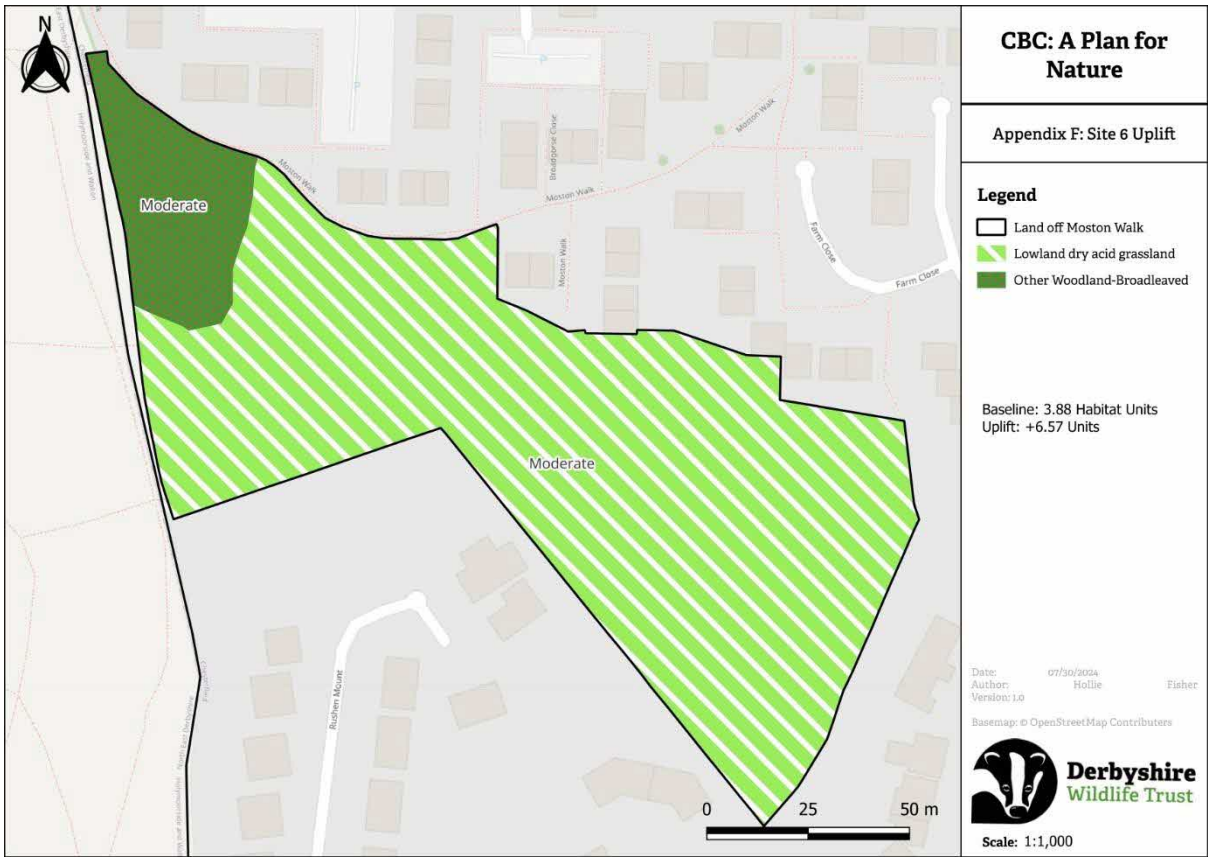
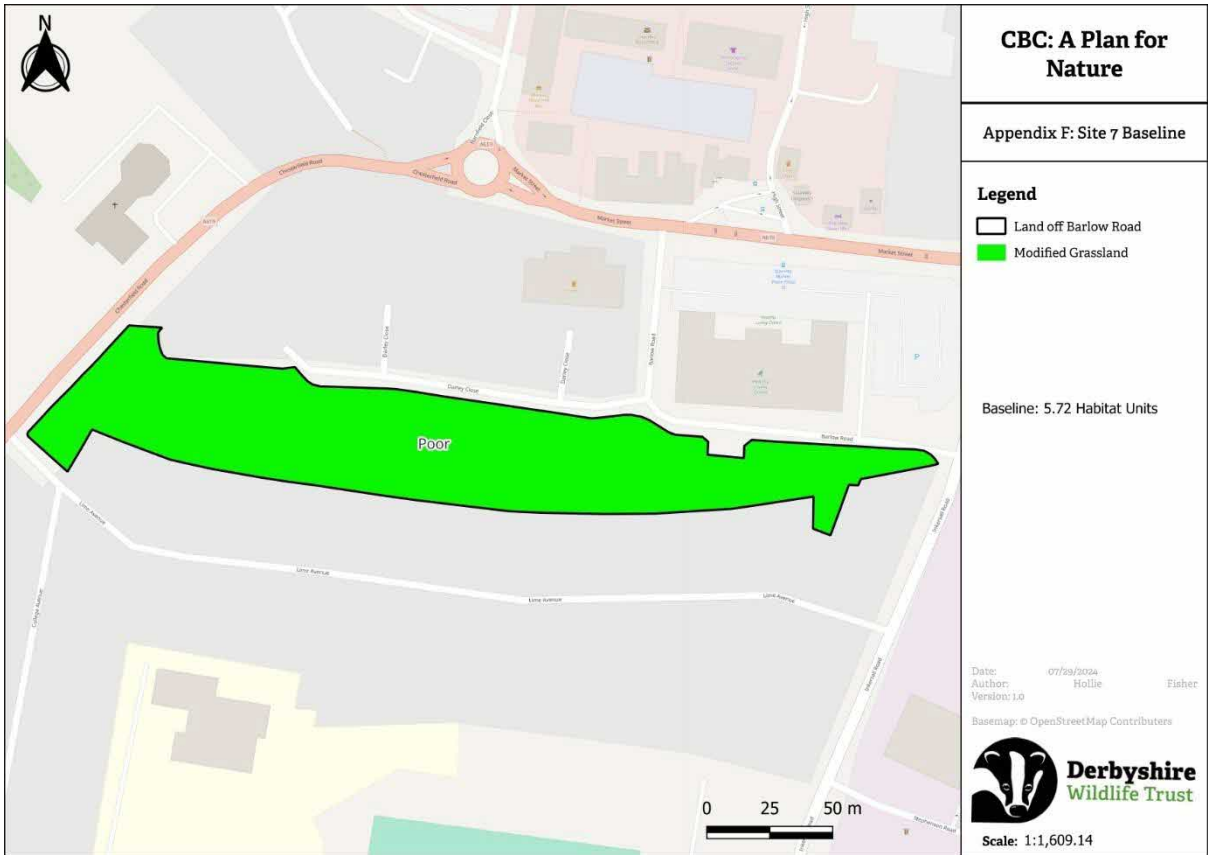

N
Moderate
Poor
Moston Walk
Broadgrove Close
Farm Close
Rushen Mount
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 6 Baseline
Legend
Land off Moston Walk
Modified Grassland
Other Woodland-Broadleaved
Baseline: 3.88 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,000


N
Moderate
Moderate
Moston Walk
Broadgrove Close
Farm Close
Rushen Mount
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 6 Uplift
Legend
Land off Moston Walk
Lowland dry acid grassland
Other Woodland-Broadleaved
Baseline: 3.88 Habitat Units
Uplift: +6.57 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,000

Site 7. Land off Barlow Road

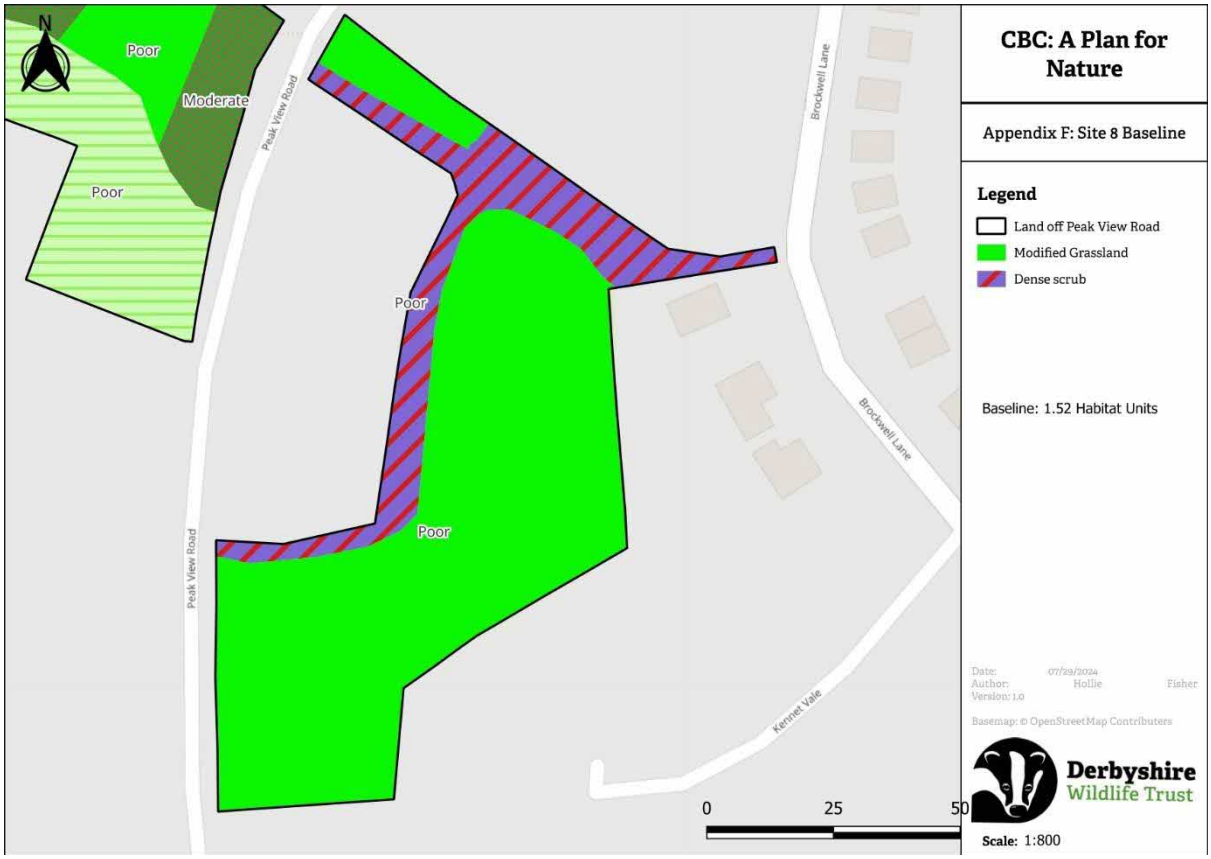
<table>
<tr><td colspan="2">Map Reference: 7</td><td>Location: Middlecroft and Poolsbrook</td><td>Size: 1.21 ha</td></tr>
<tr><td colspan="4">Description: A narrow strip of grassland frequented by a variety of planted trees, including sycamore, apple, silver birch and walnut. The grassland is species poor modified, with the majority of the site frequently mown, with one verge left longer. A large percentage of the trees have died.</td></tr>
<tr><td colspan="4">Habitat Connectivity: Moderate.
The site is within close proximity to a mixture of woodland and open sites however its immediate surroundings are residential.</td></tr>
<tr><td colspan="2">Main Habitat Type:</td><td colspan="2">Habitat Condition:</td></tr>
<tr><td colspan="2">Modified Grassland</td><td colspan="2">Poor</td></tr>
<tr><td colspan="2">Individual Trees</td><td colspan="2">Poor</td></tr>
<tr><td colspan="4">Habitat Enhancement or Creation Potential: Enhancing grassland to moderate condition other neutral however, the baseline grassland was very poor and it is likely that other sites would be better suited, as uplift would require nutrient stripping, seeding and high maintenance to lower, and maintain low, nutrient levels.</td></tr>
<tr><td colspan="2">Approximate Baseline Units:
5.72 Habitat Units</td><td colspan="2" rowspan="2">Potential Net Unit Change:
+5.83 Habitat Units</td></tr>
<tr><td colspan="2">Approximate Post Intervention Units:
11.56 Habitat Units</td></tr>
</table>


N
Poor
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 7 Baseline
Legend
Land off Barlow Road
Modified Grassland
Baseline: 5.72 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:1,609.14


N
Moderate
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 7 Uplift
Legend
Land off Barlow Road
Other Neutral Grassland
Baseline: 5.72 Habitat Units
Uplift: +5.83 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:1,609.14

Site 8. Land off Peak View Road

Map Reference: 8	**Location: Linacre**	**Size:** 0.63ha
Description: Modified grassland that is frequently mown, containing a strip of mixed scrub and bordered by garden fences and ornamental hedges.		
Habitat Connectivity: Moderate. The site is located within a cluster of other greenspaces and just outside of a long woodland corridor from the north.		
Main Habitat Type:	**Habitat Condition:**	
Modified Grassland	Poor	
Mixed Scrub	Poor	
Habitat Enhancement or Creation Potential: NA		
Approximate Baseline Units: 1.52 Habitat Units	**Potential Net Unit Change:** NA – small size of site and existing habitats have deemed it not suitable for BNG.	
Approximate Post Intervention Units: **NA**		



Site 9. The Pearson

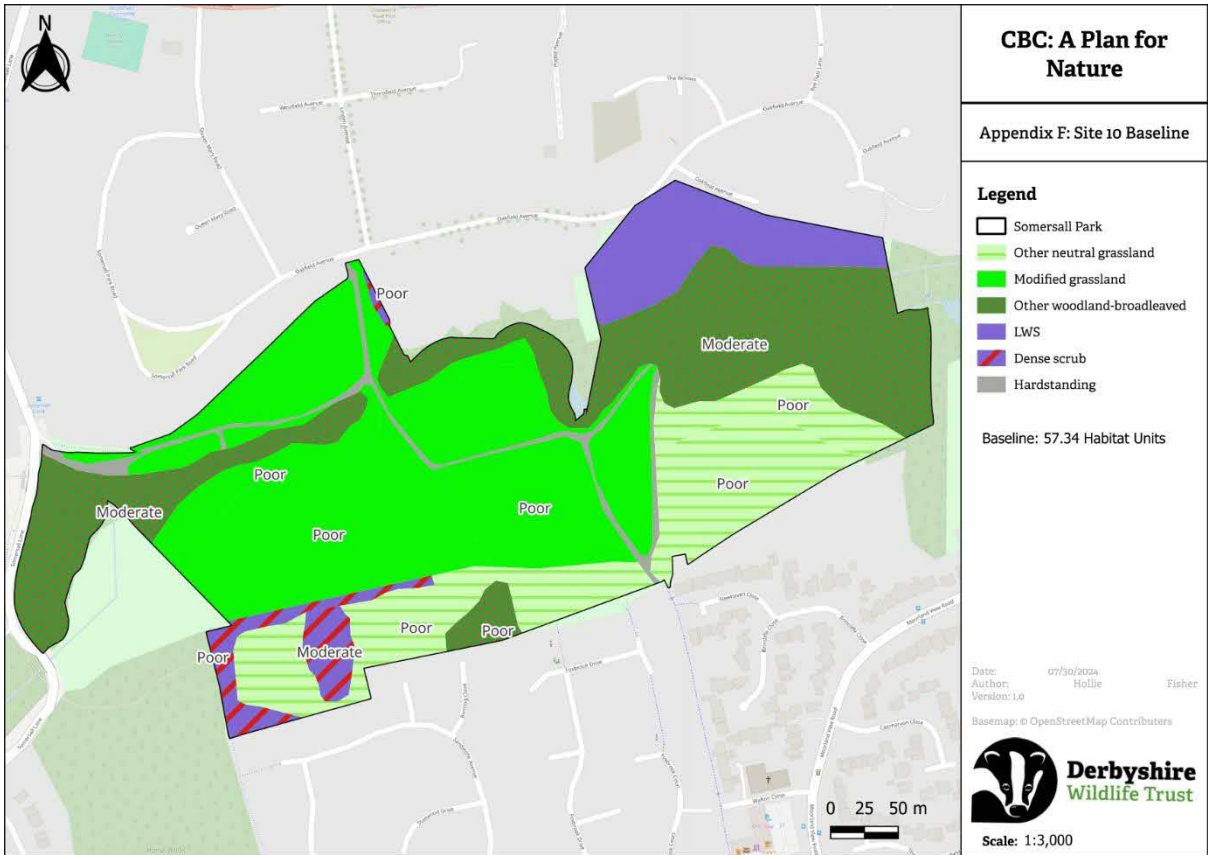
Map Reference: 9	**Location: Holmebrook**	**Size:** 1.15ha
Description: An area of public recreation, containing modified grassland throughout, bordered by scattered lines of trees, hedgerows and bramble scrub. The area contains a small playground and two public benches, both of which have fallen into disrepair and have been removed from the baseline calculation.		
Habitat Connectivity: Moderate. The park is entirely surrounded by residential buildings, however the wider landscape contains a network of greenspaces and scattered woodlands.		
Main Habitat Type:	**Habitat Condition:**	
Modified Grassland	Poor	
Line of Trees	Poor	
Line of Trees	Moderate	
Native Hedgerow with Trees	Moderate	
Ornamental Hedgerow	Poor	
Habitat Enhancement or Creation Potential: Delivered through creation of community allotments on 0.5ha, plus traditional orchard in moderate condition on a further 0.5, with the remaining grassland retained. Orchards would involve planting of appropriate fruiting species, organising a local group to run and maintain the orchard, seeding a meadow mix and suitable cut and collect of the grassland each year. This site could have high community value, bringing opportunities for fruit and vegetables to local residents, as well as an opportunity to be out in nature.		
Approximate Baseline Units: 2.26 Habitat Units	**Potential Net Unit Change:** +3.03 Habitat Units	
Approximate Post Intervention Units: 5.29 Habitat Units		

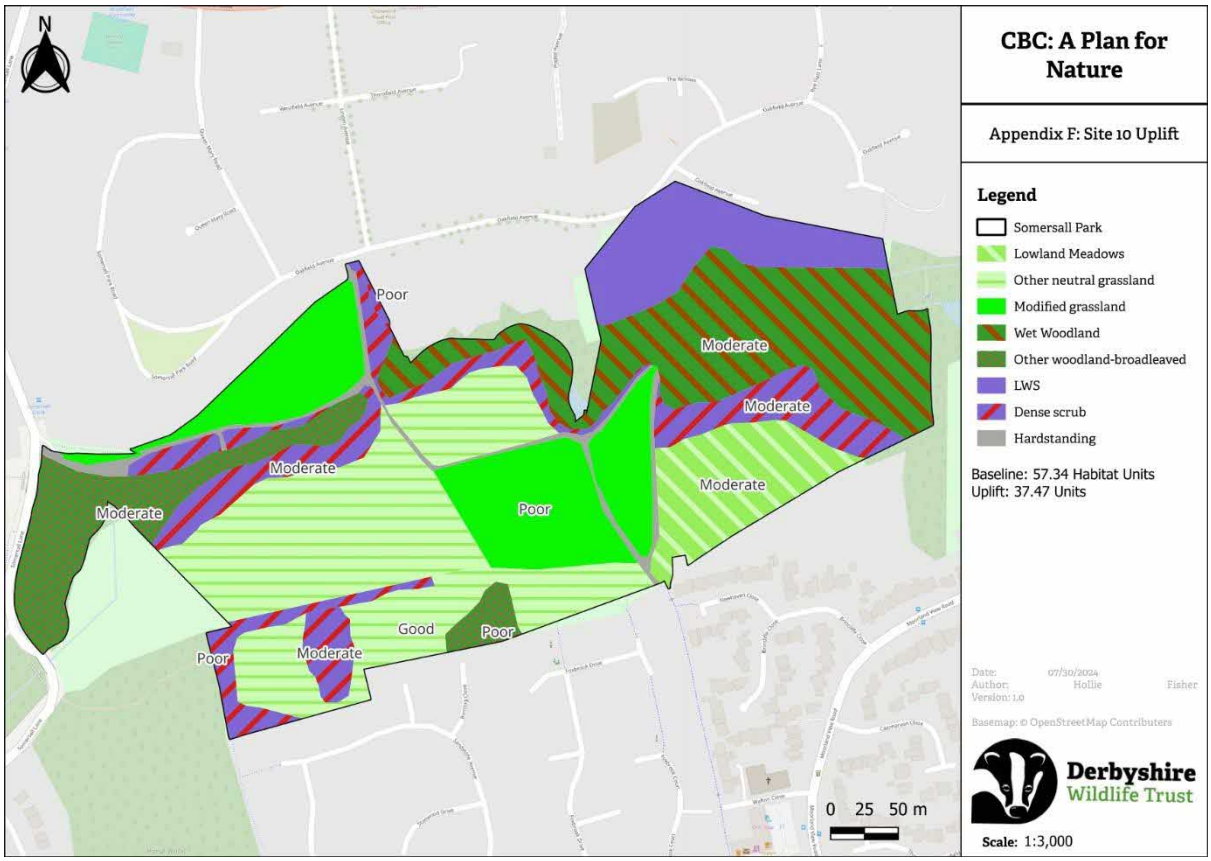

N
Poor
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 9 Baseline
Legend
The Pearson
Modified Grassland
Hardstanding
Baseline: 5.29 Habitat Units
Date: 07/29/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,021.76


N
Moderate
Poor
Moderate
0
25
50 m
CBC: A Plan for Nature
Appendix F: Site 9 Uplift
Legend
The Pearson
Traditional Orchards
Modified Grassland
Community Allotment
Hardstanding
Baseline: 5.29 Habitat Units
Uplift: +3.03 Units
Date: 07/30/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributers
Derbyshire Wildlife Trust
Scale: 1:1,021.76

Site 10. Somersall Park

Map Reference: 10	**Location:** Brampton and Walton	**Size:** 11.3ha
Description: A large, mixed use public space, consisting of modified grassland, other neutral grassland, a good condition local wildlife site grassland, woodland and scrub. The River Hipper runs through the site and the site sees high levels of public use, with several footpaths and cycleways throughout. The site is identified on the NRN as high priority for the restoration and creation of wet woodland, tree cover and open habitats.		
Habitat Connectivity: Moderate. Some of the habitats on site are already identified as being part of the core network present (the designated LWS is not to be considered as part of the uplift as it is already in good condition). The woodland habitats expand out past the site boundary, however connectivity from this into the wider landscape is relatively limited.		
Main Habitat Type:	**Habitat Condition:**	
Bramble scrub	Poor	
Hardstanding	NA	
Modified Grassland	Poor	
Other Woodland; Broadleaf	Poor	
Other Woodland; Broadleaf	Moderate	
Other Neutral Grassland	Poor	
Mixed Scrub	Poor	
Mixed Scrub	Moderate	
Habitat Enhancement or Creation Potential: Based on retention of 2.07ha of modified grassland for amenity spaces, as well as retention of the existing mixed and bramble scrub and small woodland in their current condition, plus the enhancement of 2.43ha of modified grassland to moderate quality other neutral grassland, enhancement of the larger woodland to moderate quality wet woodland through modification of the water table, allowing it to retain more water as well as suitable planting, as well as enhancement of the remaining woodland to good condition through appropriate felling, removal of invasives and suitable restocking. Proposed enhancement of 2.2ha of the existing other neutral grassland to good quality neutral and lowland meadow, using green hay and seeds from the onsite LWS, designated as good quality unimproved meadow, as well as the creation of moderate quality mixed scrub within the periphery of the existing modified and neutral grasslands to create an ecotone between the grasslands and woodlands.		
Approximate Baseline Units: 57.34 Habitat Units (of viable land)	**Potential Net Unit Change:** +37.47 Habitat Units	
Approximante Post Intervention Units: 94.81 Habitat Units		


N
Poor
Moderate
Poor
Poor
Poor
Moderate
Poor
Poor
Poor
Poor
Moderate
Poor
0 25 50 m
CBC: A Plan for Nature
Appendix F: Site 10 Baseline
Legend
Somersall Park
Other neutral grassland
Modified grassland
Other woodland-broadleaved
LWS
Dense scrub
Hardstanding
Baseline: 57.34 Habitat Units
Date: 07/10/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:3,000


N
Poor
Moderate
Moderate
Moderate
Moderate
Poor
Moderate
Poor
Good
Poor
Moderate
0 25 50 m
CBC: A Plan for Nature
Appendix F: Site 10 Uplift
Legend
Somersall Park
Lowland Meadows
Other neutral grassland
Modified grassland
Wet Woodland
Other woodland-broadleaved
LWS
Dense scrub
Hardstanding
Baseline: 57.34 Habitat Units
Uplift: 37.47 Units
Date: 07/10/2024
Author: Hollie Fisher
Version: 1.0
Basemap: © OpenStreetMap Contributors
Derbyshire Wildlife Trust
Scale: 1:3,000