

Section 3: State of Nature and Spatial Description

Derbyshire is essentially a rural county occupying a unique position at the centre of England. It is the meeting place of upland and lowland England and the transition from pastoral dairy belt in the west to arable farmlands in the east. Our landscapes are iconic with the Peak District National Park being the first landscape designation of its type. Allied to this, is a diversity of habitats, from the upland bogs and heaths in the high peaks; through ancient, wooded landscapes of the Derwent Valley; the broad floodplain of the river Trent; to the many nationally important historic parklands scattered through the county.

Derbyshire is home to around 800,000 people predominantly located in communities in the former coalfields in the east of the county and in Derby, our only city. Despite this the county is only 8% urban with the remainder consisting of farmland, woodland, and other habitats.

The natural environment of Derbyshire is one of the cornerstones of its economy. It encompasses all our natural assets – wildlife, water, woodland, farmland, and urban green space – supporting the basics we need to live – air, clean water, and food. These ecosystem services link and underpin human life and economic activity by cycling water, pollinating crops, regulating the climate, and contributing to health and wellbeing.

However, some of the landscapes and many of the associated habitats are in decline because of human behaviour and modern pressures for

change that include climate change, agricultural practices, quarrying, and new built development.

3.1 State of Nature in Derbyshire

Like many areas, Derbyshire's wildlife has seen a significant decline in the extent and diversity of its habitats and species as a result of land-use change, the expansion of urban development, pollution, persecution, pests and diseases, as well as pressures resulting from global factors like climate change. Lowland meadows, pastures and mires have declined by 80 – 90% in most parts of lowland Derbyshire, for example, faring slightly better in the Peak District. This downward trend has slowed but efforts to create and restore these habitats have not yet addressed decades of loss.

Rivers have been affected by nutrient enrichment, engineering works along their channels, becoming isolated from their floodplains, and lack features such as meanders, shallows, pools and in-stream woody debris. There are very few large swamp, fen habitats and ponds, with only around 20% of ponds in good condition.

There have been historic losses of ancient woodland including their conversion to conifer plantations, although more recently some ancient woods are now being restored. Overall woodland cover has increased because of planted new woodlands and natural regeneration, within the National Forest and parts of north-east Derbyshire. There continue to be several initiatives to increase woodland cover across the county.

Brownfield sites have and continue to play a crucial role as 'wildlife refuges' for many species, although development pressure and natural succession have resulted in more than half of the sites disappearing or declining in value. This is especially damaging for a host of species that depend on open grass and herb rich habitats such as butterflies like dingy skipper and small heath, which now rely on these artificial sites due to the absence of suitable semi-natural habitats.

Even in the Peak District, wildlife rich, priority habitats have undergone marked changes with many in decline. There remain extensive areas of calcareous grassland, scrub, upland woodlands, moorland and blanket bog, much of which is included within national and international designations. Large areas of iconic blanket bog are under restoration and there is a need to re-invigorate natural processes and change some adverse management practices to further protect these moorland landscapes.

Sites of Special Scientific Interest cover approximately 30,000 ha of Derbyshire, predominantly in the Peak District and extending into neighbouring counties. Only 20% is in a favourable condition, 74% is listed as unfavourable recovering, and 6% is unfavourable (declining, unassessed, fully or partially destroyed). Whilst encouraging, recovering sites will take years to reach favourable status, whilst others have not been visited for 5 to 10 years.

The condition of non-statutory Local Wildlife Sites is even more concerning, with only 40% of the sites known to have received positive management in the last 5 years. Most sites are unfavourable, and 226

(c.19%) are declining or suffering damage. For some, the lack of management has led to irreversible changes in the habitats, such as the loss of species rich grassland to bramble and hawthorn scrub. Built development impacts some sites and many are now within urban or semi-urban environments. Many more have been reduced in size, have been partially damaged or destroyed in the past 20 years. More positively, at least 200 Local Wildlife Sites have benefited from agri-environment and forestry payments, whilst about a third are owned and/or managed by public bodies, environmental charities, or community groups.

Our native flora has been significantly affected by climate change, land-use change and non-native introductions, with 245 species now extinct, rare or in decline. Many of these species depend on sympathetic grazing, infertile soils, and clean water in habitats such as meadows, rocky limestone dales, fens and mires, watercourses and ponds. For many species, initiatives would be better focused on enhancing, restoring and maintaining existing sites.

In recent decades the importance of Derbyshire for fungi, lichen and lower plants has become better understood, in particular fungi associated with traditional species rich grassland.

National and local datasets show dramatic changes in the abundance and distribution of insects and invertebrate species. Grasshoppers and crickets have increased in abundance from 7 to 14 species and extended their ranges north. Dragonflies and damselflies share a similar story in

recent years, mostly restricted in their occurrence due to climatic factors.

Butterflies and moths have experienced significant declines in both their abundance and range. Of the 34 species of butterfly currently found in Derbyshire, 8 are threatened due to significant declines. However, speckled wood and silver washed fritillary have increased in number, and purple emperor is a new arrival. There are 575 species of macro-moth in Derbyshire with 85 (c.15%) of these are of conservation concern including the argent and sable, and pretty chalk carpet. Twenty-nine species are already extinct. Some species have increased or are recent additions such as black arches, dark crimson underwing, hummingbird hawk-moth and Jersey tiger, probably due to climatic and land-use change combined with the impact of pesticides, chemicals and light pollution.

Our understanding of the status of bees, sawflies and wasps is incomplete, but there have almost certainly been losses including of several bumblebee species. There is evidence for the increasing abundance of some bees and wasps and even new species arriving in the county, but other species like the Bilberry Bumblebee face a less certain future as its upland habitats warm. We know far less about the fortunes of other insect and invertebrate groups such as flies, beetles, true-bugs and spiders, which underlines one of the huge gaps in our understanding of the state of biodiversity in Derbyshire.

One invertebrate that has been at the forefront of conservation efforts for many years is the white-clawed crayfish, a species that has declined

nationally and is now confined to an ever-decreasing number of watercourses and ponds, or translocated to refuges referred to as ARK sites.

Several fish species have declined including salmon, brown trout, spined loach and European eel, with the focus of some river restoration projects being weir removal and fish ladders to allow for fish passage.

Derbyshire has five amphibian and four reptile species with adder and common toad being of particular concern due to their restricted distribution and significant national decline respectively. Grass snake, slow worm, common lizard and great crested newt are also under considerable pressure due to habitat loss and disease.

National changes to bird species are also reflected in the county, with declines in over 100 species across a range of habitats and landscapes in the county, including curlew, hen harrier, lesser spotted woodpecker, willow tit, corn bunting, tree sparrow, turtle dove, spotted flycatcher, wood warbler, red-necked grebe, ring ouzel and starling. The causes of their decline are varied, but relate primarily to habitat loss and climate change. A small number of birds have increased in recent years, including great spotted woodpecker, raven, buzzard, peregrine falcon and red kite.

The state of Derbyshire mammals is also varied, with notable declines and increases. The most compelling story is the return of otter to Derbyshire's rivers, now being re-established across most of the county, although the size of the population is unknown, and numbers may still

be quite low. Roe, muntjac and red deer have all increased and polecat has re-established itself in the county. Beaver have been reintroduced to Derbyshire within enclosed areas after an absence of hundreds of years with the hope of returning them to the wild within the lifespan of this plan. Some, if not most species of bat are stable or increasing their populations, and a new bat species – lesser horseshoe bat - was recently discovered in the county. However, several species remain of concern including Leisler's, Soprano Pipistrelle and Western Barbastelle.

Water vole is now a rare site across most of lowland Derbyshire, although more abundant in the Peak District. The hedgehog has disappeared from many of its previous locations possibly due to land-use change, road mortality and lack of food availability. Both brown and mountain hare have suffered from disease, persecution and land use change but populations remain stable in some areas. The once ubiquitous rabbit is also far less prominent, if still widespread. Derbyshire remains a stronghold for badger especially in the Derwent Valley and Peak District, despite some localised culling. The status of most mice, voles and shrews is unknown, but harvest mouse is probably quite localised and may be more vulnerable to habitat decline.

3.2 Derbyshire's Natural Capital

The natural environment is not just important for wildlife and nature. Our landscapes, and the habitats and wildlife found across the county are a key part of the reason why people want to live in, work in, invest in, and visit Derbyshire. Those habitats and landscapes aren't just nice

to look at – they are critical to large parts of our economy and are essential to the health and wellbeing of our communities.

What is Natural Capital?

Natural Capital is the term used to describe the world's stock of natural resources. Natural capital includes:

- Geology and soils - everything below the surface including rocks, minerals, and soils.
- The ecosystems and landscapes that exist on the surface.
- All the habitats that make up those ecosystems and landscapes, and all of the species found in them.
- Other critical components of the natural environment, like air and water.

When we talk about Natural Capital, we are viewing our natural environment as a set of 'assets' that are valuable to us. Those assets can often be used, consumed, or damaged – or with care they can sometimes be improved or have their number increased.

What Are Ecosystem Services?

Ecosystem Services are the many and varied benefits, goods or services provided to humans by the natural environment. Environments that are in good condition are likely to provide us with more resilient ecosystem services.

Ecosystem services include:

- Provisioning services – the products that the environment provides for people such as food, drinking water, timber, fuel, or building materials. It includes natural materials that can be made into clothes or extracted for medicines.
- Regulating services – the way the environment can do things for people such as purify air or water, regulate the climate, help pollinate crops, or protect us from flooding.
- Supporting services – the most basic processes that support all life on earth such as the formation of soils, production of oxygen, and the cycling of water and nutrients.
- Cultural services – the benefits people get from their interactions with the environment and give us the chance to enjoy the great outdoors, through sport, leisure and recreation, watching wildlife or just taking in the view.

Ecosystem services are critical to our life on Earth.

The Value of Derbyshire's Ecosystem Services

The Natural Capital Strategy for Derbyshire estimates that the 'natural capital assets' of Derbyshire – our environmental resources - provide us with £2.6 billion worth of goods and benefits every year. These include contributing:

- £1.6 billion per year to carbon capture and storage helping reduce the effects of climate change.
- £298 million per year to quarrying for stone and minerals.
- £100m per year to farming and agriculture.
- £181 million per year to leisure and recreation.
- £132m per year to the supply of clean water.
- £105m per year to tourism.
- £86m per year to physical health and wellbeing.

The environment also provides huge benefits by absorbing water and reducing flooding – natural flood management. This is hard to value but is likely a huge benefit to Derbyshire, reducing the frequency and intensity of flooding in our villages, towns and in Derby city.

The environments of Derbyshire are priceless – but it has been calculated that Derbyshire's natural capital assets have a value of £87 billion in present value terms.

Different habitats and land uses provide different ecosystem services. When we change the land use in an area, or convert an area from one habitat to another, we alter the ecosystem services that land provides, often resulting in fewer ecosystem services of one type, but more of another. Converting farmland to woodland for example can yield benefits for carbon sequestration, biodiversity and natural flood management, but at the expense of agricultural productivity and domestic food production. The land management decisions promoted in this strategy will hopefully lead to an improvement in environmental quality, and a net gain in ecosystem service provision. Increasing the

condition and function of natural habitats invariably means that they deliver more environmental benefits as well as having greater value for wildlife.

When planning for nature recovery, we have strived to increase biodiversity, but also endeavoured to increase ecosystem services, to get the greatest environmental gains possible. Examples could include improving the condition of moorlands through positive management, so that they are better for wildlife and function better as carbon stores, improve water quality and absorb water to prevent flooding downstream; targeting woodland creation to areas where it can provide access and recreation opportunities for local communities as well as providing habitat for wildlife; or restoring natural processes in rivers, to benefit wildlife and species migration whilst also alleviating flooding.

3.3 Climate change context

Data from the Met Office demonstrates that Derbyshire's climate is already showing evidence of change:

- Average annual temperatures are now around 1°C warmer than the pre-industrial period.
- The 10 warmest years since 1884 have all occurred since 2002.
- The highest temperatures ever recorded were experienced in 2022.
- Average annual rainfall levels and the average number of annual days with very heavy rainfall have increased since the 1960s.

- Whilst there have been some heavy snow events in recent years (in 2018, 2013, 2010 and 2009), they have happened less often since the 1960s.

These changes are already having a direct impact on Derbyshire's natural environment, particularly the impacts from the more frequent and severe flooding, heatwave, drought and storm events experienced over recent years.

Looking forward, data from the Met Office Hadley Centre's UK Climate Projections 2018 (UKCP18) show that, under a high emissions scenario (if global emissions follow the current trend), Derbyshire's climate will continue to change in the following ways:

Temperature:

- the average annual temperature across the county could increase by around 3°C by the 2080s.
- summer temperatures across the county will increase, with the temperature regularly reaching 37°C in the south of the county and 33°C at higher altitudes in the north by the 2080s.
- the number of days each year when the temperature is below 0°C will decrease with ice and snow becoming increasingly rare events.

Rainfall:

- average annual rainfall amounts will remain largely unchanged from current levels, however, there is likely to be considerable change in when rainfall occurs.

- summers will be much drier, particularly in the south and central parts of the county.
- winters will become wetter, particularly in the north of the county.
- there will be an increase in the numbers of days per year when there is very little or no rain, as well as days with very heavy rain.

Wind:

- there is projected to be an increase in near-surface wind speeds over the UK for the second half of the 21st century for the winter season when more significant impacts of wind are experienced.

These changes have the potential to have significant impacts on the county's natural environment. The UK's third UK Climate Change Risk Assessment (CCRA3) summarises these impacts as:

- The impacts of climate change (changing average climatic conditions and extreme events) on the natural environment, including terrestrial and freshwater species, forests and agriculture.
- An increase in the range, quantities and consequences of pests, pathogens and invasive species, negatively affecting terrestrial and freshwater habitats and species, forestry and agriculture.

Climate change will not affect all parts of the county and all habitats and species equally, for example:

- Changes in temperature and rainfall patterns will make some places become less suitable for supporting species and habitats, while other places become more suitable.

- Greater fluctuations in temperature are expected in lowland areas, which coincide with the most productive agricultural land, than the uplands. This could increase pose a risk to habitats in these areas and on agricultural food production.
- Certain habitat types are particularly vulnerable to climate change. This includes blanket bog, which is important for surface water regulation and carbon storage but can be particularly impacted by changes in rainfall patterns and hydrology.

The natural environment is also crucial in helping Derbyshire adapt to the impacts of climate change by providing benefits such as flood risk management, cooling and shading, pollutant absorption, biodiversity connectivity and spaces for health and wellbeing.

For example, temperature increases, and an increase in heatwave events, are particularly significant for densely populated and deprived urban areas, where there is a greater risk of heat stroke and other impacts on health and well-being. To mitigate the effects of heat, green corridors and cooling features such as trees and wetlands are increasingly valuable, particularly in urban environments.

3.4 Nature and opportunities for nature recovery within Derbyshire's National Character Areas

Derbyshire's natural environment is highly diverse with an innate value that provides a range of wider benefits and ecosystem services. However, we need to place the sites that are good for nature within the wider geography of Derbyshire to fully understand where the scope to

expand and connect these habitats exist, and to identify the gaps where ‘stepping-stones’ are needed. Feedback from our early engagement supported the use of National (Landscape) Character Areas (NCAs) as a spatial framework or lens for reviewing the range and distribution of habitat types that occurs across the county.

Derbyshire’s landscapes are described through eleven National Character Areas. National Character Areas were developed by the predecessors to Natural England culminating in the ‘Map of England’ describing 159 discrete areas with boundaries defined by their geodiversity, landscape, biodiversity, and cultural context. Many of the 11 National Character Areas across Derbyshire extend beyond the county boundary, allowing for good joint working across county boundaries with neighbouring RAs who share similar landscapes. For the purposes of the spatial description, and following feedback from key stakeholders, the Dark Peak and South-West Peak NCAs have been combined into a single area reflecting the many common characteristics that define these areas.

Each NCA is detailed below, with a map, description of the landscape, an analysis of land-use mapping, habitat distribution, and key species, key sites for nature, the natural capital and wider ecosystem services associated with each landscape, land use pressures, constraints and other factors affecting nature recovery, and then potential opportunities for nature recovery conveyed by this data.



3.5 Dark and South-West Peaks

The Dark Peak covers a total area of 68,410 Ha in Derbyshire.



Both these NCAs are associated with the upland moors of Derbyshire with their associated foothills and deep valleys, falling largely within the administrative boundary of the Peak District National Park, reflecting their value to the nation. The Dark Peak extends from Glossop and New Mills, in the north and west, to the urban fringes of Sheffield in the east, and as far south as Matlock, whilst the South-West Peak comprises a remote, rural area to the north-west of Buxton, incorporating the Goyt Valley and extending as far north as Whaley Bridge.

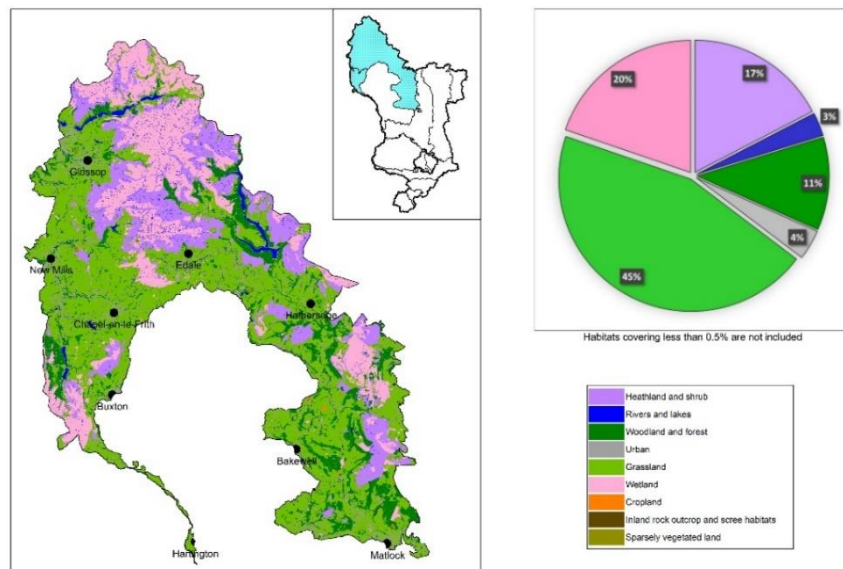
These areas are iconic upland landscape that owe much of their character to the underlying geology of Millstone Grit. This hard 'gritstone' interspersed with softer shales has given rise to this distinctive, landscape of 'high moors' with gritstone edges and tors dissected by broad valleys and narrow rocky 'cloughs'.

Semi-natural vegetation is a key characteristic of these landscapes with the expansive moorland of the Peak District being one of the most extensive semi-natural wilderness areas in England. Much of the moorland is traditionally managed for grouse shooting and sheep grazing. The extensive areas of blanket bog and heather/grass moorland across the upland plateaux and hill summits, contrasts with the more sheltered, lower lying valleys of predominantly pastoral farmland enclosed by hedgerows and dry-stone walls.

In areas of previously enclosed moorland over slightly better soils, acid grassland is more common with species like sheep's fescue, common bent, and mat grass, and in wetter areas purple moor grass prevails. Woodland persists at lower levels and on the steepest slopes, extending along some cloughs into moorland areas, and is particularly prevalent as plantation woodland around the large reservoirs in the upper Derwent valley and in patches along the Goyt Valley.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the combined Dark Peak and SW Peak Landscape Character Areas



Wetland – the upland summits and plateau areas of the Dark and South-West Peaks are defined by large expanses of blanket bog on deep peat comprising 20% of land coverage. Here common cotton-grass dominates with heather or with bilberry and crowberry. These blanket bogs support breeding birds such as golden plover and dunlin, as well as an important moorland population of water vole, present within streams and gullies as well as within blanket bog. Large parts of these blanket bogs are protected by international and national designations including the South

Pennine Moors SSSI (Site of Special Scientific Interest), SAC (Special Area of Conservation) and SPA (Special Protection Area) and Dark Peak SSSI **Heathland and shrub** – on lower moorland summits and slopes, shallower peat supports heather dominated upland heath covering 17% of the area. These upland heaths support birds such as red grouse, meadow pipit, curlew, merlin, and short-eared owl whilst associated areas of bracken are important in places for breeding twite and whinchat. The heather moorlands have the potential to be particularly important for hen harrier, and for the possible reintroduction of species like golden eagle and black grouse. The moorlands support the only mountain hares remaining in England. Acid flushes have developed locally, with carpets of sphagnum moss, sedges, and rushes, with local plants such as cranberry, bog asphodel and sundew. The heathland and shrub category also includes the hedgerows that enclose farmland at lower elevations, with walls being more common on upper valley slopes. Where hedgerows are present, they tend to be a mix of holly, hawthorn, hazel, and blackthorn, with oak as the predominant hedgerow tree.

Grassland – this remains the predominant land-use covering 45% of the area, including acidic, neutral, and wet grassland in both improved and unimproved condition often reflecting topographical variation. The valley slopes characterised by enclosed farmland still support patches of unimproved pasture and hay meadows. Some unimproved grasslands hold important populations of fungi – with a few sites likely to be internationally and nationally important for waxcaps. Upland areas can be species poor, with purple moor-grass, but this is valuable habitat for upland, ground-nesting birds including curlew, lapwing, and snipe.

Woodland and forest – this land-use covering 11% of the area is typically associated with the lower valley slopes and urban areas but sometimes extends along watercourses and into moorland cloughs, including patches of ancient woodland such as Highlow Wood, Oxhay Wood, and Rough Wood near Hathersage, and Elle Bank near Hayfield. Some cloughs and moorland slopes support areas of upland sessile oak wood with associated species such as birch with holly and hazel. On base rich soils over shale these woodlands can support a variety of ground flora, including dog's mercury and yellow archangel, and wavy hairgrass and bilberry on the more acidic soils. Characteristic birds of these woodlands include pied flycatcher, redstart, and wood warbler. Conifer plantations are often associated with reservoir valley sides and may have patches of semi-natural woodland or broadleaf plantation within them. The flora is often limited but can be important for fungi. Several birds of note are associated with these plantations, including goshawk, nightjar and crossbill.

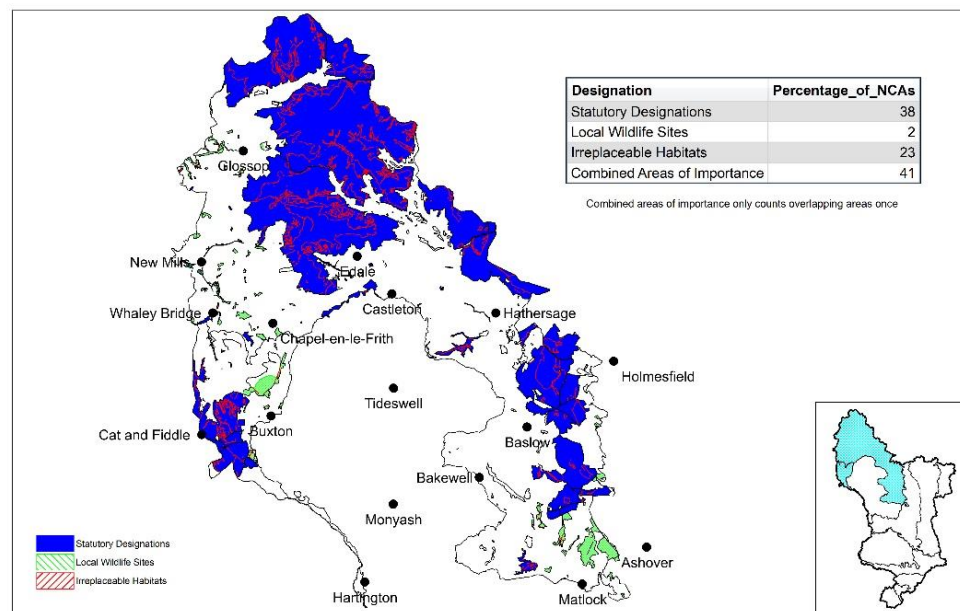
Rivers and lakes –comprising 3% of the area, this covers the main rivers of the Dark and South-West Peaks including the River Derwent, Etherow, and Goyt and including the large reservoirs of the Derwent Valley, and along Longdendale, as well as Fernilee and Errwood reservoirs in the Goyt Valley, often associated with marshes around inlet streams with various rushes, tufted hairgrass, marsh bedstraw and water mint. It also includes the fast-flowing streams of upland cloughs; often important for their diverse plants such as mosses, liverworts and ferns, and animals associated with wet flushes, particularly small populations of birds like dipper, grey wagtail, and common sandpiper. The southwest peak offers great potential to assist in the recovery of white clawed crayfish, as it

supports numerous ponds and streams which are isolated from other watercourses, protecting and isolating native, white-clawed crayfish populations from invasive species such as signal crayfish, as well as from the crayfish plague that they carry. Large valley reservoirs support small numbers of wintering ducks, and common sandpipers breed along the shorelines in summer. The drawdown zones of these reservoirs can be important for flora such as mudwort and shoreweed.

Urban – towns, villages and scattered dwellings within the lower lying valleys constitute 4% of the total land coverage and are rarely dominant in the wider landscape with buildings constructed from the local gritstone.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the combined Dark Peak and South West Peak Landscape
Character Areas



Large parts of the Dark and South-West Peaks are already identified as 'Areas of Particular Importance for Biodiversity' with 41% of the area being protected by international, national, and local designations comprising statutory designations (38%), irreplaceable habitat (23%), and Local Wildlife Sites (2%). The small number of Local Wildlife Sites in this area reflects the fact that the LWS system has not historically operated in the Peak District, whilst many higher value habitats are already covered by national conservation designations and higher.

Designation Type and Status	Site Name	Size/Area	Key Interests
International - Special Protection Area (SPA)	Peak District Moors (South Pennine Moors Phase 1)	25,057.94 Ha	Principally designated because of the size of the breeding populations of short-eared owl, merlin, and golden plover, for which the site is internationally important. The SPA is underpinned by two SSSI designations, the Dark Peak SSSI and the Eastern Peak District Moors SSSI, and largely mirrors the boundary of the South Pennine Moors SAC
International - Special Area of Conservation (SAC)	South Pennine Moors	24,804.9 Ha	Primarily designated as an SAC because of the presence of dry heaths, blanket bogs and associated habitats (wet heath, mire, and bog habitats), fringed in places by old sessile oak

			woodlands. The site is of international importance for these habitats. This designation is underpinned by two SSSI designations, the Dark Peak SSSI and the Eastern Peak District Moors SSSI
National - Site of Special Scientific Interest (SSSI)	28no individual sites	25,660.8 Ha	<p>The Dark Peak SSSI (the main moorland area of the Peak District) and the Eastern Peak District Moors SSSI, together with the Goyt Valley and Leek Moors SSSIs cover more than 25,000 Ha (250km²), accounting for more than 98% of the area of SSSI in this NCA. These sites are designated because of the occurrence of upland (blanket bogs and mires, heath, acid grassland, oak woodland) and other habitats and the important assemblages of breeding birds (dunlin, meadow pipet, curlew, twite etc), over wintering and passage birds, lower plants, sphagnum moss, lichens and bryophytes, moorland and moorland edge invertebrates, and populations of regionally scarce higher plants and animals, including species at the edge of their national range., as well as the geological features present. The Dark Peak and Eastern Peak District Moors SSSIs are also the county stronghold for common lizard (records also from the Leek Moors SSSI in this NCA) and adder, although the latter species is far more localised in its distribution.</p> <p>Other SSSIs in this area contain a variety of features of interest but are principally designated for their geological/geomorphological interest, ancient woodland, parkland and veteran trees, and smaller sites (containing unimproved neutral grasslands, as well as drawdown communities associated with reservoirs.</p>
Irreplaceable Habitat	<p>Ancient and Semi-Natural Woodland</p> <p>Ancient Replanted Woodland</p> <p>Blanket Bog</p> <p>Blanket Bog, deciduous woodland</p> <p>Lowland fens</p>	<p>687.99 Ha</p> <p>456.1 Ha</p> <p>14,460.73 Ha</p> <p>0.28 Ha</p> <p>78.84 Ha</p>	The Dark and South-West Peaks contains a significant proportion of the county's recorded ancient woodland habitat (around 22% of both the ASNW (ancient and semi-natural woodlands) and replanted Ancient Woodland stock), over a third of the county's lowland fen habitat, and a staggering 88% of our recorded blanket bog (the remainder falling within the South-West Peak).

National Nature Reserve	Kinder Scout	1083.3 Ha	Part of the Dark peak SSSI, Kinder Scout was designated as a National Nature Reserve because of its importance as a site for both public access and engagement with the natural environment, as well as for the blanket bog and heathland habitats and the upland breeding birds present. Kinder Scout was the site of the famous 1932 Mass Trespass – the catalyst for the creation of our National Parks and so is symbolic of the movement for public access to nature and the countryside
Local Nature Reserve	8no individual sites	27.41 Ha	Aside from Goytside meadows (10.37 Ha) and Mousley Bottom (28.25 Ha), LNRs in the Dark and South-West Peaks are predominantly small sites, over half of which are under 1Ha. Habitats within LNRS in this area include grasslands and meadows, ponds, woodlands, and heathland.
Local Wildlife Sites	124no individual sites	1451.53 Ha	Comprising predominantly woodland and grassland sites (62%) with open water and wetland sites (18%), heathland, upland mire (10%), and habitat mosaic sites (10%)

The interest in this NCA predominantly relates to the blanket bog, mire, heathland, and other upland habitats within the Dark Peak SSSI and the Eastern Peak District Moors SSSI. The international importance of these habitats is further recognised by their designation as a SAC (for habitats) and as an SPA for important bird populations. These designations also feature upland dry heath with heather and bilberry, and patches of Ancient Semi-Natural Woodland including clough woodlands containing dwarf shrub, lichens and mosses edged by old sessile oak woods.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Surface water regulation and natural flood management – The high moors of the Dark and South-West Peaks such as Goyt’s Moss and Axe Edge are covered by deep peat supporting blanket bog and are the source of several rivers including the Dove, Manifold, Goyt, Dane, Wye,

and the Derwent. These uplands areas have been identified as providing the highest levels of Natural Flood Management services in Derbyshire due to the high occurrence of peaty soils that absorb and retain water. The function of this area for natural flood management therefore plays a crucial role in protecting downstream areas – notably Derby City– from flooding during high rainfall events.

Water quality regulation - Slope, soil type, vegetation cover and land management practice all have an impact on maintaining water quality. Peat habitats make a significant contribution to maintaining water quality downstream. However, degraded peat within the area is a risk to water quality in the wider catchment. The Howden, Derwent, Ladybower, Fernilee and Errwood reservoirs provide most of the drinking water for the residents of Derbyshire, as well as supplying many neighbouring counties.

Carbon Storage and Sequestration – the intact bog habitats on deep peat soils have been identified as providing the greatest area of carbon storage in Derbyshire. However, areas of degraded peat, particularly in the Dark Peak NCA, are likely emitting, rather than sequestering carbon, and the greatest benefits to carbon sequestration could be achieved through bog and heath restoration in the Dark Peak and maintaining their functionality in the South-West Peak.

Tourism – the extensive, open moorland landscapes have a long association with access and are an important destination both for residents and tourists supporting a valuable visitor economy. Tourism is focused both on the extensive moorland areas, as well as the many reservoirs.

Recreation and public health - The recreational landscapes of the Dark and South-West Peaks support active leisure such as walking and cycling. These environments will therefore make a strong contribution to both the physical health and mental wellbeing of visitors and residents.

Food production – Farmland within generally falls within grades 4 and 5 (poor and very poor) of the Agricultural Land Classification system. However, livestock farming is nevertheless an essential component of this landscape and the rural economy.

iv. Land use pressures, constraints and other factors affecting nature recovery

Much of this area – and particularly most of the designated sites and important habitats - is located within the Peak District National Park. Within this area, the National Park designation has largely protected the area from large scale developmental change seen in other parts of the county, helping maintain a sense of remoteness and tranquillity. However, this does not mean that the habitats and species in this area are without some pressures for change, primarily through broader climatic effects, agricultural intensification, tourism, and recreational demand. More locally habitats are affected by the expansion of towns such as Buxton and Glossop, which lie outside the National Park designation, and by the impacts of deer particularly in the Eastern Moors and Goyt areas. River habitats including the river Etherow have also been impacted by past industrial legacy and urban expansion.

v. Description of potential opportunities for nature recovery in the Dark and South-West Peaks

DSP1 - Protection, conservation and enhancement of upland moorlands (including blanket bog, upland heath, and associated habitats), focussing on improving the condition and function of the existing resource, and extending this resource into transitional areas. Seek to maximise the wider environmental benefits, including capture and storage of carbon, reducing flood risk, and improving water quality.

DSP2 - Ancient woodland and other broadleaved woodland – the protection, conservation and enhancement of existing ancient semi-natural woodland sites, and the restoration of plantation ancient woodland sites, to increase their ecological diversity and ensure their function and longevity. Additional woodland focussed on appropriate locations, including cloughs, areas of low value habitat, and moorland fringe and transitional areas. Woodland action should maximise nature recovery as well as wider environmental benefits to capture and store carbon, improve flood risk, and provide better connected habitat for woodland birds, including pied flycatcher, redstart, and wood warbler.

DSP3 - Grasslands – Protection and enhancement of unimproved grassland, and the conservation, restoration, creation, and enhancement of other grasslands, focussing on acidic, neutral, and wet grassland as conditions dictate. The objective is to deliver robust networks of structurally diverse, locally appropriate, functional and biodiversity rich grassland that support pollinators and other invertebrates, as well as to provide improved and better-connected habitats for farmland birds, including curlew, lapwing, and snipe.

DSP4 - Rivers, river corridors and other watercourses - Naturally functioning and resilient water environments and river catchments, that provide ecological connectivity through the area and into neighbouring areas, help us adapt to the impacts of climate change, reduce the risk of flooding, and provide habitat rich with native plants and animals such as otter, water vole, and trout. River restoration and enhancement could improve these functions whilst land management decisions within the catchment should seek to deliver downstream improvements in water

quality and natural flood management benefits, including through the possible reintroduction of beaver.

DSP5 - Birds – The upland and moorland habitats in this area are critically important for several species of birds which together with overwintering and passage bird species are central to the national and internationally important designations in this area. However, some of these species require conservation action or species recovery work to support their numbers and ensure viable populations. Whilst habitat enhancement works involving bog and upland heath habitats should generally be beneficial to these species, further interventions may be required to support others. In addition, specific, targeted interventions may be required in relation to birds of prey, and the upland woodland bird assemblage, to improve their numbers across the area.

DSP6 - Species assemblages – measures which improve the extent, quality and connectivity of blanket bog, heathland and other upland habitats should support and enhance the area for species associated with those habitats (lower plants, lichens and bryophytes, moorland and moorland edge invertebrates, and populations of regionally scarce higher plants and animals, adder and common lizard) as well as the water vole population present here. Again, care should be taken to ensure the diversity and extent of habitats can support thriving populations of these species, with specific interventions developed as required. Identify further opportunities for species recovery, including the potential to expand white clawed crayfish initiatives, or to support notable populations of higher plants, lichens, and bryophytes, as well as moorland and wetland invertebrates.

3.6 White Peak

The White Peak covers an area of 39,130Ha in Derbyshire.



The White Peak character area is in the west of the county. Most of the White Peak NCA lies within the Peak District National Park, stretching from Castleton in the north, to Wirksworth in the south-east and Dove Dale in the south-west. Outside of the National Park, the White Peak NCA also includes the spa towns of Matlock Bath in the east and part of Buxton in the northwest.

The White Peak is an upland landscape, comprising a limestone plateau and deeply incised limestone dales. It strongly contrasts with the adjacent gritstone landscapes of the Dark Peak and South-West Peak to the north and west, whilst the transition to the Peak Fringe in the south is more gradual.

The White Peak is significant in Britain, as the junction between southern/lowland and northern/upland species of plants and animals. Variations in landform, soil and a diverse land-use history have produced a broad range of wildlife habitats and associated species, many of which are of national and international importance.

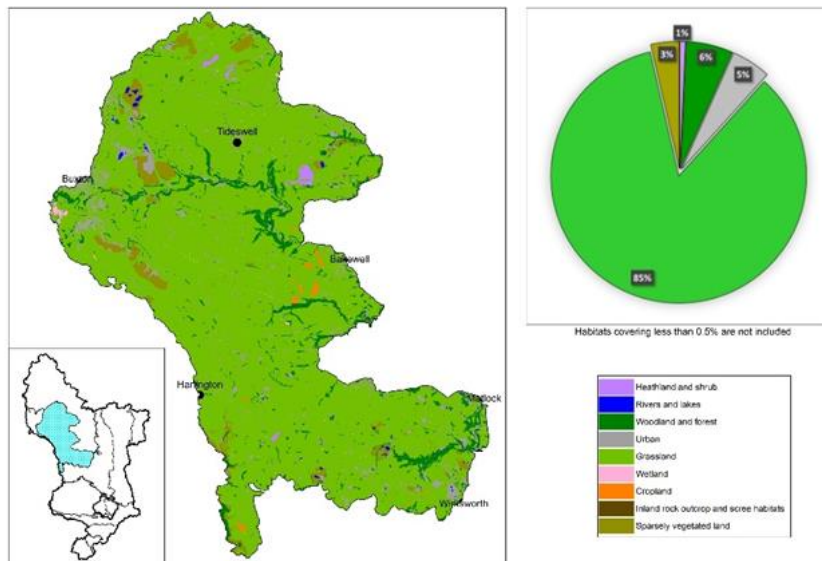
The landscape presents itself as a broad, open, upland plateau with scattered villages with the main habitats associated with grasslands used for dairy and livestock farming. Unimproved, species-rich, hay meadow and pasture are of greater value for wildlife but have declined dramatically in recent years due to agricultural intensification. Most of the grassland is improved for grazing and silage or haylage production. Occasional flower rich meadows and calcareous grasslands can still be found in this farmed landscape but are more commonly restricted to the dales and roadside verges.

On higher ground, above 350 metres, the cooler, wetter climate, and poorer soils favours the development of peaty topsoil and iron pans with impeded drainage giving rise to acid grassland and heath. These factors, alongside reduced accessibility to these areas, have limited the agricultural potential of the land and in places, a few small relics of the original limestone heath survive.

In the dales and around the edge of the limestone plateau where soils are shallow and slopes are often too steep for agricultural improvement, these areas commonly support strikingly species-rich calcareous grassland. Other dales support ancient semi-natural woodland, particularly upland ash woodland, which is often of international importance, but which does not generally occur elsewhere within this landscape.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the White Peak Landscape Character Area



Grassland – is the predominant land use comprising 85% of the land coverage. Agriculturally productive pastures on rich loamy soils

predominate including areas of highly productive grass and clover leys. A limited number of flower-rich hay meadows survive in places, and typically support species such as oxeye daisy, knapweed, yellow rattle and lady’s bedstraw. Species rich unimproved grasslands are also a notable component of the dales systems, varying from calcareous, neutral to acidic, depending upon the site aspect, soil type, and the impact of rainfall. Lead mining has had an important influence across much of the White Peak. Remnant spoil heaps frequently occur as linear features, called ‘lead rakes’, across the landscape and support a mosaic of important grassland types including specialised metal-tolerant plant communities classed as the priority habitat calaminarian grassland and characterised by plants such as spring sandwort (‘leadwort’). The White Peak NCA is a notable hotspot for great crested newts, which favour the pastoral landscapes containing extensive grasslands, together with dew ponds, stone walls, and some scrub or woodland cover. This area is also important for brown hare, which are relatively common here compared to other parts of the county.

Woodland and forest – Semi-natural ash woodland, much of it ancient, is a habitat (6% of land coverage), clothes extensive areas of steep slopes along many dale sides, and collectively forms the largest extent of ravine ash wood in Britain. These habitats are ecologically important, recognised through a range of International and National designations. Wych elm and hazel are typical associates, and the ground flora is very varied with ramsons often dominating the heavier soils on lower slopes, and dog’s mercury and woodland grasses dominating shallower soils and stony ground on the higher slopes. These woodlands support many rare

and scarce plants and invertebrates, and typical birds include marsh tit, redstart, and a variety of warblers.

Urban – villages across the broader plateau area constitute 5% of the total land coverage but they are rarely dominant in the landscape with buildings constructed from the local limestone. They form a sharp interface with the surrounding farmland with characteristic narrow strip fields enclosed by dry stone walls. Individual trees around the village are more noticeable, often ash and sycamore, associated with public open space such as village greens, private gardens, road verges, and against field margins.

Sparsely Vegetated Land – this land-use, covering 3% of the area, primarily relates to large scale quarrying, which occurs at discrete locations across the limestone plateau. Quarrying is an important industry in the area, often for lime production, but more recently for aggregate and cement production, and today this area has some of the largest quarries in the UK. Progressive restoration of these sites has created interesting biodiverse habitat mosaics, and the rock faces provide nesting opportunities for raptors such as peregrine falcon.

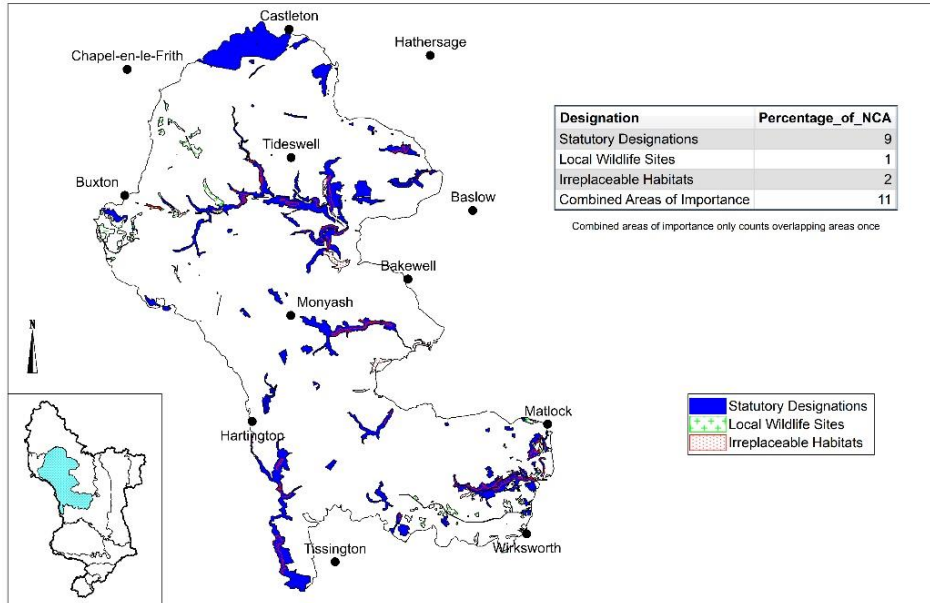
Heathland and shrub – although only covering 1% of the total land area, these small areas of upland heath are a relic of a once more widespread habitat type across the limestone plateau particularly on higher land. In these more elevated areas, climate favours the development of humic soils with impeded drainage. Such factors limit the agricultural potential of this land and in places, a few small relics of the original limestone heath survive. More commonly, patches of hilltop rough grazing land

occur, often supporting acid grassland with species such as mountain pansy and bilberry in the sward. In the dales, areas of scrub are included in this habitat type including both species-rich hazel scrub of particular importance for plants such as globeflower, and butterflies such as the dark green fritillary, as well as more invasive hawthorn scrub.

Rivers and lakes – this is a free draining limestone landscape and so open water is not a key feature of this area in terms of land coverage. However, where it occurs in the dale systems, it is a key component of the habitat mosaics within these designated areas. This area is also notable for the way water moves underground through the landscape, sometimes in unpredictable ways and with consequences for the movement of diffuse pollution. Water vole and otter are also present in parts of the river systems, whilst parts of the dale systems have previously been known to hold white clawed crayfish, although remaining populations face pressure from invasive, non-native signal crayfish, and the crayfish plague they carry. Atlantic salmon have started to return to the River Dove to spawn, following successful releases of parr in the river since 1998. Migratory fish species will continue to benefit from work to remove barriers to fish migration on the Rivers Trent and Derwent. Species such as lamprey and dipper are also noteworthy in this area.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the White Peak Landscape Character Area



The White Peak already has moderate 'Areas of Particular Importance for Biodiversity' with 11% of the area being protected by international, national, and local designations comprising statutory designations (9%) and Local Wildlife Sites (1%), and/or supporting irreplaceable habitat (2%).

Designation Type and Status	Site Name	Size/Area	Key Interests
International - Special Area of Conservation (SAC)	Peak District Dales Gang Mine Bees nest and Green Clay Pits	1848.48 Ha 8.23 Ha 14.66 Ha	The Peak District Dales SAC is a collection of 13 individual dale SSSIs located across a larger area within the White Peak NCA. The majority of the SSSIs (c80%) that form this site fall within Derbyshire. The site is considered internationally important, principally for the dry grasslands with broadleaf deciduous woodlands present. These dale systems support a range of notable habitats including a mix of semi-natural calcareous grassland (or calcareous, neutral, and acidic character, depending upon soils, slope, topography etc), upland ash

			<p>woodland and other ancient woodland, scrub, lead rake/mine spoil plant communities, stream habitats and more.</p> <p>Gang mine is a site supporting the most species-rich anthropogenic calaminarian grasslands in the UK, with notable and rare plant species adapted to live in the heavy metal rich soils of the former mine workings.</p> <p>Bees nest and Green Clay Pits is primarily designated as a SAC for the population of great crested newts present on site, and for the semi-natural dry calcareous grassland and scrub habitats that support this species.</p>
National - Site of Special Scientific Interest (SSSI)	47no individual sites	3516.55 Ha	<p>A very large number of SSSIs fall within the White Peak NCA. Although a number of these SSSIs are designated for geological reasons (and other sites include geological value in addition to their ecological value), it is the SSSIs within the limestone dale complexes, which are particularly notable. Other sites support species rich meadows with unimproved neutral, calcareous, and acid grassland, whilst several sites are notable for their limestone heath</p>
Irreplaceable Habitat	<p>Ancient and Semi-Natural Woodland</p> <p>Ancient Replanted Woodland</p> <p>Lowland fens</p> <p>Limestone pavement</p> <p>Blanket bog</p>	<p>587.42 Ha</p> <p>118.85 Ha</p> <p>1.24 Ha</p> <p>0.33 Ha</p> <p>4.35 Ha</p>	<p>The white peak contains a notable proportion of our ancient woodland irreplaceable habitats, supporting 20% of the county's ASNW (ancient and semi-natural woodlands) resource. It also contains the only recorded area of Limestone Pavement</p>
National Nature Reserve	<p>Derbyshire Dales</p> <p>Dovedale</p>	<p>385.03 Ha</p> <p>475.92 Ha</p>	<p>Two NNRs covering several accessible limestone dales with ash woodland, species rich grasslands and open water</p>
Local Nature Reserve	3no individual sites	34.21 Ha	<p>Accessible sites with calcareous grassland habitat, woodland, and exposed rock</p>
Local Wildlife Sites	96no individual sites	520.42 Ha	<p>Comprising primarily grassland habitat including that associated with former lead rakes (69%) with semi-natural woodland sites (12%), some open water and wetland sites (13%), and sites with habitat mosaics such as former quarries (5%).</p>

The White Peak NCA contains by far the greatest number of statutorily designated sites – including 47 SSSIs – of all the NCAs in Derbyshire. Despite this, the percentage of land covered by statutory designations is noticeably lower in the White Peak than the Dark and South-West Peaks, reflecting the smaller average size of SSSIs in this area.

These SSSIs show a remarkable relationship with the underlying limestone geology, with a significant number of sites designated for their geological interest alone. SSSI designations cover many of the limestone dales, where the steep slopes and thin soils have prevented agricultural improvement, and ancient woodland, unimproved grassland, and other habitats dominate. The ecological value of the dale systems relates to their orientation, with slopes on different aspects supporting a breadth of grassland and woodland types, whilst the nature of the soils, geology, and the influence of rainfall (leaching out the calcareous influence of the geology) ensuring the occurrence of calcareous, neutral, and acidic grassland throughout and across this suite of sites.

The SSSI grasslands of the limestone dales are nationally important for the grasslands they support. As well as supporting rich wildflower communities, these sites are important for species of lichens, invertebrates, and orchids. The area also contains a significant number of calaminarian grasslands – grasslands that have developed on former lead mining spoil. These heavy metal rich soils support 'metallophyte' vegetation, and uncommon or rare plant species that can thrive there - spring sandwort, alpine pennycress, moonwort, mountain pansy and associated lichens.

The Peak District Dales are of national and international importance for the habitats they contain, whilst the extent, diversity and juxtaposition of habitat types supports many rare and notable plant species, lichens, bryophytes, invertebrates, and birds. Outside of the dales, several SSSIs support nationally important grasslands and other open habitat types. Although the Local Wildlife Site system operates in less than 20% of the White Peak area (i.e., outside of the Peak District National Park), it is notable that the area nevertheless supports 91 individual Local Wildlife Sites. Grassland habitat types dominate the Local Wildlife Sites in this area (69%), although woodlands, wetlands and mosaic sites are also present. Whilst there are many LWSs in the area, many are small sites covering only a few hectares.

Although the area covered by SSSIs is extensive, these sites are localised to the dale systems, or consist of individual, geographically distinct sites spread throughout the NCA. Similarly, though numerous, Local Wildlife Sites are generally small sites, concentrated in the very south of the NCA between Matlock and Ballidon, or in the very north of the NCA, around Buxton and Dove Holes.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Surface water regulation and natural flood management – The White Peak contains the headwaters of water courses such as the River Dove and River Wye, and flow down to join the Rivers Trent and Derwent respectively. Most of the area is however a free-draining landscape, with rainfall infiltrating into the ground, and flowing through underground

routes to emerge into watercourses some distance away, with peak flows following high rainfall events delayed to some degree.

Water quality regulation – The pastoral land use, and the intensive nature of that farming, has the potential to adversely affect water quality downstream, with diffuse pollution entering the free-draining landscape and migrating into nearby water courses. The river Wye is noted as suffering from high nutrient levels both from diffuse agricultural pollution, and point-source pollution from water treatment works associated with settlements in the area.

Carbon Storage and Sequestration – outside of the ancient woodlands of the dale systems, carbon storage and carbon sequestration are likely to be quite modest across the agricultural grasslands of the White Peak, whilst some areas may already be net emitters of carbon at the present time.

Tourism – The natural beauty of the White Peak with its good public access and visitor facilities attracts many visitors, principally for walking, cycling, and quiet enjoyment of the open countryside.

Recreation and public health - The recreational landscapes of the White Peak support active leisure activities particularly walking, but also cycling. These environments will therefore make a strong contribution to both the physical health and mental wellbeing of visitors.

Food production – The White Peak is predominantly a rural, pastoral, farmed landscape. Agricultural land within the area generally falls within

grade 4 (poor) of the Agricultural Land Classification system, although some grade 3 land exists in places. Farming is a significant component of the rural economy.

iv. Land use pressures, constraints and other factors affecting nature recovery

Although there are villages scattered across the White Peak area – and this area also contains or abuts some larger settlements and towns such as Matlock, Wirksworth, Bakewell and Buxton – this NCA is generally rural in character. Furthermore, much of the area falls within the Peak District National Park and this designation has helped control urban growth and maintain its rural nature. This is likely to mean that development pressure will generally continue to be relatively low and localised, though potentially higher outside of the National Park around Buxton, Matlock and Wirksworth. The road network – including major roads such as the A515, A6 and A623 - is a notable intrusion into this otherwise rural landscape. This area contains several limestone quarries, some of which are amongst the biggest in Europe. Quarrying on this scale leads to permanent land take but creates opportunities for nature-based restoration.

The National Park designation, and the underlying reasons for that designation, will continue to be a key consideration in this NCA, conserving and enhancing the natural beauty, wildlife and cultural heritage of the area whilst also promoting opportunities for the understanding and enjoyment of those characteristics.

The White Peak contains almost half of the SSSIs in Derbyshire. Most of these sites fall within the steep sided dales, where the landform and topography have resisted agricultural improvement allowing these habitats to persist. This contrasts with most of the area, where gentler topography and deeper soils have allowed agricultural improvement and intensification, leading to a decrease in the biodiversity value of large areas. Nevertheless, there are some notable examples of meadow SSSI sites (and a significant number of valuable grassland LWS sites) across the plateau that hint at what the ecological value of this area might have been before, or perhaps could be again. It is likely that the remaining species rich grasslands will continue to persist thanks to statutory protections and/or their location in landscapes that make agricultural improvement less likely, whereas across the rest of the area, farming and agricultural intensification could threaten less valuable and less well protected sites. There are however numerous factors that could support the re-establishment of more species rich grasslands across this area, which would greatly assist in buffering, extending, and connecting between existing high quality grassland sites, and deliver habitats that would contribute strongly to the character of the area. Sensitive livestock farming will be critical in enabling this transition, provided this could be made financially viable.

v. Description of potential opportunities for nature recovery in the White Peak

WP1 - Protection, conservation, and enhancement of existing high-quality sites – focussing on the extensive SSSI network and the habitats and species they support. The key objective would be to ensure these

sites are in optimal condition to become the cornerstone of nature recovery across the landscape. Land outside but immediately adjacent to these designated areas would be the focus for habitat creation and enhancement, to extend, buffer and connect core sites as well as create stepping-stones between them.

WP2 - Grasslands – grassland is the dominant land use across the NCA, but outside of statutorily designated sites, these are predominantly species poor. Restoration or reversion of these grasslands to species rich meadows could provide tremendous ecological gains. However, noting the productivity of this landscape and the improved nature of the soils in many areas, a more appropriate approach would be to promote the widespread adoption of species rich herbal leys and local habitat improvements such as pond restoration and wildlife friendly field margins. This would represent a relatively modest and achievable change, and one that would be appropriate to – and beneficial in - this landscape, preserving and enhancing its generally open character and distinctiveness.

WP3 - Woodlands and trees – although this NCA supports a notable proportion of the county's ancient woodland resource, this is largely confined to the dale systems. The woodland priority for this area would be to focus on protecting, restoring, and enhancing these woodland sites, and ensuring they are able to meet the challenges of plant disease (most notable ash dieback at the present time) as well as climate change. There is also opportunity to extend these woodlands and improve connectivity particularly towards the Derwent Valley but also on the dale tops through the limited introduction of wood pasture, agro-forestry

and scrub development blurring the edge between woodland and pasture. Plantation woodlands across the wider plateau are frequently even aged and limited in species diversity and would benefit from active woodland management. Carefully targeted woodland creation and tree planting could be supported where this is appropriate to the historic and cultural qualities of the landscape as recognised by the National Park designation in this area.

WP4 - Great Crested Newt– the White Peak NCA is notable for the populations of great crested newts. For GCN, the focus should include improving terrestrial habitat adjacent to dew ponds known to support this species, maintaining and enhancing connectivity across the landscape, and restoring derelict dewponds.

WP5 - Rivers, streams, and watercourses are highly localised but very important components of the White Peak NCA. Continued action is required to address both point source and diffuse pollution in the upper River Wye catchment, for the benefit of habitats and species and the protection of designated sites. Wetland habitat protection and enhancement should seek to ensure the conservation and recovery of key species such as GCN (for which the White Peak is a stronghold), but also for water voles, otters and white-clawed crayfish which are more closely associated with specific watercourses.

WP6 – Lowland heath - Whilst limited in occurrence and distribution, small areas of limestone heath can be found in this NCA, particularly associated with the limestone plateau. The objective for limestone heath should be to protect and enhance existing sites and seek

opportunities to buffer and extend these habitats where conditions allow.

WP7 – Mineral Extraction - This area contains several limestone quarries, some of which are amongst the biggest in Europe. Quarrying leads to the removal of existing vegetation prior to extraction but creates the opportunity for large scale creation of biodiverse habitat mosaics including opportunities to create rare habitats such as calcareous grassland as well as retaining rock faces for raptors such as peregrine falcon.

3.7 Derbyshire Peak Fringe and Lower Derwent

The Derbyshire Peak Fringe and Lower Derwent covers an area of 37,165 Ha.



The Derbyshire Peak Fringe and Lower Derwent is a Character Area exclusive to Derbyshire, being a transitional landscape between the Derbyshire Coalfield in the east, the Needwood and South Derbyshire Claylands to the south and the Peak District (comprising the Dark and White Peaks) to the north-west.

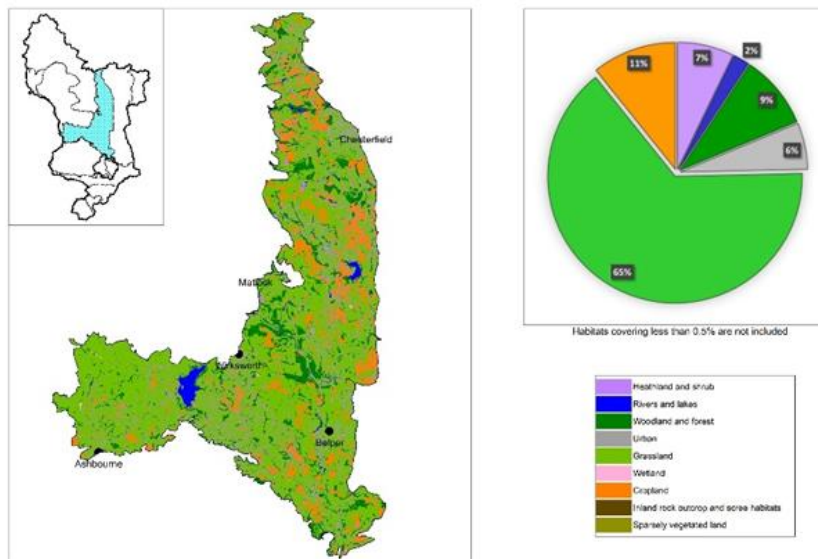
It is an undulating, well-wooded, pastoral landscape incorporating the river valleys of the Ecclesbourne, the Amber and most notably the Derwent. The Derwent Valley extends through the heart of the area from Cromford to Derby taking in the settlements of Belper and Duffield. With steep, wooded valley sides in the north, the flood plain broadens towards Derby with the River Derwent meandering through it.

The landscape retains an intimate scale with small irregular fields enclosed by mixed species hedgerows with mature trees, contrasting with the more open enclosed moorlands and former common land, defined by more geometric or regular field patterns, and enclosed by dry stone walls or simple hawthorn hedges. Towards the east of the area and on lower valley slopes there are areas of mixed farming that provide localised arable habitats.

Ancient semi-natural broadleaved woodland is a prominent characteristic made up typically of oak, birch, and hazel with many ancient woodland indicator species such as bluebell amongst the ground layer. Species-rich grassland tends to be neutral in character but there is localised calcareous grassland associated with limestone outcrops. Acid grassland and heath is found on steeper slopes over sandstone around the moorland fringe, as remnants of a perhaps once more widespread habitat type. The river valleys associated with the Derwent, Ecclesbourne and Amber, as well as the many tributaries that feed these rivers, provide valuable wetland habitats.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the Peak Fringe Landscape Character Area



Grassland – is the dominant land use comprising 65% of the land coverage. The underlying soils and the undulating nature of the topography restricts intensive agricultural practices so the area continues to support dairy and livestock farming. As such patches of unimproved pasture and flower-rich hay meadows survive in places.

Cropland – arable farmland constitutes 11% of the land coverage, predominantly occurring along the lower slopes of the Ecclesbourne valley towards Duffield, and along the eastern margins where this landscape transitions into the more mixed farming coalfield area.

Woodland and forest – mixed broadleaf woodland covers 9% of the area and is a prominent characteristic. Along the Derwent Valley it creates a network of interconnected woodland, much of which is defined as irreplaceable Ancient Semi-Natural Woodland supporting a range of key indicator species. Several woodlands are protected such as Crich Chase and Shining Cliff Woods SSSIs, with many others defined as Local Wildlife Sites, particularly important for their woodland birds such as pied flycatcher, wood warbler, and in winter, brambling. Some commercial, coniferous woodland is locally significant particularly associated with the enclosed moorland areas around Wirksworth and Matlock Moors supporting important ground nesting birds including nightjar. The area is likely to be a stronghold for species assemblages associated with mature and ancient woodland, and this area has previously been highlighted as important for woodland birds - including tree pipit, wood warbler, pied flycatcher, lesser woodpecker, marsh tit, willow tit, willow warbler, garden warbler and hawfinch. Nightjars have recently also been recorded in the area.

Dormouse have been recorded in the Derwent Valley but subsequent surveys have shown they died out. A population was reintroduced in 2004 to one site in the Derwent Valley and may subsequently have colonised adjacent sites within the valley.

Heathland and shrub – this land cover category, comprising 7% of land coverage, mainly relates to the many hedgerows that enclose the pastoral farmland. In areas of early enclosure, often associated with small, irregular fields, these hedgerows will be mixed species including hazel, holly, and numerous mature oak trees. In enclosed moorland areas or areas of later enclosure where fields are more geometric and

regular in shape, then boundaries are dominated by simple hawthorn hedgerows or dry stone walls with less boundary trees. The area also includes isolated patches of upland, dry heath such as that found around Ashover Rock and the Fabric supporting heather with some bilberry, and dense scrub along moorland edges such as that found at Highoredish.

Rivers and lakes – although rarely visually prominent (only 2% of land coverage), the many rivers in the area create an important habitat network. The River Derwent alongside the other main rivers in the area, still retain a number of associated wetland habitats that support a number of key species such as otter, water vole and white-clawed crayfish. Otters can also be found on the Henmore Brook and the River Ecclesbourne, whilst water vole have historically been recorded throughout the NCA, especially around the Cromford Canal, but also from watercourses around and west of Carsington Reservoir, River Hipper west of Chesterfield, Barlow Brook. White clawed crayfish were previously recorded from numerous rivers and watercourses in this area but have declined dramatically on connected watercourses where non-native crayfish have colonised. Isolated waterbodies offer more hope, with a healthy population of white-clawed crayfish at Wingerworth Lido, whilst crayfish ark sites have been developed at Holmebrook Country Park and Carsington Water.

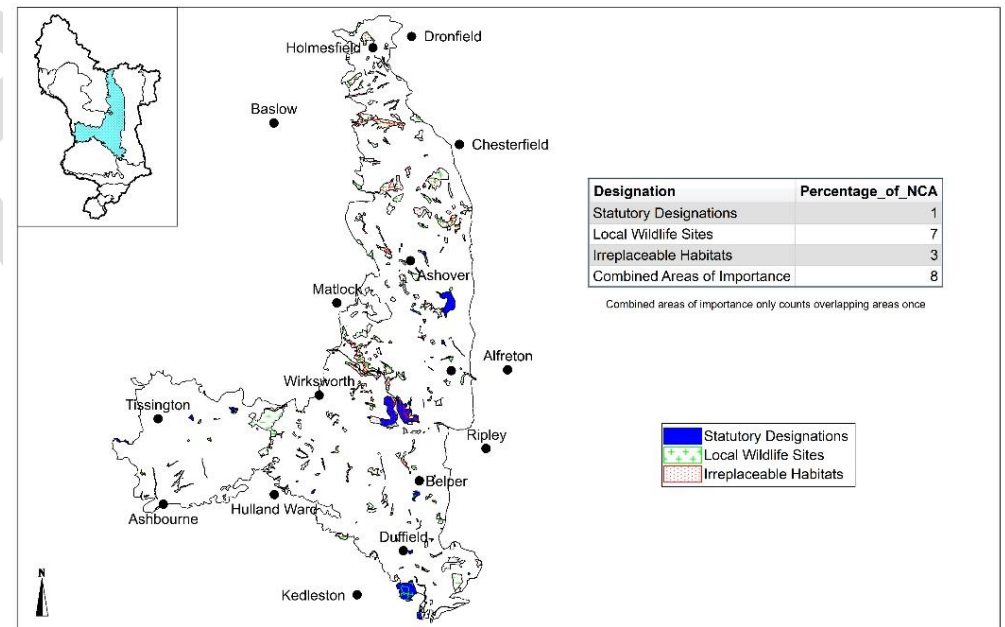
As well as coarse fish species, the River Derwent supports brown trout, with Atlantic salmon returning to the river following recent weir removal works. Migratory fish species will continue to benefit from work to remove barriers to fish migration on the Rivers Trent and Derwent. The large reservoirs at Carsington and Ogston are particularly important for their populations of resident and migratory wetland bird species. The

Cromford Canal is now an important protected site for nature conservation and creates good linkages with other valuable habitat.

Urban – urban is recorded at 6% of the land coverage in this area, and whilst the area remains rural in character, this reflects the fact that the Peak Fringe and Lower Derwent extends to Derby in the south, includes the western edge of Chesterfield, and incorporates the much expanded towns of Ashbourne and Belper, and the eastern edge of Matlock.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Peak Fringe Landscape Character Area



The Peak Fringe and Lower Derwent already has some significant 'Areas of Particular Importance for Biodiversity' with 8% of the area being protected by international, national, and local designations. Only 1% is covered by statutory designation principally relating to protected woodland along the Derwent Valley and the wetland habitats at Ogston Reservoir. In addition, a further 3% is defined as irreplaceable habitat, again mostly relating to Ancient Semi-Natural Woodland, and 7% as Local Wildlife Sites.

Designation Type and Status	Site Name	Size/Area	Key Interests
International - Special Protection Area (SPA)	Peak District Moors	0.23 Ha	
International - Special Area of Conservation (SAC)	Peak District Dales South Pennine Moors	5.2 Ha 0.23 Ha	Lower reaches of the White Peak dales system Expansive blanket bog and upland wet and dry heath
National - Site of Special Scientific Interest (SSSI)	17no individual sites	383.75 Ha	SSSIs in this area include important grasslands (mostly neutral, but also some acid grasslands and a limited amount of calcareous grassland, reflecting the transitional nature of the Peak Fringe), woodlands and anthropogenic wetland (canal, reservoir, and flooded brick pits) sites, as well as geological sites
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Ancient Replanted Woodland Lowland fens	783.52 Ha 406.18 8.02 Ha	This NCA contains the largest proportion ancient and semi-natural woodland (27.2%) as well as a significant proportion of the Ancient Replanted Woodland resource (20%), but only 3.5% of the lowland fen resource, and no other records of irreplaceable habitats
National Nature Reserve	Dovedale	9.81 Ha	Accessible limestone dales with ash woodland, species rich grasslands and open water, this NCA contains only a relatively small proportion of the much larger Dovedale NNR, which continues into the White Peak
Local Nature Reserve	10no individual sites	179.49 Ha	10 individual accessible sites ranging from small, isolated heathlands to a large public park (the largest LNR in the county) undergoing rewilding, with other sites including a mix of grassland, heathland, woodland, parkland, and water

Local Wildlife Sites	308no individual sites	2476.45 Ha	Dominated by woodland sites (57%) with unimproved neutral grassland sites (28%), some open water and wetland sites (8%), heathland (3%), and sites with habitat mosaics such as former quarries (4%).
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The NCA contains a limited amount of land designated as of international importance for biodiversity, that land being part of much larger internationally important sites predominantly within adjacent NCAs, where only a small part of these designations extends into this area. This NCA supports several SSSIs covering a diversity of habitat types, but those sites are often small, and so the total area of the area covered by SSSIs is scarcely more than 1%.

Despite this, the area does contain a significant proportion of the county's Ancient and Semi-Natural Woodland (ASNW) and Ancient Replanted Woodland resource. It is comparatively well served with Local Nature Reserves, as well as containing nearly a quarter of the county's designated Local Wildlife Sites. Though dominated by woodland sites, grasslands are also a significant component of the NCA's Local Wildlife Sites.

The Cromford Canal between High Peak Junction to Ambergate is a notable hotspot for reptiles, with records for all four of the Derbyshire species (grass snake, common lizard, slow worm, and adder), though grass snake records are by far the most numerous, followed by slow worm.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Agriculture and food production – the land in this area is mostly grade 3 and 4 and is primarily used for pastoral farming. This is an important component of the rural environment in this area.

Carbon sequestration and storage – the woodlands in this area are likely to be functioning well for both carbon storage, and active carbon sequestration. However, the agricultural soils in this area are likely sequestering limited amounts of carbon, and in places are at risk of becoming net emitters of carbon. This landscape could therefore offer opportunities to improve carbon abatement.

Leisure and recreation - There is significant recreational interest in the area with attractions such Carsington Reservoir and the Derwent Valley Mills World Heritage Site, as well as sites of natural interest such as Shining Cliffs Woods, Allestree Park, Linacre Reservoirs and Cromford Canal.

Water storage and supply - Carsington and Ogston Reservoirs provide important water storage and supply drinking water.

Natural Flood Management - Deciduous woodland along valley slopes help to control surface water run-off and deliver natural flood management.

iv. Land use pressures, constraints and other factors affecting nature recovery

The area is not an especially urbanised landscape. However, there are key settlements within and at the periphery of this area - Chesterfield, Matlock, Belper and Ashbourne, as well as the northern edge of Derby - that are significantly larger and more developed than elsewhere in this NCA. Many of these areas have been the focus of urban expansion over recent years, and it would seem likely that over the coming years, further development will continue to be a localised pressure around those settlements. In the wider area, development pressure will be less, whilst the nature of the soils and topography will continue to resist agricultural improvements.

The Derwent Valley Mills World Heritage Site (DVMWHS) is a significant asset in this area, being the only World Heritage Site in the East Midlands, and a site of international importance for its cultural heritage. The Derwent Valley Mills are in many ways a product of their valley environment, with mill locations selected to take advantage of waterpower and other environmental opportunities in the valley. The World Heritage Site designation is dependent not only on the core mill buildings and man-made structures, but also the relic landscape setting of those assets and the associations between the sites and the surrounding land which supported the mills and their workers. There will

be opportunities for nature recovery within the DVMWHS but land use decisions, development proposals, and habitat creation and enhancement work should support and enhance the aims and objectives of the designation.

v. Description of potential opportunities for nature recovery in the Derbyshire Peak Fringe and Lower Derwent

PF1 - Ancient woodland and other broadleaved woodland – This area offers the greatest opportunity for enhancing the woodland network and improving connectivity. The key objectives should include protecting and enhancing existing assets, including through good woodland management to improve woodland condition and structure, species diversity, and to protect and retain ancient and veteran trees. This should focus on core areas of woodland habitat particularly in the lower Derwent Valley from Cromford to Ambergate, around Clay Cross to Holymoorside, and around the Linacre Reservoirs area, as well as around the ancient woodlands in the north of the NCA. The woodland network should be enhanced by connecting woodlands including through new woodland planting and natural regeneration in appropriate locations, taking account of cultural constraints and other statutory designations. This would benefit woodland species and assemblages and would connect to and extend the woodlands of the White and Dark Peak NCAs.

PF2 – Hedgerows and hedgerow trees – this is an area notable for the presence of mature mixed species hedgerows supported by hedgerow trees, predominantly oak with some ash. The opportunity exists to

improve the protection and management of these hedgerows, including the retention and planting of hedgerow trees.

PF3 - Grasslands – especially lowland meadow, species rich grassland, and small-scale mires and rush pasture. This area has potential to revert pastoral farmland to woodland, however it also has some of the best opportunities to reconnect grasslands. The enhancement and creation of species rich grasslands is therefore a key opportunity particularly where they reduce grassland habitat fragmentation, would buffer and extend the grasslands of the White and Dark Peak NCAs, and/or where this approach may be more appropriate in the World Heritage Site designation.

PF4 - Rivers, river corridors and other watercourses – enhancement of key wetland corridors, particularly rivers, streams, and canals This includes improving connectivity along watercourses (longitudinal connectivity), removing barriers to species movement, and reconnecting watercourses to their floodplains and adjacent habitats. This also includes addressing watercourse pollution. In addition, NFM measures within this area could help address flooding both within the Derwent Valley, its tributaries, and further downstream.

PF5 - Heathland - The area contains a small amount of heathland, but given the rarity of this habitat in Derbyshire, these are very important. Measures should focus on protecting and enhancing existing sites wherever possible, and seeking opportunities to buffer, extend and connect these sites where conditions allow.

PF6 – Riparian mammals – the Peak Fringe, particularly the River Derwent and Cromford Canal, are important for water voles and otters. The survival and recovery of water vole and otter will be dependent on the maintenance of high-quality habitats, and the connectivity to habitats up and downstream, but water vole success will be particularly dependent on the control and eradication of mink. The River Derwent in the future could become a focus for beaver reintroduction.

3.8 Nottinghamshire, Derbyshire and Yorkshire Coalfield

The Nottinghamshire, Derbyshire and Yorkshire Coalfield covers an area of 40,900 Ha within Derbyshire.



The Derbyshire Coalfield is in the east of the county, stretching from the outskirts of Sheffield in the north, to the Trent Valley in the south and is a broad belt of low-lying land, approximately 10km wide and 45km in length. The area is strongly influenced by its underlying coal geology comprising alternating bands of sandstone, shale, mudstone, and coal,

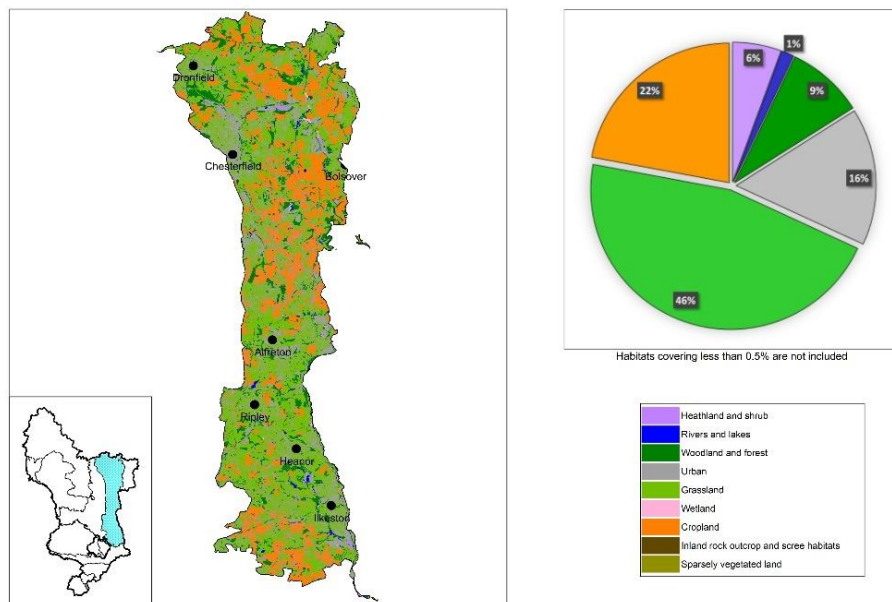
collectively referred to as Coal Measures. Over time, natural processes have shaped the landscape to form the characteristic series of sandstone ridges and gentle valleys.

Widespread industrialisation in the coalfield, particularly associated with the former coal mining, has significantly altered the landscape's visual and ecological integrity, yet in the most part, the underlying natural character remains evident and distinctive, giving rise to a diversity of habitats associated with the underlying geology or human influences. The soils are predominantly heavy, and seasonally waterlogged, and have traditionally supported dairy farming. Over time, agricultural changes have led to an increasingly more mixed farming system with remnant habitats associated with river valleys, meadows, heath, and woodlands. Many of these habitats are small, fragmented remnants of the pre-industrial landscape, although they include flashes, which are wetlands resulting from ground subsidence because of past underground mining. A few habitats have developed through recent changes created by coal mining, dereliction, or neglect, and can now support some important invertebrate species. Ancient semi-natural woodland remains a characteristic feature in some parts of the coalfield particularly in the Moss valley to the north where there several large woodlands.

The area includes several important river corridors including the Rother and Doe Lea in the north of the area extending through Chesterfield, and the Erewash in the south forming the eastern boundary with Nottinghamshire. These river valleys support important habitats including reedbeds, fen and marsh.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the South Yorkshire, Nottinghamshire and Derbyshire Coalfield Landscape Character Area



Grassland – covering 46% of the area, pasture is still the predominant land use. However, the history and industrial legacy of the coalfield has resulted in some of the lowest amounts of priority grassland in the county. Traditionally the area would have supported extensive neutral grassland with some acidic grassland on steeper slopes over sandstone in the north, but today much of the grassland has been improved to produce silage and haylage. Grass snakes are reasonably common and widespread within this NCA, typically associated with grassland sites and especially those associated with wetlands and waterbodies in low lying

areas. The open grasslands associated with previously developed, brownfield, and recently restored sites are important for dingy skipper butterfly, and outside of the Peak District, the coalfield is a stronghold for this species.

Cropland – arable farmland is a key component with 22% land coverage, although it is slightly more prevalent in the north of the area where the landscape undulates on a broader scale allowing for the use of larger farm machinery. This is predominantly cereal crops supporting livestock farming as part of a mixed agricultural system.

Woodland and forest – woodland comprises 9% of the area and is a combination of Ancient Semi-Natural Woodland, secondary woodland, and more recent plantation woodland created through the restoration of former colliery sites such as those at Williamthorpe, Grassmoor, and Holmewood. The Moss Valley in the north is an important area of Ancient Semi-Natural Woodland designated for its upland oak and wet woodland that supports a range of ancient woodland indicators such as yellow archangel and bluebell. The valley is important for breeding birds including green woodpecker, great spotted woodpecker, tawny owl, kingfisher, and grey wagtail. Ancient woodland as a relic habitat also occurs as isolated patches in other locations across the coalfield such as Cloves Wood and Morleyhayes Wood near Stanley Common. There are some significant concentrations of plantation woodland to the south of Alfreton around Riddings and Golden Valley, many designated as Local Wildlife Sites, that define a locally, more wooded character.

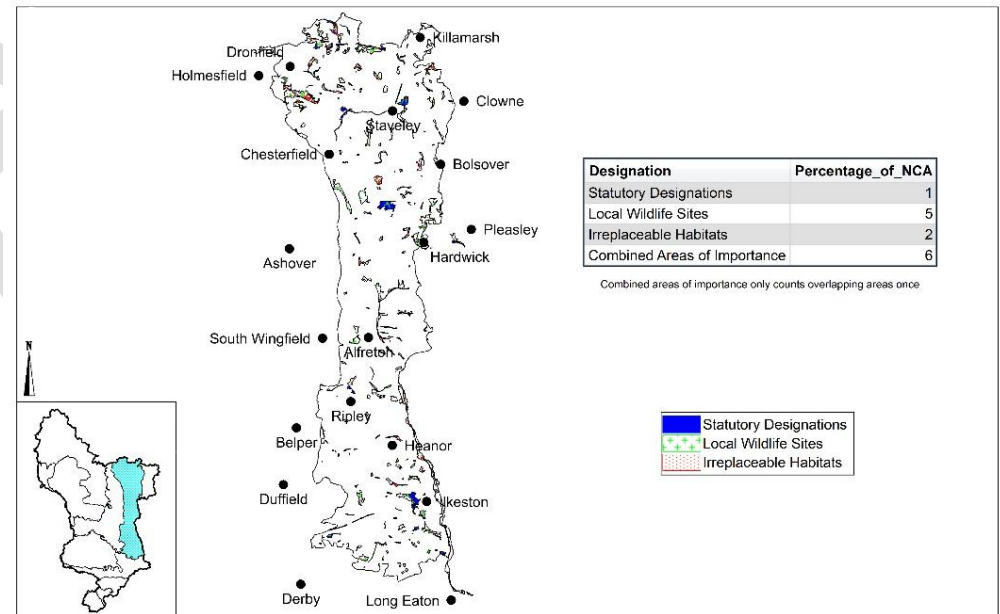
Heathland and shrub – this land cover category (6% of land coverage) mainly relates to the many hedgerows that enclose farmland with isolated patches of scrub often found on derelict or neglected land such as the former Staveley Works site near Chesterfield. In areas of earlier enclosure and especially in areas with Ancient Semi-Natural Woodland such as the Moss Valley, hedgerows are typically mixed species with many characteristic species such as hazel and holly with mature hedgerow trees including oak. In many areas field enclosure has been significantly modified as a result of widespread opencast coal mining, and in these areas, hedgerows are often missing or fragmented, or where restoration has taken place, species poor and dominated by hawthorn.

Rivers and lakes – comprising just 1% of land coverage, there are three notable rivers within the area: the rivers Rother and Doe Lea in the north flowing through Chesterfield, and the river Erewash in the south forming the county’s eastern boundary with Nottinghamshire and discharging into the river Trent. Several tributary streams and brooks feed these rivers and contribute to the diversity of wetland habitats. There are many waterbodies, often former colliery lagoons or small reservoirs, canals, and other wetlands scattered across the coalfield with several designated as Local Nature Reserves including Brearley Wetland, Norbriggs Flash, and Pewitt Carr. These sites provide important habitat for key species such as great-crested newt. The various canals, river corridors and key wetland sites in this NCA previously supported healthy populations of water vole. However, in common with many parts of the country, water vole populations are in sharp decline, with predation by mink greatly exacerbating the current cause, in addition to historic habitat losses.

Urban – this is a highly urbanised area because of both past mining, but also more recent development delivered through regeneration schemes to bring employment to the area following the closure of the coal mines. Today 16% of the area is defined as urban. Many of the original pit villages have seen significant residential expansion in recent years and in areas around Chesterfield and Alfreton many of these individual settlements have started to coalesce into larger urban areas.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the South Yorkshire, Nottinghamshire and Derbyshire Coalfield Landscape Character Area



The Derbyshire Coalfield has limited 'Areas of Particular Importance for Biodiversity' with only 6% of the area being protected by national and

local designations comprising statutory designations (1%) and Local Wildlife Sites (5%) and/or supporting irreplaceable habitat (2%).

Designation Type and Status	Site Name	Size/Area	Key Interests
National - Site of Special Scientific Interest (SSSI)	8no individual sites	62.68 Ha	Varied sites comprising former railway cuttings, meadows, woodlands, and wetlands. Over 80% of the SSSI interest lies in the very north of the NCA around the Moss Valley (north of Dronfield and Eckington), these sites having been designated for their ancient woodland, meadow grassland and wetland habitats, each of value to invertebrates.
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Ancient Replanted Woodland Lowland fens	442.23 Ha 290.75 Ha 52.76 Ha	The Derbyshire Coalfield supports around 15% of the county Ancient and Semi-Natural Woodland and Ancient Replanted Woodland resource (focussed in the north of the NCA but also around Stanley/Shipleigh area), but nearly a quarter of the county resource of lowland fen, focussed around the River Erewash/Erewash canal north of Heanor/Eastwood, at Brinsley Meadows, Aldercarr Flashes, with smaller sites in the vicinity of Ilkeston and in the Norbriggs and Carr Vale Flashes further north
Local Nature Reserve	24no individual sites	247.97 Ha	Accessible sites including trails with a mix of grassland, woodland, and wetland
Local Wildlife Sites	337no individual sites	2171.72 Ha	Varied sites comprising woodland (40%), wetlands and open water (26%), grasslands including wood pasture (23%), and mosaic habitats often associated with previously developed land (10%)

The Derbyshire Coalfield has a comparatively low proportion of its area designated as SSSI - just 0.15% - this interest mostly relating to woodland, wetland, and grassland sites in the northernmost reaches of the NCA. This paucity of nationally important sites likely reflects both the underlying geology and prevailing environmental conditions, as well as the intensity of settlement and land use change in this area.

Despite this, the area contains the greatest number of Local Wildlife Sites (although not the highest percentage land cover of LWS, at less than 5%), suggesting that many pockets of ecological interest occur throughout the area. These LWSs include a real variety of habitats, but woodlands are particularly prominent, followed by wetlands and grasslands. This NCA is also recognised as supporting some significant proportions of the county's Ancient Woodland and Lowland Fen

resources. These figures highlight that despite the absence of statutory designations, and even considering the intensity of land use in this area, there remains a notable level of ecological interest throughout the area. The NCA also contains the greatest number of Local Nature Reserves of the NCAs in the county. This reflects the many settlements and urban areas, and the steps that have been taken by local authorities to protect and provide areas semi-natural greenspace for their residents, although not all communities are equally well served. Some LNRs have been designated on former colliery sites, taking advantage of their dereliction following the decline of industry, and subsequent restoration to nature conservation and public access.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Recreation and public health – given the level of urbanisation throughout this NCA (16% by land coverage), then high-quality semi-natural green spaces will be especially important for residents and members of the public looking for local opportunities to exercise and experience the natural environment. This area benefits from numerous local recreational facilities, including country parks, Local Nature Reserves, accessible sections of canal, and linear features such as footpaths and riverside access routes which are highly valued locally and are particularly important to the health and wellbeing of residents. However, many communities within this NCA have been identified as lacking access to recreational sites within easy reach of their own home (see Natural Capital Strategy, figures 45-48).

Water quality regulation – land use within this area will be a key determinant of water quality further downstream. The River Erewash has previously been identified as a source of poor water quality within the Attenborough SSSI complex and further downstream, with agricultural runoff, sediment and nutrient load identified as a particular concern. Similarly, run off and leachate from former mining sites within this area have previously been identified as contributing to poor water quality in Alfreton Brook and Oakerthorpe Brook, leading to poorer water quality in the river Amber, and further downstream in the river Derwent. Water quality within Hardwick Hall Park is adversely affected by agricultural and sediment run-off between the park and the river source a little way upstream.

Tourism – whilst not traditionally considered a tourist hotspot, this NCA nevertheless supports several key cultural heritage assets (Hardwick Hall, Bolsover Castle, Sutton Scarsdale Hall) which are intimately related to their surrounding natural environment and somewhat dependent on this for their tourism offer.

Carbon storage and sequestration – land within this NCA has been identified as storing a very limited amount of carbon, and in places is identified as likely to be a net emitter of carbon, or at risk of carbon loss, although could offer opportunities for carbon abatement/storage.

Agricultural productivity – agricultural land in this area is predominantly grade 4 (poor) with limited areas of grade three land, with a mixture of arable and pastoral farming. Whilst farming will remain an important sector, the area is likely to experience greater land-use change whether

for residential development, energy generation such as large-scale solar, or even for the delivery of biodiversity.

iv. Land use pressures, constraints and other factors affecting nature recovery

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

The eastern side of the county along the Nottinghamshire border has traditionally been the focus of much settlement and urbanisation associated with mining and industrial growth, and the Derbyshire Coalfields NCA continues to be one of the most urbanised and populous areas of the county. With a continued national focus on the delivery of new housing, there will be inevitable pressure for the settlements throughout this area to grow and expand, exacerbating habitat fragmentation and potentially impacting directly on biodiversity. This development could also lead to indirect impacts such as degradation of water quality through increased surface run-off and pressure on water treatment facilities or increased recreational pressure. Conversely, the new statutory requirement that development should deliver a 'net gain' for biodiversity could offer a mechanism for investment in biodiversity in this part of the county, particularly given the imperative that 'biodiversity offsetting' should be delivered near the development site, or within the NCA in which the development impact occurred.

This area benefits from being part of the Heartwood Community Forest, which will significantly increase the extent of woodland in this area, improving habitat connectivity and linking communities to woodlands. Whilst farming will remain an important sector for landowners, its limited profitability in this area will facilitate land-use change – whether for residential development, energy generation, or even for the delivery of biodiversity and ecosystem services.

Transport corridors are also a consideration in the area, with the M1, A38, A610, A61 and A617 just some of the major routes through the NCA, and with railway lines adding to this picture running from both Nottingham and Derby to Chesterfield and onwards to Sheffield.

v. Description of potential opportunities for nature recovery in the Derbyshire Coalfield

DC1 - Rivers, river corridors and other watercourses - The river corridors are especially important for biodiversity in this NCA. The Rivers Rother and Doe Lea in the north, and the Erewash in the south, as well as their tributaries, together with Chesterfield and Erewash canals are important environmental assets and corridors. In places their value is greatly enhanced by the presence of adjacent wetland habitats, flashes, areas of grazing marsh and other complimentary habitats, which collectively support a suite a wetland habitat types and dependent species. Connectivity along watercourses could however be improved through management of the intervening land and the creation of additional wetlands. Many watercourses in this area have been modified and could be improved by restoring their alignments and natural profiles and reinstating natural processes. Water quality in this area is

sometimes adversely affected by the level of urbanisation, industry, and legacy issues from coal mining, and opportunities exist to improve this situation through nature-based solutions and targeted interventions.

DC2 - Woodlands and trees - Ancient woodland is mostly locally distributed although there are opportunities to protect and connect these sites and restore Plantation on Ancient Woodland Sites. Other woodlands are a constant and recurring feature in this NCA with significant opportunities to extend and connect these sites including into similar landscape within Nottinghamshire. Further woodland creation could be promoted in large parts of the area to help connect people to woodlands and associated habitats, including for recreation, health, and wellbeing.

DC3 – Grasslands existing high-quality grasslands are locally distributed, focussed particularly within the SSSIs at the northern end of the area. However, good quality grasslands do remain, including sites designated as LWS. Grassland opportunities in this area therefore relate to the protection and enhancement of existing high-quality sites, the enhancement of other grasslands sites of biodiversity value, using those sites as a basis of a connected habitat network, and the restoration and creation of new grasslands sites, recognising that this area can support a variety of grassland types.

DC4 - Accessible semi-natural greenspaces - This is an urbanised area, with villages and towns distributed throughout. Despite the presence of many local wildlife sites and an above average number of Local Nature Reserves, many communities across this area are poorly serviced with

accessible semi-natural green spaces. Such spaces could make a significant contribution to the health and wellbeing of these communities, some of which remain disadvantaged following the decline of industry. Habitat creation and enhancement should therefore seek to maximise both nature recovery and public access benefit wherever possible or be strategically directed towards areas of disadvantage and green infrastructure deficit. Biodiversity Net Gain could be used to secure environmental enhancements in this area, especially in or adjacent to areas of high development pressure and urban growth.

DC5 - Farmland - farmland is lower quality (predominantly grade 4, with localised grade 3 land) and of limited productivity in this area. However, nature-based solutions could deliver improved biodiversity on this land, and contribute significantly to environmental improvement, improving water quality by reducing agricultural runoff, or by providing improved carbon sequestration. Nature-based solutions, such as agroforestry, could be funded by marketing the benefits provided, improving the environment whilst also supporting farming within this area to remain viable, providing alternative income streams, and benefiting nearby communities.

DC6 - Great crested newts – Opportunities should be sought to support GCN in this landscape and provide sustainable locations for stable, connected populations. Development pressure could fund strategic habitat delivery to benefit the GCN habitat network.

3.9 Southern Magnesian Limestone

The Southern Magnesian Limestone covers an area of 9,320Ha within Derbyshire.



The Southern Magnesian Limestone area is a gently rolling plateau dissected by narrow river valleys and rocky gorges. The landscape is characterised by large arable fields enclosed by predominantly hawthorn hedgerows creating an open landscape on a broad scale. It occurs in the northeast of the county as a narrow belt of elevated land,

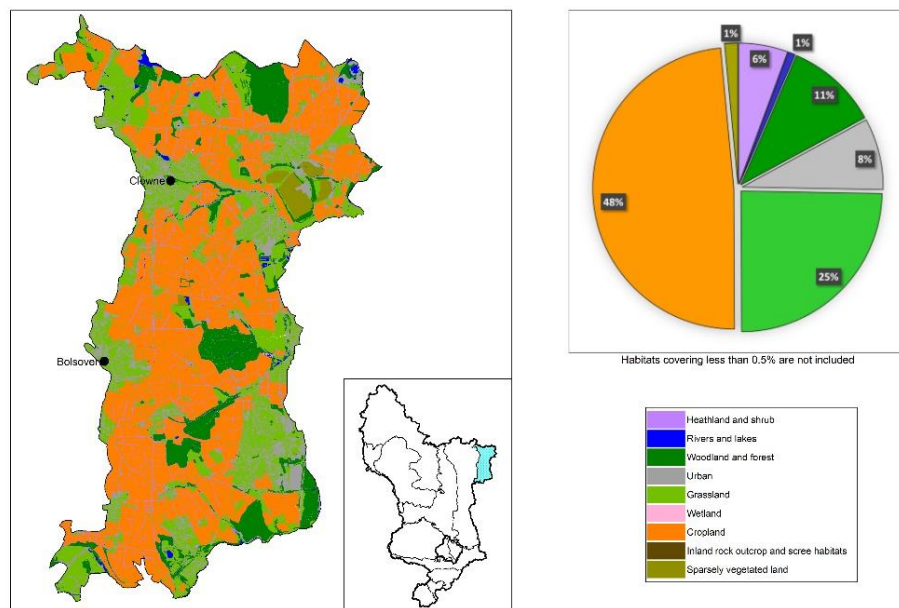
approximately 10km wide by 20km in length, running between Barlborough in the north to Hardwick and Pleasley in the south. The magnesian limestone geology weathers to form a light, very fertile, friable soil which supports intensive arable farming.

Woodland is locally prominent but never dominant, occurring as large, isolated blocks across the landscape such as Whitwell Wood, Scarcliffe Park Wood, and Pleasley Park. Although these woodlands are of ancient origin, they have now been largely converted to commercial coniferous woodland managed by large estates. Beyond the woodlands, tree cover is sparse and often limited to isolated amenity trees around the villages and towns scattered across the plateau. However, further remnant ancient woodland persists in the narrow gorges that dissect the plateau. The narrow, steep sided gorges that cut through the plateau remain as important natural features in this landscape. Their inaccessibility, along with the steep rocky sides, have minimised human disturbance and allowed many original habitats to survive. Magnesian limestone can support a very species-rich flora, including some species that occur nowhere else in the county.

Historically, the area also supported deep underground coal mining and many rural villages such as Clowne, Bolsover, and Shirebrook expanded into larger pit towns during that time. Like many pit towns and villages, these have seen significant expansion in recent years as part of wider regeneration strategies for the area becoming larger urban areas. Many former colliery sites and their associated tips, like those at Langwith and Pleasley, have now been restored to create country parks that contain a range of valuable habitats.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the Southern Magnesian Limestone Landscape Character Area



Cropland – the deep, fertile soils and gently undulating nature of the Magnesian limestone plateau has ensured that arable farming, mostly cereal cropping, is the dominant land-use in the area comprising 48% of total land coverage. This has previously been an important part of the county for farmland birds such as skylark, yellowhammer, linnets, grey partridge, lapwing, tree sparrow and yellow wagtail. In recent years, farmland birds have been in decline in this area.

Grassland – grassland cover comprises 25% of total land coverage although this is dominated by intensively managed grassland. Where relic grassland survives these small patches are calcareous in character and often isolated. The most significant grasslands in the area are those associated with reclaimed colliery sites such as Poulter and Pleasley Country Parks, the parkland landscape at Hardwick, and fragments of calcareous grassland that persist within the limestone gorges. Unimproved Magnesian limestone grassland is generally uncommon and is the main justification behind the designation of Markland Grips as a SSSI, where patches persist. The species rich calcareous grasslands, together with the open grassland habitats of former industrial and mining sites have previously been identified as important for several notable butterfly species including dingy skipper, small heath, as well as (previously) grizzled skipper.

Woodland and forest – woodland is another important habitat across the plateau comprising 11% of the total area. These are relatively few but very large in size including woodland such as Whitwell Wood and Scarcliffe Park Wood, often on ancient woodland sites, as well as younger plantations associated with the reclamation of former colliery tips. Most of the woodland is mixed broadleaf in nature although commercial coniferous planting has taken place within these large estate woodlands. This area has also been identified as important for woodland and woodland edge butterfly species such as white letter hairstreak.

Heathland and shrub – this land-cover type (6% of land coverage) relates almost exclusively to the hedgerows that enclose this arable

landscape. These are mostly simple hawthorn hedgerows with the occasional limestone wall around settlement edges, although species-rich hedgerows can still be found and where they persist are often in good condition. Hedgerow trees are notable by their absence, although elms would once have been common prior to their demise due to Dutch elm disease. This network provides important ecological connections through the landscape and between the large woodland blocks although today these hedgerows are often fragmented, gappy, and poorly managed.

Sparsely vegetated land – comprising 1% of the area, this land use category relates primarily to two large limestone quarries at Bolsover Moor and Whitwell, but also includes Steetley Quarry and some railway sidings. Progressive restoration of these quarry sites has created some ecological interest, and the rock faces provide nesting opportunities for raptors such as peregrine falcon.

Rivers and lakes – water is not a prominent feature of this free draining limestone plateau at just 1% of land coverage. Primarily it is confined to the few infrequent streams that cut through the plateau from west to east creating the gorges, and some water bodies formed through the reclamation of former colliery sites. One of these sites is Pleasley Country Park, which is designated as a Local Nature Reserve due to its access to a mosaic of habitat types.

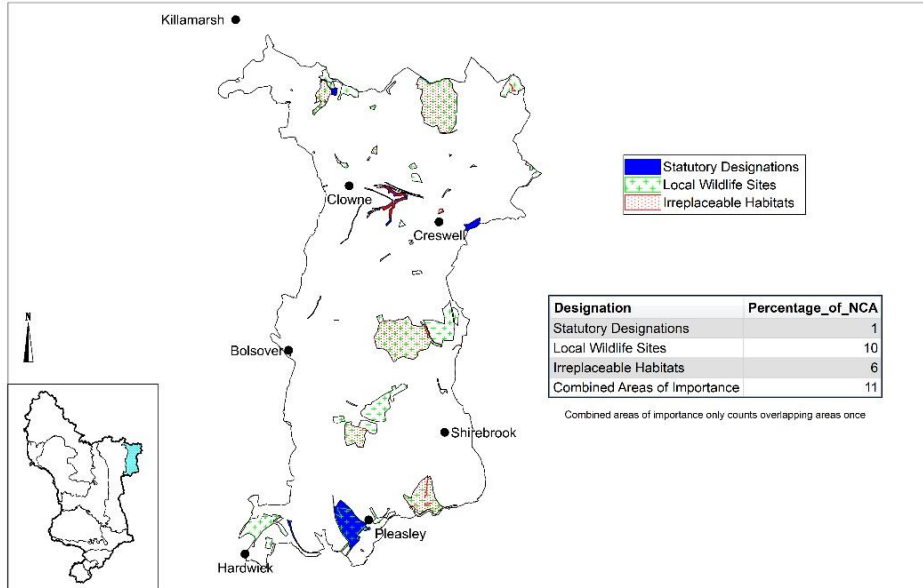
Urban – large, expanded settlements are becoming an ever-increasing feature of the limestone plateau and now comprise 8% of total land coverage. Many of the original pit villages have seen significant

expansion in recent years to accommodate growing populations and accommodate new sources of commercial development to compensate for the demise of the coal industry in the area.



ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Southern Magnesian Limestone Landscape Character Area



The Southern Magnesian Limestone area already has moderate 'Areas of Particular Importance for Biodiversity' with 11% of the area being protected by national and local designations comprising statutory designations (1%) and Local Wildlife Sites (10%), and/or supporting irreplaceable habitat (6%).

Designation Type and Status	Site Name	Size/Area	Key Interests
National - Site of Special Scientific Interest (SSSI)	6no individual sites	36.24 Ha	Hollinhill and Markland Grips is the largest SSSI in the area, supporting important unimproved magnesian limestone grasslands and some woodland in a steeply sided incised valley cutting into the limestone. Other SSSIs include two small wetland sites supporting base-rich flushes where water seeps out from the limestone. Creswell Crags is a nationally and internationally important geological, paleontological, and archaeological site.
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Ancient Replanted Woodland Lowland fens	74.08 Ha 435.88 Ha 4.41 Ha	This NCA contains over 20% of the county's Ancient Replanted Woodland resource

Local Nature Reserve	3no individual sites	87.51 Ha	Accessible sites including mixed habitats in Pleasley Vale, Pleasley Pit Country Park, and the Rowthorne Trail
Local Wildlife Sites	71no individual sites	933.66 Ha	Primarily relate to pockets of mixed deciduous woodland (39%) and unimproved calcareous grassland (38%), with some wetland and open water habitats (17%) along the minor stream valleys and gorges, and habitat mosaics (6%) on previously developed sites

This NCA contains no internationally designated sites of biodiversity value, whilst less than 0.5% of the area is designated as SSSI. Hollinhill and Markland Grips, and Creswell Crags SSSIs make up most of the land designated as SSSI in this NCA (over 80%), with both sites occupying steep sided valleys within this landscape. The relative lack of sites covered by statutory conservation designations reflects the history of land use and more intensive agricultural practices which occupy most of the plateau.

However, this NCA contains one of the highest proportions of land designated as Local Wildlife Site (around 10%), most of these sites supporting either deciduous woodland or calcareous grassland, with some wetland habitats in localised areas in the valleys. It is notable however that a relatively small number of very large LWS account for a very large proportion of the land designated as LWS, with just 8 sites accounting for nearly 80% of those designations. These are predominantly ancient woodland and plantation on ancient woodland sites. Other large sites of nature conservation interest include Poulter Country Park and Pleasley Pit Country Park – both restored former colliery sites – as well as Hardwick Hall, which is of high cultural and historic significance as well as supporting important wood pasture and parkland habitats.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Agriculture – the Magnesian Limestone NCA contains some of the county’s best and most versatile farmland, with most of the agricultural land identified as grade 2 (very good), with some grade 3 (good to moderate) land. Farming in this area is therefore an important, agriculturally productive, and economically viable land use. Whilst these are doubtless positive attributes, they do mean that opportunities for large scale land use change (for example for nature conservation) will be limited given the economic value of the land for farming, and the importance of the area for domestic food production.

Carbon storage and sequestration – the intensive farming and land use practices in this area tend to mean that the soils currently have limited value for carbon storage, and in places are at risk of becoming net emitters of carbon. Conversely, the ancient woodland and plantation ancient woodland sites make a valuable contribution to carbon storage and sequestration.

Recreation and public health – although this area contains numerous settlements and is relatively urbanised, it has very few Local Nature Reserves, whilst urban areas like Shirebrook, Clowne, Creswell and

Bolsover have been identified as having some degree of shortfall in their access to local semi-natural green spaces. Nevertheless, the semi-natural green spaces of the area are well recognised as being an important resource for local people and will make a positive contribution to health and well-being. Examples of important sites in this regard would include Whitwell Wood, Poulter Country Park, Pleasley Pit Country Park, and Hardwick Hall Park amongst others.

Tourism - Key sites in the area also have an existing value for tourism (particularly the heritage sites of Hardwick Hall and Bolsover Castle) whilst there is also an appetite to grow the recreational tourism offer in this area through the delivery of interconnected green spaces using former railway lines as greenways.

iv. Land use pressures, constraints and other factors affecting nature recovery

The deep, fertile soils of this area have led to widespread intensive farming, which has left little space for nature. Coal mining facilitated the growth of the settlements and consumed land for collieries and coal processing, further squeezing nature into ever smaller areas, although some of these former colliery and industrial sites have since been restored to benefit nature conservation.

Given the productive nature of the farmland in this area and the current focus on domestic food production and food security, it would seem likely that the imperative for intensive and arable farming in this area will persist. Similarly, the continued need for housing growth will likely

mean ongoing pressure for the settlements throughout this area to grow and expand, exacerbating habitat fragmentation and potentially impacting directly on biodiversity.

However, the new statutory requirement that development should deliver a 'net gain' for biodiversity could offer a mechanism for investment in biodiversity in this part of the county, particularly given the requirement that 'biodiversity offsetting' should be delivered close to the development site, or within the NCA in which the development impact occurs. There will also be a need to provide enhanced access to green open spaces, both to address current shortfalls for existing populations, and to meet the needs of new residents, and this could be achieved through the delivery of well-planned green infrastructure.

v. Description of potential opportunities for nature recovery in the Magnesian Limestone

ML1 - Maintain, restore, enhance, and expand key habitats in this area – this should focus on improving the condition of existing deciduous woodlands (including plantation on ancient woodland sites) and extending them where appropriate as significant new woodland creation opportunities are likely to be limited. This should include appropriate public access where possible. Opportunities to conserve and enhance the grassland resource as well as open mosaic on previously developed land should also be prioritised.

ML2 - Ecological connectivity –There are opportunities for landscape connections such as hedgerows between ancient woodland sites, the

use of river corridors and associated floodplain habitats, field margins and highway verges, to create high quality networks crossing the productive agricultural land.

ML3 - Farmland – conservation measures to improve the value of the farmed landscape for small mammals and bats, invertebrates including pollinators, arable plants, and bird species. Measures should include encouraging habitat recreation as well as field margins, hedgerow restoration, beetle and butterfly banks etc.

ML4 - Accessible greenspaces – the area contains several settlements that are becoming urbanised through more recent expansion. Although the NCA contains a small number of larger sites of wildlife interest, many communities are not well served by locally accessible greenspace. Such spaces could make a significant contribution to the health and wellbeing of these communities, some of which remain disadvantaged following the decline of industry. Habitat creation and enhancement should therefore seek to maximise both nature recovery and public access benefit wherever possible or be strategically directed towards areas of disadvantage and green infrastructure deficit. Biodiversity Net Gain could be used to secure environmental enhancements in this area, especially in or adjacent to areas of high development pressure and urban growth.

3.10 Needwood and South Derbyshire Claylands

The South Derbyshire Claylands covers an area of 33,040Ha within Derbyshire.



This is a well settled area of gently undulating to rolling pastoral landscape over Mercia mudstones, sandstones, and glacial drift to the west of Derby that extends beyond the county boundary into Staffordshire. Small irregular fields are enclosed by mixed species hedgerows with many mature hedgerow trees, mostly oak, while the

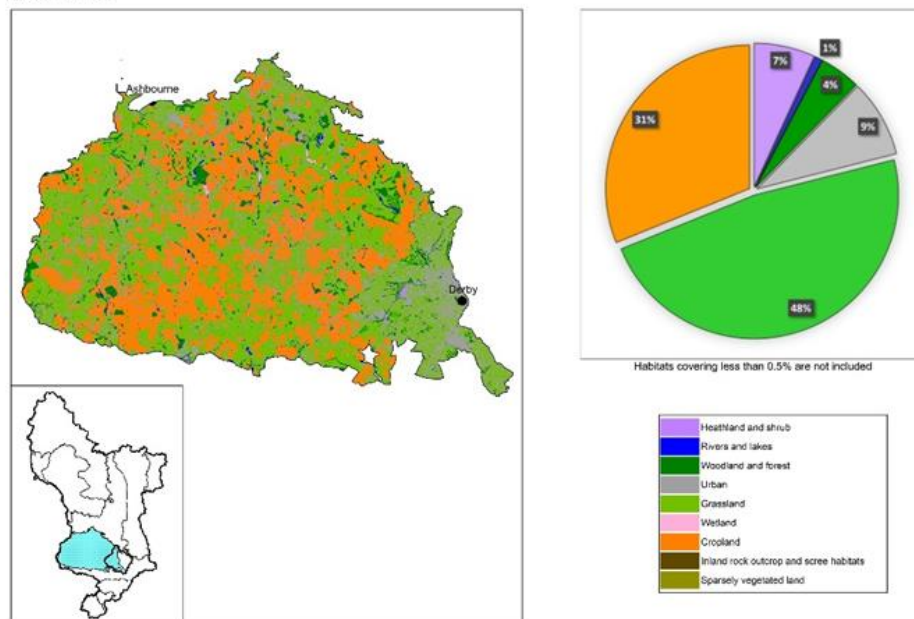
plateau areas have more regular shaped fields with thorn hedgerows and fewer trees. Where the topography allows and on lower valley slopes towards the Trent valley there are areas of mixed farming that provide localised arable habitats. Although much of the pasture has now been improved, there are still remnants of unimproved pasture and meadows, and some older hedgerows are species rich.

The Derbyshire Claylands, unlike the Needwood area in Staffordshire, is less wooded. Woodland habitat occurs sparsely, but locally occurring parkland, such as that at Kedleston Hall, makes a significant contribution to the overall character and habitat value of the area with its high concentration of veteran trees, as do the densely scattered hedgerow trees.

There is a dense network of small tributary streams, often delineated by dense lines of riparian trees, that provide important wetland habitats including rush pasture, mire, and fen. The western boundary is defined by the river Dove, which also forms the administrative boundary between Derbyshire and Staffordshire. Locally occurring heathland with gorse and heather is still to be found, though mostly confined to the steepest slopes or road verges over sandier substrates.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the Needwood and South Derbyshire Claylands Landscape Character Area



Grassland – grassland accounts for 48% of the land coverage and whilst much of this land use is improved, modified pasture or temporary grass leys, a third of it is still recorded as neutral grassland although this is becoming increasingly fragmented. There are some concentrations of unimproved pasture to the west of Kedleston Park between Weston Underwood and Meynell Langley, as well as an area to the north of Sutton-on-the-Hill.

Cropland – arable farming is becoming an increasingly more prominent land-use in the South Derbyshire Claylands comprising 31% of total land coverage, associated with cereal cropping.

Heathland and shrub – this land-cover type (7% of land coverage) relates almost exclusively to the hedgerows that enclose this mixed farming landscape. Hedgerows can be species rich in areas of earliest enclosure, with holly, hazel and field maple, to predominantly hawthorn in areas of late parliamentary enclosure.

Woodland and forest – this area presents itself as a well treed landscape although woodland only comprises 4% of total land coverage. However, the small woodlands that exist combine with densely scattered hedgerow trees, dense watercourse trees, and parkland trees to create this well treed character with restricted views through the landscape. Parkland includes a number of important habitats such as wood pasture and veteran trees that support some rare species such as the oak polypore fungus.

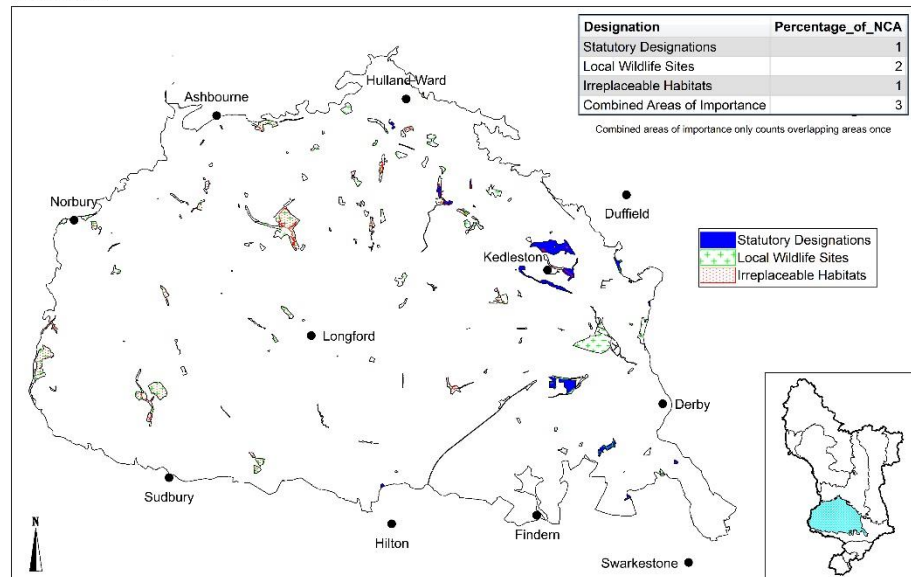
Rivers and lakes – water is not a prominent characteristic of this area comprising 1% of land coverage and confined to the tributary streams that flow into the River Dove and Trent. These stream corridors contribute to the diversity of wetland habitats including lowland fen as found at Mercaston Marsh and Muggington Bottom SSSI along Black Brook and Mercaston Brook. Otter can be found along the River Dove, with a smaller numbers of records from the Markeaton Brook between Kedleston and Markeaton Park, and onwards into Derby. Water vole

have also previously been recorded along the Markeaton Brook, and occasionally in other watercourses in this NCA.

Urban – the South Derbyshire Claylands is a sparsely settled area of small villages, hamlets and scattered farmsteads, ensuring it retains a deeply rural character. Although the area has 9% urban land coverage this specifically relates to the western edge of Derby and the southern edge of Ashbourne that have expanded into this area.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Needwood and South Derbyshire Claylands Landscape Character Area



The South Derbyshire Claylands area has very few 'Areas of Particular Importance for Biodiversity' with 3% of the area being protected by national and local designations comprising irreplaceable habitat (1%), Local Wildlife Sites (2%), and 4no statutory designations (SSSI) although the main interest relates to the historic parkland at Kedleston Hall.



Image: Regenerating sand and gravel site near Mercaston

Designation Type and Status	Site Name	Size/Area	Key Interests
National - Site of Special Scientific Interest (SSSI)	4no individual sites	111.66 Ha	At over 90Ha, Kedleston Hall SSSI is by far the largest statutorily designated site in the area, with the historic parkland containing important wood pasture with numerous veteran trees. Other sites include Mercaston Marsh and Muggington Bottoms (marshland), Hulland Moss (a small lowland bog and dry heath site) and a small part of Hilton Gravel Pits
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Ancient Replanted Woodland Lowland fens	148.62 Ha 83.46 Ha 34.97 Ha	This NCA contains around 15% of the county's identified lowland fen resources, and around 4-5% of the ancient woodland resource
Local Nature Reserve	7no individual sites	59.71 Ha	Accessible sites including woodlands and meadows and areas of parkland within Derby.
Local Wildlife Sites	156no individual sites	752.59 Ha	Apart from a few large parkland areas at Markeaton, Darley Park and Shirley Park, sites are a mix of small woodlands including some important hedgerows (34%), wetlands comprising streams, ponds, and swamp areas (32%), and small pockets of neutral and acid grassland (25%).

There are 4 SSSIs within this NCA although in terms of total land coverage, SSSI designations cover just 0.33% of the NCA, one of the lowest proportions of SSSI coverage in the county, the vast majority of which is accounted for by Kedleston Hall SSSI at 93.24Ha. Kedleston Park is designated principally on account of the rich and diverse deadwood invertebrate fauna found there.

Mercaston Marsh and Muggington Bottoms are important for their marshland containing a selection of wetland plants, whilst Hulland Moss is a fine example of lowland bog and dry heath, with abundant bog mosses (*Sphagnum* spp) as well as bog asphodel, marsh violet, and marsh valerian. It is a similar picture with regards to Local Wildlife Sites – although there are 154 LWS designated within this NCA, they cover just 2.2% of the area – again, one of the lowest figures for percentage

land cover of LWS within the county. Furthermore, whilst there are a small number of very large Local Wildlife Sites in this NCA – most notably the larger parkland sites at Markeaton, Darley Park and Shirley Park, as well as larger woodland sites - the remaining sites are relatively small, with around one third of these sites under 1Ha in area, and a total of two thirds being under 3.5Ha. The habitats supported by these sites is split between woodland (34%), wetlands including both open water and swamp areas (32%), and remnants of neutral and acid grassland (25%). Woodland sites include the important ancient semi-natural woodland at Eaton Wood and elsewhere, as well as some important hedgerows.

Most of the Local Nature Reserves in this NCA relate to sites within the administrative area of Derby city and include a variety of publicly accessible land containing woodland, grassland, and wetland sites, as

well as habitat mosaics on previously developed land such as the former Chellaston Brickworks.

Markeaton Brook has previously been important for white clawed crayfish, with records from Kedleston Hall to Markeaton Park and its lake. However, this population is under threat from the non-native signal crayfish which are already present at Markeaton Park. White-clawed crayfish from Kedleston Park have already been transferred to an 'ark site' elsewhere in the county.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Agriculture - land in this area is associated with cereal cropping and intensively managed grass and clover leys, with neutral grassland also a feature. This is likely a reflection of the Agricultural land classification in this area, where land is predominantly grade 3, but with equal proportions of grade 4 (most notably along watercourses) and Grade 2 (around Kedleston and along the A52 corridor).

Carbon sequestration – the land in this area has been identified as generally supporting low levels of carbon sequestration and being at risk of moving to net emission of carbon.

Recreation and public health – Outside of Derby City and away from Kedleston Park, this area has been recognised as supporting relatively few sites of importance for recreation and attracting very few recreational visitors, although beyond Derby City at least, it is sparsely settled. That said, the communities in this area generally have limited

access to semi-natural green space, although the rural nature of the area suggests access to the wider countryside is good.

iv. Land use pressures, constraints and other factors affecting nature recovery

Outside of Derby City, large parts of this area are generally characterised by low levels of urbanisation, with settlements generally consisting of small, scattered villages. It is anticipated that these areas are unlikely to face significant urban growth pressures. Locally however, mineral extraction may continue to exert a development pressure.

The comparatively productive farmland in this area is likely to result in continuing pressure for agricultural production, and likely agricultural intensification. Agricultural land in this area was previously identified as predominantly pastoral, although there is evidence of a more recent growth in arable farming. It is likely that this will continue where soils and landform allow. Agricultural intensification could impact on existing mature hedgerows and hedgerow trees, undermining the apparent treed character of this area.

3v. Description of potential opportunities for nature recovery in the South Derbyshire Claylands

CL1 - Maintain, restore, enhance, and expand key habitats in this area – this should focus on protecting and enhancing wood pasture and parkland, as well as wetland and neutral and acid grasslands where these occur.

CL2 - Ecological connectivity – ecological assets in this area are generally both small and isolated – robustness could be improved by extending and buffering existing sites and improving connectivity via hedgerows with hedgerow trees including the improved management of these features, as well as field margins and highway verges.

CL3 - Woodlands and trees– although woodlands are not especially common in this NCA, locally, woodlands can be important and contribute to a well treed character. The treed character of this area is primarily a consequence of the densely scattered hedgerow trees, alongside these pockets of woodland. The area would benefit from the management of existing hedgerow trees and the planting of replacements, supported by agroforestry options and some additional woodland planting. Opportunity exists to connect into the wooded landscapes of Needwood to the south and the Peak Fringe and Lower Derwent to the north.

CL4 - Farmland – focusing on biodiversity improvement in less productive areas, options could include reversion of improved grasslands to species rich meadows, and the protection of and reinforcement of the hedgerow network. Nature-based solutions in this area could not only deliver improved biodiversity on this land, but could also contribute significantly to environmental improvement, improving water quality by reducing agricultural runoff, or by providing improved carbon sequestration.

CL5 – Lowland heath – although not a common habitat type in this NCA, in certain localities conditions are potentially suitable to support lowland

heath creation. This might particularly be associated with the working and restoration of sand and gravel sites around Mercaston and Muggington, although farmland and road verges over suitable substrate may offer other opportunities.

3.11 Trent Valley Washlands

The Trent Valley Washlands covers an area of 18,620Ha within Derbyshire.



This is a mixed farming landscape associated with the floodplains of the rivers Trent and Dove although grassland habitat is more prevalent within the Dove valley. It also includes the lower reaches of the river Derwent as it passes through Derby. The landform is flat to gently rolling and is characterised by areas of pasture and semi-improved flood

meadows enclosed by predominantly hawthorn hedgerows. Willow pollards, wet woodland and scrub are locally distinctive sitting alongside gravel pits and other industrial development particularly within the Trent valley. The meandering river channel, flood meadow and numerous flooded gravel pits and other man-made lakes influences the character of the area.

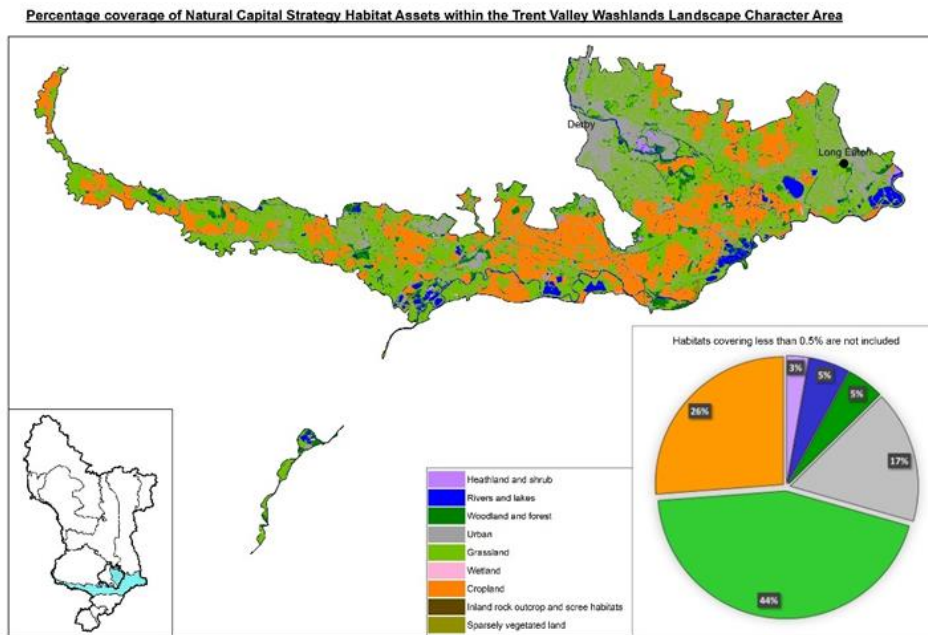
It is a broad, linear landscape, following the middle reaches of the slow flowing River Trent, between Burton on Trent in the west and Long Eaton in the east, extending beyond the county boundary in both directions into Staffordshire and Nottinghamshire. To the north the valley rises to the South Derbyshire Claylands and the Derbyshire Coalfield, whilst the south is bounded by the Melbourne Parklands and Mease/Sence Lowlands.

The area presents itself as a somewhat fragmented landscape of pastoral and arable farmland, intermixed with urban development, transport routes and localised mineral extraction. In areas of pastoral farmland against the river, farmland is defined by small to medium sized, hedged fields with scattered hedgerow tree, but in areas of arable farmland, fields are larger and more regular in shape, and bound by tightly trimmed hedgerows with fewer trees. The broad, meandering rivers are unobtrusive often only revealed by lines of willow and poplars. The rivers regularly flood over the adjacent land creating a temporary but very different wetland scene.

Areas of traditional semi-natural habitats, such as wet grasslands and marsh, small fields with species-rich grasslands, ponds and ditches, and

wet woodlands, have all been marginalised or isolated by modern farming practice and the deepening and canalisation of the river Trent, which has drained adjacent land. In some areas there has been considerable loss of hedgerows through removal to enlarge fields for arable crops or through neglect. The rivers themselves and their tributaries are recognised as valuable wildlife corridors both for terrestrial animals and migratory birds. Mineral extraction has created additional open water areas, marshes, and wet woodland, some of which have become important wildlife habitats.

i. Land-use Mapping, Habitats and Species



Grassland – is the dominant land use accounting for 44% of the land coverage although most of this land comprises improved and modified pasture or intensively managed grass and clover leys. Some neutral grassland is still recorded although this is becoming increasingly fragmented. Areas of unimproved pasture persist along the lower reaches of the Dove Valley and in smaller field enclosures adjacent to the River Trent.

Cropland – arable farming constitutes 26% of total land coverage, mostly down to cereal cropping.

Woodland and forest – woodland is not a prominent feature across the valley only comprising 5% of the land coverage and occurring mainly as fragmented blocks. It is locally significant around Elvaston and along the lower reaches of the River Derwent and is becoming more prevalent in the restoration of sand and gravel quarries. Woodland is predominantly broadleaf in character with many riparian species including black poplar, which can be locally distinctive.

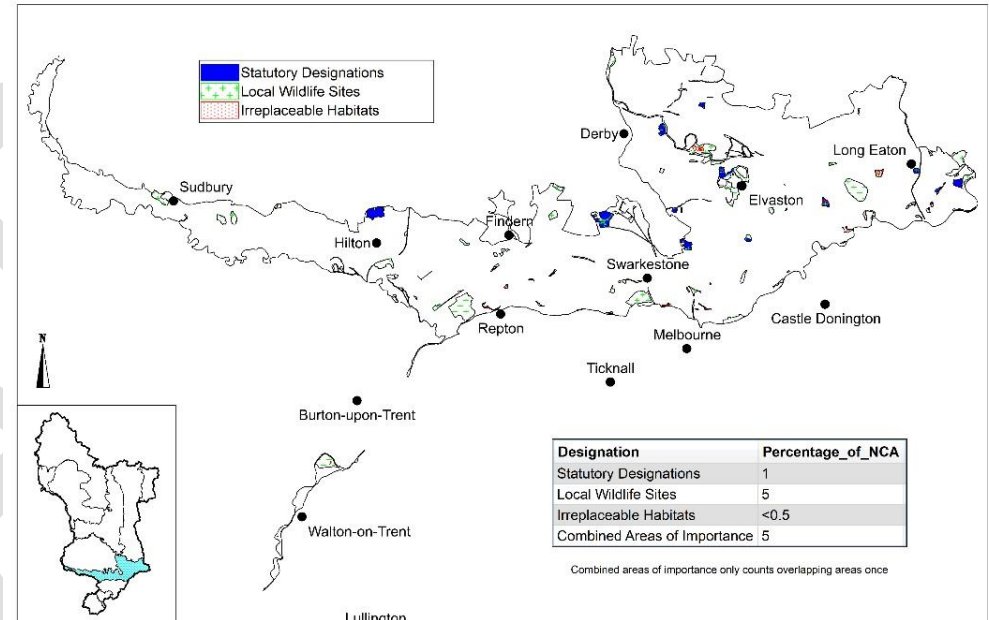
Rivers and lakes – open water including the rivers covers 5% of the area and has increased significantly in recent years through the restoration of sand and gravel sites to large, open waterbodies. Many of these are now associated with other habitat types such as wet woodland, reedbeds, wet grassland, and rush pasture. The Trent and Mersey Canal is another important heritage feature within the area and contributes to the matrix of open water.

Heathland and shrub – this land-cover type (3% of land coverage) relates almost predominantly to the hedgerows that enclose this mixed farming landscape but does include pockets of dense scrub that can be found on derelict land within urban areas or former gravel workings. Hedgerows can be species rich in areas of earliest enclosure, but others are predominantly hawthorn in areas of later enclosure with many having been removed to accommodate more intensive arable farming.

Urban – urban land-uses are a prominent characteristic of the Trent valley covering 17% of the total area, associated with the southern edge of Derby, several other expanded settlements along the valley such as Hatton and Hilton, transport infrastructure such as the A50, A38 and the Midland Mainline railway, other development attracted to the area by these transport connections such as Toyota and the Dove Valley Park, as well as several sand and gravel quarries across the valley.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Trent Valley Washlands Landscape Character Area



The Trent Valley Washlands area has very few 'Areas of Particular Importance for Biodiversity' with 5% of the area being protected by international, national, and local designations comprising statutory designations (1%), Local Wildlife Sites (4%), but no identified areas of irreplaceable habitat.

Designation Type and Status	Site Name	Size/Area	Key Interests
National - Site of Special Scientific Interest (SSSI)	3no individual sites	33.80 Ha	Wetland mosaic habitat on former quarry sites at Hilton Gravel Pits and Attenborough Nature Reserve (Derbyshire part) and a small area at Boulton Moor designated for its geomorphological interest
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Lowland fens	1.02 Ha 30.11 Ha	This area contains around 13.5% of the county resource of lowland fen
Local Nature Reserve	13no individual sites	110.11 Ha	Accessible sites including woodlands, meadows and wetlands including several sites within Derby, and further to the east within and around Long Eaton, Aston-on-Trent and Church Wilne.
Local Wildlife Sites	133no individual sites	848.84 Ha	Sites dominated by wetland habitats (50%) comprising lakes, ponds, swamps, and reedbeds often associated with former sand and gravel workings, with small parcels of neutral or wet grassland (20%), secondary woodland including wet woodland (18%), and areas of habitat mosaics often associated with previously developed land such as former railway lines (12%).

This large NCA contains just three SSSIs or parts thereof, the largest of which is Hilton Gravel Pits, which at 29.67Ha accounts for almost 90% of the SSSI resource in this area. This area also contains the entirety of Boulton Moor – a geological SSSI, and a tiny fraction of the Attenborough SSSI site, the majority of which in Nottinghamshire. Overall, less than 0.2% of this area is designated as SSSI, one of the lowest proportions in the county.

Whilst the NCA is relatively well served with Local Nature Reserves, these are concentrated towards the eastern half of the valley, around Derby City and in Erewash.

Across statutorily and non-statutorily designated sites, wetland habitats dominate. Wetland habitats within the Trent Valley span a variety of

types including rivers, streams, brooks, lakes, canals, reservoirs, former gravel workings and ponds – both semi-natural and man-made. They also include reed beds, swamp, mire and lowland fen, wet woodland, carr, and wet and floodplain grassland habitats, whilst some Local Wildlife Sites have been designated for the wetland and riparian species, supporting water vole and wetland bird assemblages. Sites designated for non-wetland attributes are less common, but include grassland and broadleaved woodland sites, as well as sites supporting a mosaic of habitats.

The Trent Valley area is especially notable for its value for a variety of notable species, particularly those associated with rivers and associated riparian habitats. The Trent Valley forms part of the Severn-Trent flyway, a migratory route used by some bird species to cross Britain between the

Humber estuary and the Severn estuary, whilst former gravel pits along the river now provide habitat for both breeding and overwintering birds. Bittern bred in Derbyshire for the first time in 2023, whilst willow tit is notable around Willington and Hilton. Willington is also home to the county's only beavers, which were released into an enclosure at the site and which in 2023 bred for the first time.

The rivers are also important habitat for a variety of coarse fish species, whilst the installation of the fish passage at Colwick in Nottingham will allow increasing numbers of migratory fish species, including salmon, trout and eels, to move upstream to their spawning grounds in the River Derwent and River Dove.

The Trent Valley is also particularly important for otter, with many records coming from the River Trent, the River Dove, the River Derwent Corridor from the Trent to Derby City, and the River Erewash. Water vole are more commonly associated with the River Derwent, the Trent and Mersey Canal, the Erewash Canal, and minor watercourses. Remnant populations of Black poplar – a rare and declining species nationally – can be found around and immediately north of Hatton and Hilton

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Water quality regulation – according to the Natural Capital Strategy for Derbyshire, the Trent Valley contains a significant proportion of land which is currently having a negative impact on water quality. This is due to the intensity and nature of farming and land management in this area and the location of this land within the catchment, leading to the

potential for watercourses to be affected by agricultural run-off, or where livestock farming risks introducing pollutants into the watercourse. Water quality is also impacted by upstream inputs from urban areas including outside of the county. Conversely, nature-based solutions in this area could have a significant impact in improving water quality and flood attenuation within the Trent Valley.

Recreation and public health – the data demonstrates that whilst some areas benefit from the provision of Local Nature Reserves and similar sites, in many areas, residents lack access to semi-natural green spaces. In those areas however, it is likely that access to the wider countryside through the Rights of Way network will be important, even if those spaces are not semi-natural.

Tourism – the Trent Valley does not currently attract much tourism, but it is believed that there is significant potential to increase this, if waterbodies and other habitats associated with former mineral working can be restored according to coherent master planning seeking to maximise recreational opportunities in nature-rich environments.

Agriculture - Agricultural land is predominantly grade 3 under the Agricultural Land Classification system, with pockets of grades 2 and 4 also present in smaller quantities, leading to moderate levels of agricultural productivity across and along the valley.

iv. Land use pressures, constraints and other factors affecting nature recovery

Urban growth – with significant growth had been planned for Derby City, this growth will likely be directed south of the city and into the Trent Valley, and large amounts of housing are already being delivered within south Derbyshire. High levels of residential development will also likely stimulate demand for employment land uses leading to further land-take, whilst both existing and new communities will need access to green and blue infrastructure, and recreational landscapes.

The Trent Valley is also an important area for mineral extraction, particularly for sand and gravels, and whilst there is a constant need for these materials, extensive residential and other development is likely to drive up demand for sand and gravels still further. Whilst development for housing and employment uses tends to lead to the permanent loss of land and associated habitats, minerals extraction is a temporary operation that leaves opportunities for habitats creation and enhancement, delivering biodiversity gain (as well as recreational and other opportunities) in the longer term.

In addition, farming is currently a significant sector within the Trent Valley, and the ongoing drive for domestic food production and self-sufficiency is likely to maintain the need for farming within the valley. At the same time, land take through housing development and minerals extraction could lead to fragmentation of farming units, making some areas less viable for farmers.

v. Description of potential opportunities for nature recovery in the Trent Valley Washlands

TV1 - Wetlands – Seek to maintain, restore, and expand on the wetland habitats within the Trent Valley, focussing on floodplain grazing marsh, reedbed, wet woodland, lakes, swamp, and fen habitats. Ideally, this work should aim to enhance ecological connectivity between wetland sites within the area, provide habitats for breeding and overwintering birds, and contribute to a vibrant leisure, recreation and tourism offer in the Trent Valley.

TV2 - Ecological connectivity - Increase connectivity of other semi-natural habitats within the area particularly as part of new green infrastructure assets that connect with new development areas.

TV3 - Rivers, river corridors and other watercourses - protect, restore and enhance the ecological value of the River Trent and its tributaries, reinstating natural processes and dynamics where possible; connecting habitats within, along and adjacent to the river; and ensuring action taken within the Derbyshire stretch of the Trent is complimentary to action taken both up and downstream. Improving fish passage at Sawley would open significant lengths of the river for all fish species to migrate and move. The design and restoration of sand and gravel sites provides great opportunities for habitat creation and connecting the river to its floodplain. The Trent and Mersey Canal also represents an extensive length of watercourse through the Trent Valley contributing to the wider wetland network. Nature-based solutions on land adjacent to watercourses could deliver other environmental benefits, such as improved water quality and carbon sequestration, whilst improving biodiversity on this land.,

TV4 - Riparian mammals – The river valley is managed for the benefit of otter and water vole, removing and addressing barriers to their movement along the river corridor, and tackling mink, to support and restore water vole populations. Support the reintroduction and expansion of beaver along the valley, currently confined to a release into an enclosure at Willington Wetlands.

TV5 - Woodlands and trees – using the opportunities afforded by minerals extraction and other development within the valley, use woodland planting – particularly large blocks of planting – to create new woodland habitat that can add to biodiversity whilst also improving the ecosystem service delivery in this area, by providing new recreational opportunities, and which contribute to a new, unifying visual character in the valley which helps mitigate the visual impact of large-scale industrial developments as well as mineral working. The Trent Valley offers opportunity for the creation and expansion of riparian woodland habitats including wet woodland which could also benefit species like willow tit. Retention and expansion of the black poplar population should also be strongly promoted.

TV6 – Restoration of Mineral Sites – mineral extraction is especially notable within the Trent Valley and often represents a long-term land-use change that offers multiple opportunities for habitat creation as well as public access and connecting people to nature.

3.12 Melbourne Parklands

The Melbourne Parklands covers an area of 7,560Ha within Derbyshire.



The Melbourne Parklands is an undulating mixed farming landscape on the southern side of the Trent valley, with country houses, landscaped parks, and estate plantations to the north of Charnwood Forest in Leicestershire. Large areas are intensively farmed for arable crops with low, fragmented hedgerows and few hedgerow trees. A complex geology has resulted in an undulating landscape with many valleys, two

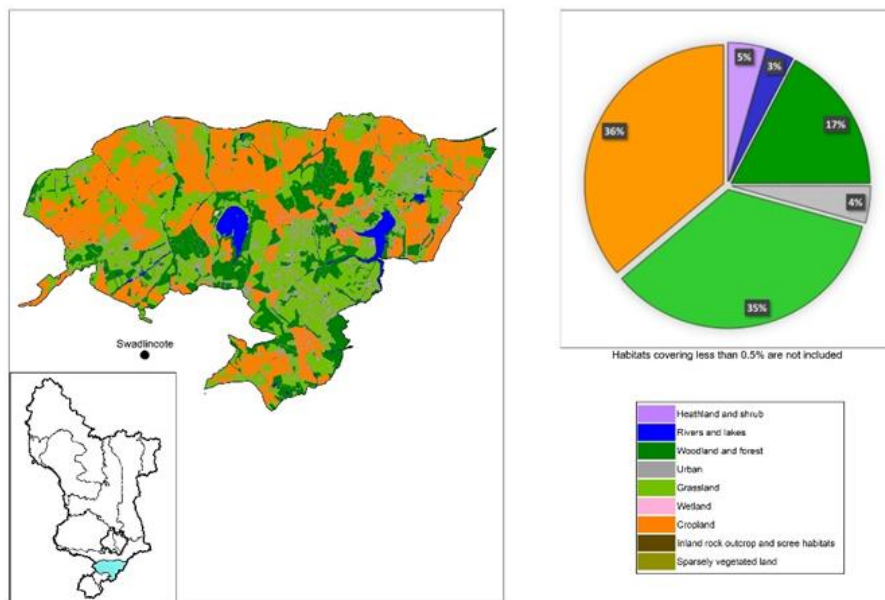
of which have been dammed to create reservoirs at Foremark and Staunton Harold. Relative to the Trent valley the area is elevated and allows for commanding views north and west to the landscapes beyond.

Most of the land is in agricultural use, predominantly arable but with some grassland over steeper slopes and, as a result, contains very few semi-natural habitats. Arable farming is set within a regular pattern of medium to large fields, enclosed by low hedges with few hedgerow trees. Woodland is well represented throughout the area although there is some local variation. Collectively the trees and woodland play an important role in emphasising estate character. Consequently, the main ecological value of the area comes from its many woodlands and the many mature specimen trees set in parkland. Where the underlying geology is free draining then localised heathy conditions prevail, evidenced by the presence of gorse on steeper slopes, and bracken in the highway verges.

At the time of the Domesday Book the area was sparsely settled and today retains a distinctly rural character. Melbourne became an important post-conquest market and manorial town and is the largest settlement in the area. Monasteries, set within extensive parks, were established at Calke and Repton but with the dissolution of the monasteries, the land market allowed for the development of large country houses and landscaped parks that have become a key feature of the estate landscape. Calke Abbey is a fine example of a country house set in parkland, at the gates of which stand the largely unaltered estate villages of Ticknall and Calke.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the Melbourne Parklands Landscape Character Area



Cropland – arable farmland occupies 36% of land coverage comprising mainly of cereal crops and is more evident in the north of the area where the terrain is less steep and more gently rolling.

Grassland – grassland accounts for 35% of the land coverage and whilst most of this land use is improved, modified or down to intensive grass and clover leys, some is still recorded as neutral grassland with particular concentrations within and around the Calke parkland. Areas of

unimproved pasture persist on the steepest slopes and on the wettest soils adjacent to the minor streams running through the area.

Woodland and forest – woodland is a key characteristic of the Melbourne Parklands covering 17% of the area. Woodlands tend to occur as small estate plantations, tree belts and small coverts formerly managed by the estates in the area, although some woodland such as Caulkley Wood and Repton Shrubs is recorded as Ancient Semi-Natural Woodland or replanted woodland on an ancient woodland site. In other areas woodland tends to hug the upper, steeper slopes, often linear in shape and following the natural contours. Most of the area is also located within the National Forest.

Heathland and shrub – in this area this habitat type, comprising 5% of land coverage, relates exclusively to hedgerows that enclose this mixed farming landscape. Hedgerows contain a variety of species including holly and hazel and tend to enclose fields of varying shape and size depending on land-use and terrain.

Rivers and lakes – water in the form of streams is not a prominent feature so this land-use type covering 3% of the area relates primarily to the two large reservoirs at Foremark and Staunton Harold. Both of these large waterbodies are important for their populations of resident and migratory wetland birds.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Melbourne Parklands Landscape Character Area

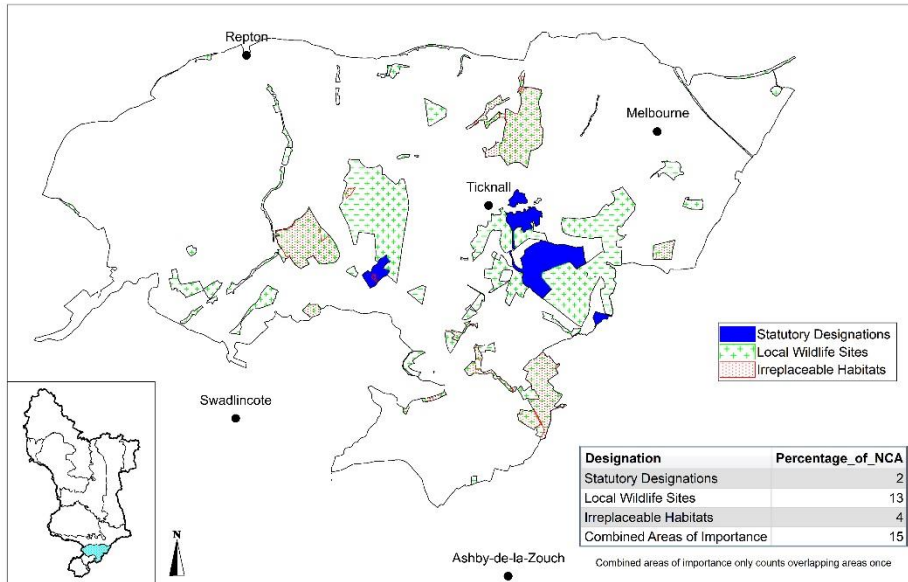


Image: Parkland trees and wood pasture

The Melbourne Parklands area already has moderate 'Areas of Particular Importance for Biodiversity' with 15% of the area being protected by national and local designations comprising statutory designations (2%), irreplaceable habitat (4%), and Local Wildlife Sites (13%).

Designation Type and Status	Site Name	Size/Area	Key Interests
National - Site of Special Scientific Interest (SSSI)	5no individual sites	121.41 Ha	The largest SSSI in the area is Calke Park, which encompasses an ancient deer park supporting rich wood pasture, veteran trees and an exceptional deadwood invertebrate assemblage and other invertebrate interest. The nearby Ticknall Quarries SSSI supports semi-natural ash woodland, limestone grassland, open water and small flushes. Other SSSI's in the area support ancient woodland, acid grassland, and wetland habitats including marsh and carr.
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Ancient Replanted Woodland Lowland fens	88.65 Ha 211.93 Ha 6.05 Ha	This NCA supports 10% of the county replanted ancient woodland resource, but just 3% of the lowland fen and ASNW (ancient and semi-natural woodlands) resource
National Nature Reserve	Calke Abbey	79.41 Ha	Extensive parkland associated with Calke Abbey
Local Wildlife Sites	58no individual sites	989.46 Ha	The area is dominated by broadleaf woodland comprising 49% of all sites and including the large woodlands at Repton Shrubs, Robin Wood, Bryan's Coppice and South Wood. Open water and wetland habitat is also a prominent feature at Foremark and Staunton Harold reservoirs (21%), as is parkland at Calke Abbey. Unimproved neutral grassland occurs in isolated patches (25%) and the exposed rocks at Anchor Church provide important habitat for protected species.

Of the NCAs outside of the Peak District, the Melbourne Parklands contains one of the highest proportions of land designated as SSSI – but at just 1.6% of the land area, this is still a remarkably low figure. Despite the small number of SSSIs in this area, those sites nevertheless encompass a wide array of habitat types including ancient woodland, wood pasture and veteran trees, calcareous and acid grasslands, and a variety of wetland habitats.

This area also contains the highest figure for the percentage of land designated as Local Wildlife Site – which at 13%, stands out as noticeably higher than any other area. This figure is largely explained by the

presence of a small number of very large LWSs, including three over 100ha (Foremark Reservoir, Staunton Harold Reservoir and Calke Abbey Parkland (areas outside of the SSSI)), and three large ancient woodlands each of which is over 75Ha in size. Again, whilst the Local Wildlife Sites in this area are dominated by woodlands, wetland, grassland, and parkland habitats are also represented.

This NCA contains the highest proportion of land identified as 'Areas of Importance for Biodiversity' outside of Dark Peak and South-West Peak. This area has few records for protected and notable species, although many of the records that do exist are clustered around Calke Abbey and

Ticknall Quarries SSSIs, and the Local Wildlife Sites adjacent to them (Calke Abbey Parklands, Staunton Harold Reservoir and Pokers Lees and Jubilee Plantation). Records include white clawed crayfish, otter, great crested newts, common lizard, and water vole, although many of these records are historic, and those species may no longer be present.

This area also holds a significant number of records for ancient and veteran trees. Calke Abbey and Park is especially notable for the occurrence of a significant and diverse deadwood invertebrate assemblage, and for the presence of other invertebrates associated with ancient woodland and veteran trees. Hazel dormouse has been recently reintroduced into woodland near Calke Park.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Agriculture - A significant proportion of land in this NCA is Grade 2 in the agricultural land classification, particularly in the north of the area, supporting higher levels of agricultural productivity. Much of the existing ecological interest within the NCA lies on lower grade agricultural land, making it more challenging to create linkages between such sites, where land might be more favourable for agriculture.

Water supply – Staunton Harold and Foremark reservoirs are important for water supply within the East Midlands.

Recreation, leisure and tourism – this NCA benefits from a greater than average proportion of its land area being of ecological interest, but a number of large, core sites also provide public access, visitor experiences

and recreation and leisure opportunities. Calke Abbey and Park (NT), Staunton Harold and Foremark Reservoirs (NT and STW), and Robin Wood (FE) are especially notable, providing health and wellbeing benefits through public access, whilst also offering opportunities to experience nature.

Carbon sequestration – Natural Capital Strategy mapping has identified parts of this NCA as functioning well for carbon sequestration – these principally relate to the larger areas of established woodland.

iv. Land use pressures, constraints and other factors affecting nature recovery

This area retains its predominantly rural, undeveloped character, and is unlikely to be a focus for significant development pressure in the near future. Established areas of ecological value consist of large, recognised sites often under statutory protection, or under sympathetic ownership and management, giving those sites and the habitats they contain some security. Many of these sites are well used and appreciated by residents, providing further impetus for positive management. A significant proportion of this NCA falls within the National Forest area, focused on protecting and enhancing established woodlands, and supporting further woodland creation. Elsewhere, arable farming is having some impact on traditional pastoral land-use, weakening the existing hedgerow network.

The area is generally under limited pressure for negative change, whilst also benefiting from layers of protection, policy, and environmental initiatives likely to benefit the natural environment.

v. Description of potential opportunities for nature recovery in the Melbourne Parklands

MP1 - Maintain, restore, enhance, and expand key habitats in this area

- Recognising the relatively high proportion of biodiversity-rich sites in this NCA, maintain and enhance existing sites of biodiversity interest, focussing on the core, large and strategically important sites in this area. Wood pasture parkland, lowland deciduous woodland, reservoirs, and ancient and veteran trees should be a particular focus for protection and enhancement.

MP2 - Woodlands and trees - Plantation on ancient woodlands should be the focus of restoration replanting and structural diversification to improve their value for biodiversity. As well as supporting nature recovery, action in these areas should also seek to secure the wider environmental benefits provided by these habitats, particularly in terms of carbon sequestration as well as leisure, recreation, and tourism, together with water supply where appropriate.

Connectivity between woodland sites could be improved by creating new habitat adjacent to and in between existing sites, with a particular focus in the area surrounding the reservoirs at Foremark and Staunton Harold and historic parkland at Calke Abbey. Opportunities also exist to plant tree belts, wood pasture, coverts, and small woodlands in the

wider landscape, introduce woodland edge planting, and restore and reinforce hedgerows. The planting of long-lived tree species should be promoted to help replace trees lost to ash dieback, provide continuity of veteran tree stock, and add to existing hedgerow trees.

The notable deadwood invertebrate populations found in this area will be entirely dependent upon conditions remaining suitable for them in their core ancient woodland sites, areas of wood pasture parkland, and clusters of veteran trees, and these sites will need to be managed to retain that interest. However, many of these deadwood species are known to be poor colonisers of new sites, whilst such sites would take many years – possibly centuries – to develop habitats suitable for those species. Nevertheless, in the long term, these species will need suitable habitat to become available in the wider area, if they are to persist.

MP3 – Lowland heath – although not a common habitat type in this NCA, in certain localities conditions are potentially suitable to support lowland heath creation. This might particularly be associated with the areas around Ticknall, Bretby and northeast of Swadlincote.

MP4 - Farmland – conservation measures to improve the value of the farmed landscape for small mammals and bats, invertebrates including pollinators, arable plants, and bird species. Measures should encourage habitat recreation as well as field margins, hedgerow restoration, beetle and butterfly banks, etc.

3.13 Leicestershire and South Derbyshire Coalfield

The South Derbyshire Coalfield covers an area of 2,820Ha.



The South Derbyshire Coalfield is part of a much more extensive landscape that extends into north-west Leicestershire. It covers a relatively small area around Swadlincote extending from Hartshorne in the north to Overseal in the south. There has been extensive post-war development round Swadlincote, which now dominates the area. Like the Derbyshire coalfield in the north-east of the county, the underlying

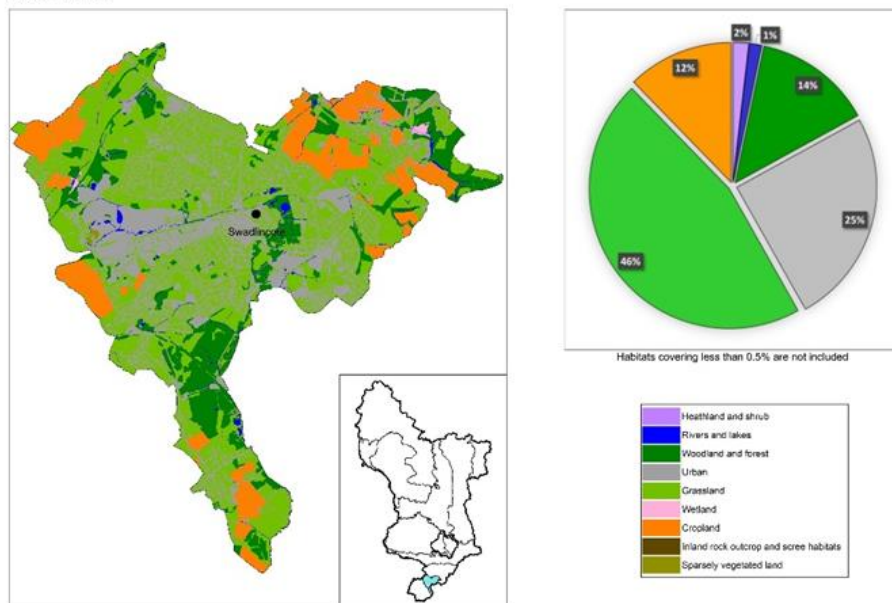
Coal Measures geology gives rise to an undulating landform with gentle ridges and shallow valleys.

There is an intimate mix of farmed, urban and derelict land in this landscape but where agriculture persists this tends to be mixed livestock farming with a mixture of improved pasture and feed crops. There is a wide variation in field size and shape reflecting both a diverse history of enclosure as well as a landscape affected by former mining including open cast coal extraction. Where historic boundaries persist then hedgerows will be mixed with species including holly, hawthorn, hazel, and field maple but in areas of later enclosure or in restored parts then the boundaries tend to be simple thorn hedgerows.

Although much of the landscape outside the settlements has been affected by past industrial activities or agricultural improvements, patches of neutral and acid grassland remain to provide some ecological value. In recent years, areas of new woodland have been created because of the National Forest initiative and this is now starting to become an important habitat type across the area.

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the Leicestershire and South Derbyshire Coalfield Landscape Character Area



Grassland – grassland continues to be the dominant land-use with 46% land coverage but in this intensively farmed area much of the grassland is modified primarily relating to that found within domestic gardens and urban green space. Beyond the urban areas grassland is also improved pasture for silage and haylage production with only isolated pockets of neutral grassland still remaining.

Cropland – intensive arable farmland, mostly cereals, only occupies 12% of land coverage, reflecting the generally poor quality of the soils.

Woodland – woodland is a prominent feature of this landscape covering 14% of the area. Most of this land-use relates to woodland created as part of the National Forest but there are pockets of Ancient Semi-Natural Woodland such as that found at Hall Wood, as well as lines of trees along streams, comprising alder and willow.

Heathland and shrub – in this area this habitat type, comprising 2% of land coverage, relates almost exclusively to hedgerows that enclose this mixed farming landscape. There are small amounts of scrub associated with former railway lines such as the Bretby branchline, although this accounts for a very small part of the total.

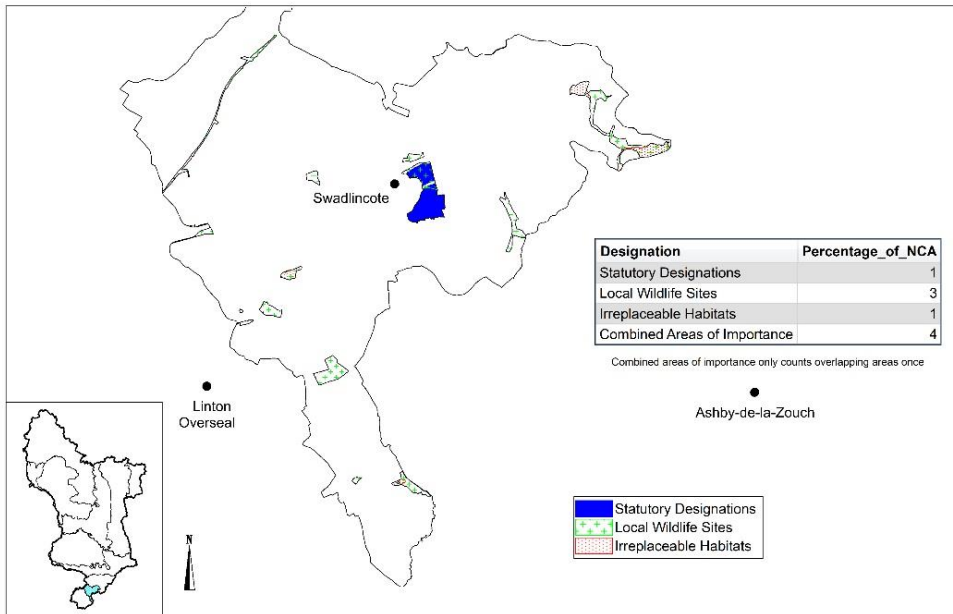
Rivers and lakes – open water is not a prominent characteristic (1% of land coverage) and is confined to small streams in the area and some localised ponds at Tetron Point created as part of the former Nadins opencast coal site.

Urban – urban land-use dominates the area accounting for 25% of total land coverage. Swadlincote is the main town located centrally but this has merged with the neighbouring areas of Newhall, Woodville, Church Gresley, and Castle Gresley to create a larger urban area. There are pockets of amenity green space within the urban area associated with town parks, playing fields, and a golf course, with Swadlincote Woodlands Forest Park between Swadlincote and Woodville being of some interest to wildlife. Dingy skipper has been repeatedly recorded from sites within and around Swadlincote, within sparse vegetation associated with either former industrial sites, or open vegetation in

recently planted woodlands. Grizzled skipper was formerly recorded in this area.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Leicestershire and South Derbyshire Coalfield Landscape Character Area



designations (1%), Local Wildlife Sites (3%), and irreplaceable habitat (1%).

The South Derbyshire Coalfield area has very few existing 'Areas of Particular Importance for Biodiversity' with 4% of the area being protected by national and local designations comprising statutory

Designation Type and Status	Site Name	Size/Area	Key Interests
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Lowland fens	11.45 Ha 5.44 Ha	This NCA supports 2.5% of the County lowland fen resource, and under 0.5% of it's ancient woodland
Local Nature Reserve	Swadlincote Woodlands Forest Park	27.85 Ha	A large, accessible LNR, part of which is designated as a LWS, and which supports woodlands, wetlands and meadow on a former open cast site
Local Wildlife Sites	19no individual sites	79.51 Ha	A small number of sites comprising a mix of secondary broadleaf woodland (37%), unimproved and semi-improved neutral grassland (32%), areas of habitat mosaic associated with previously developed land (26%), and a couple of important wetland mosaic sites at Swadlincote Wetlands and Midway Fishponds.

Although this area is by far the smallest NCA in the county, it is unusual in that it supports no SSSIs or other sites covered by higher nature conservation designations. It also contains significantly below average proportions of irreplaceable habitats, and a comparatively low proportion of the area is designated as Local Wildlife Site, a reflection of the generally despoiled nature of the landscape in this area because of its industrial legacy. However, such sites can be of value for wildlife, with great crested newts recorded frequently in this area, often associated with former and restored colliery sites, and grass snake recorded around Swadlincote and Overseal.

The one LNR in this area is located close to the heart of Swadlincote and makes a significant contribution to local accessible semi-natural green space. Local Wildlife Sites in this area are dominated by broadleaved woodland, neutral grassland, and open mosaic habitats on previously developed land.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Given the small size and relatively urbanised nature of this NCA as well as the nature of the habitats in this area, it is not particularly visible in the Natural Capital Strategy for the ecosystem services it provides. Nevertheless, the populations within this area benefit from their ability to access semi-natural green spaces, including the LNR as well as other accessible spaces.

iv. Land use pressures, constraints and other factors affecting nature recovery

The high levels of development and urbanisation already present within this NCA suggest that there will be ongoing pressure for urban growth and the continued redevelopment of former industrial sites. The National Forest will continue to incentivise new woodland planting and the creation of other habitats within this area.

v. Description of potential opportunities for nature recovery in the South Derbyshire Coalfield

SDC1 - Habitat creation – given the relative paucity of habitats and designated sites in this area, effort should be focused on enriching the area through the creation of new habitats including grasslands and wetlands, and particularly woodlands as part of the National Forest initiative. Habitat creation should take advantage of the opportunities provided by new development as well as seeking to introduce new habitat into existing urban areas, for example by increasing street tree numbers. Ideally, these habitats should aim to deliver additional benefits such as providing accessible semi-natural greenspace for local communities, providing replacement habitats for species such as dingy skipper or grass snake where these are at risk of being lost from urban areas, or by delivering ecological permeability through this otherwise impermeable landscape.

SDC2 – Management of existing woodlands – many existing woodlands in the area are of recent origin and would now benefit from positive management to diversify their structure and species composition, and to address ash dieback. Squirrel damage is a significant issue and could be addressed to ensure the long-term health of the young woodland resource.

3.14 Mease/Sence Lowlands

The Mease/Sence Lowlands covers an area of 5,920Ha within Derbyshire.



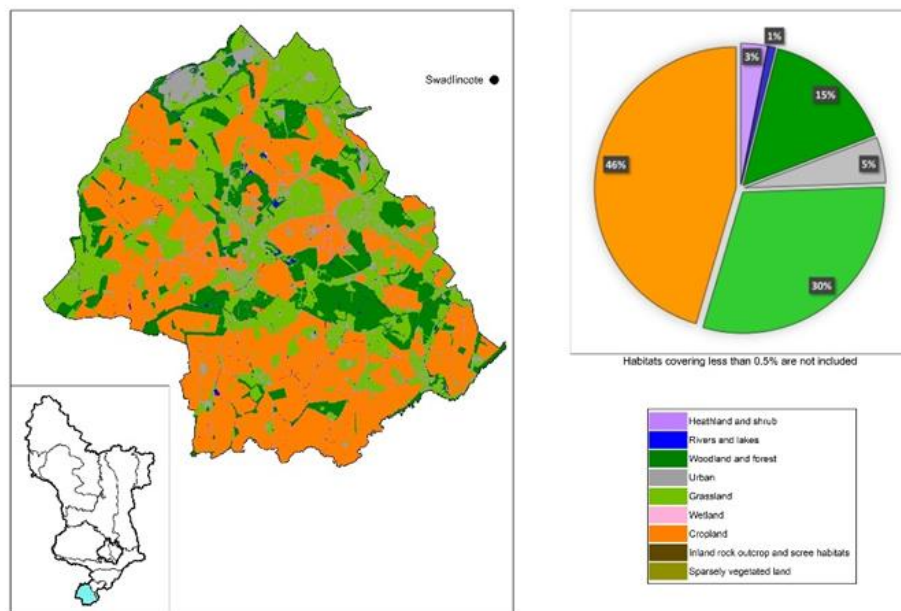
The Mease/Sence Lowlands lie at the southernmost limits of Derbyshire, being bordered to the west by the Trent Valley and to the north and east by the South Derbyshire Coalfield. It is an area underlain by Mercia mudstones geology giving rise to a rolling lowland becoming almost flat around the River Mease, which forms the County boundary to the south.

The area is predominantly an open agricultural landscape with small copses and spinneys on ridges, and occasional trees scattered along watercourses. Villages punctuate the area and woodland is apparent in association with parkland scattered through the area.

Due to the productivity of the soils, most of the land is in intensive agricultural use and, as a result, contains very few semi-natural habitats, although several new woodlands and other habitats have been created through the National Forest initiative. Field enclosures are medium to large and regular in shape and contained by simple thorn hedgerows with a few sparsely scattered hedgerow trees. The main ecological value of the area comes from small and intermittent woodlands, comprising spinneys, copses, and game coverts, planted on ridges to create a well-treed character to some areas. Country house parks have been encroached upon and parkland trees, often in poor condition, can be seen within farmland. The ecological value of the River Mease is reflected in its status as a designated Special Area of Conservation (SAC).

i. Land-use Mapping, Habitats and Species

Percentage coverage of Natural Capital Strategy Habitat Assets within the Mease Sence Lowlands Landscape Character Area



Cropland – arable farming, mainly cereal crops, is the dominant land-use comprising 46% of total land coverage due to the gently rolling nature of the landform and generally base-rich soils.

Grassland – grassland covers 30% of the area with more than half associated with improved and modified grassland or temporary grass and clover leys. There are patches of neutral grassland which persist in

the smaller field enclosures around villages such as Rosliston and Cotton-in-the-Elms.

Woodland and forest – woodland cover is varied across the area although dominated by more recent planting undertaken as part of the National Forest initiative and now comprises 15% of total land coverage. However, the area retains an estate influence with small ornamental plantations including species like chestnut, lime, oak, and redwoods. In other areas there are remnants of Ancient Semi-Natural Woodland such as that found at Catton Wood, Potters Wood, and Grange Wood.

Heathland and shrub – in this area this habitat type, comprising 3% of land coverage, relates exclusively to hedgerows that enclose this mixed arable farmland. Hedgerows are generally simple thorn boundaries with occasional trees, mostly oak and ash, reflecting their creation as part of the late parliamentary enclosure acts. The hedgerow network is particularly strong in the central belt around the villages of Rosliston, Cotton and Linton but more fragmented elsewhere as a result of agricultural intensification.

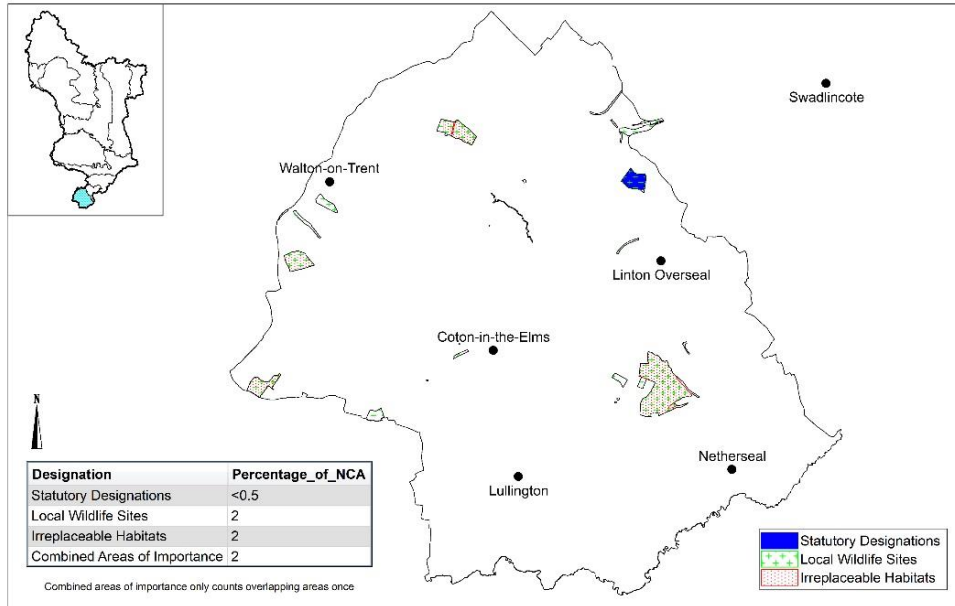
Rivers and lakes – open water is not a prominent feature (1% of land coverage) of this landscape but where it occurs and particularly along the river Mease forming the county boundary it is important for a range of aquatic plants and animals. The river Mease is especially important for its freshwater fish communities that include nationally and internationally important populations of spined loach and bullhead.

Urban – this is a settled landscape of small, evenly distributed, nucleated villages with occasional scattered farmsteads and country houses, but

overall retains a rural character. Although the area has 5% urban land coverage this is specifically influenced by the redevelopment of Drakelow Park near Stapenhill; the site of the former Drakelow Power Station.

ii. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Mease-Sence Lowlands Landscape Character Area



The Mease/Sence Lowlands area has very few existing 'Areas of Particular Importance for Biodiversity' with 2% of the area being protected by international, national, and local designations comprising

Local Wildlife Sites (2%), irreplaceable habitat (2%), a single Local Nature Reserve at Coton Park, and the river Mease SAC and SSSI along the county boundary.



Designation Type and Status	Site Name	Size/Area	Key Interests
International - Special Area of Conservation (SAC)	River Mease	2.64 Ha	Designated for the riverine habitat and vegetation present as well as the presence of spined loach, bullhead, white clawed crayfish and otter
National - Site of Special Scientific Interest (SSSI)	River Mease	2.64 Ha	The river Mease represents a lowland clay river supporting nationally significant populations of spined loach (<i>Cobitis taenia</i>) and bullhead (<i>Cottus gobio</i>)
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Ancient Replanted Woodland Lowland fens	55.91 Ha 31.88 Ha 1.04 Ha	These figures represent just under 2% of the county ancient semi-natural and plantation ancient woodland resource, and under 0.5% of our lowland fen.
Local Nature Reserve	Badgers Hollow, Coton Park	9.94 Ha	Located in the east of the NCA, this site is closer to castle Gresley and Swadlincote than to other the settlements in this NCA
Local Wildlife Sites	21no individual sites	132.51 Ha	Sites dominated by mixed deciduous woodland including some large ancient woodland sites at Grange Wood, Potters Wood, and Grove Wood (48%), some pockets of unimproved neutral grassland including wood pasture at Walton Hall (19%), a number of small ponds (24%), and a couple of habitat mosaic areas.

With just 2% of this NCA recorded as supporting sites or habitats of ecological interest, and less than 0.1% of the area covered by SSSI designation, this area records some of the lowest levels of recognised ecological interest in the county, despite its largely rural nature. However, this is also a relatively well wooded landscape with recent planting under the National Forest initiative supplementing existing woodland. Furthermore, the River Mease SAC is a rare example of an internationally important site lying outside of the Peak District.

iii. Natural Capital and Key Ecosystem Services Provided by Nature

Agriculture – farmland in this area is largely a mixture of grade 2 and grade three exhibiting moderate to high levels of agricultural productivity.

Carbon sequestration - Carbon sequestration is variable across this NCA, with woodland habitats actively sequestering carbon, whilst parts of the farmed landscape are likely net emitters of carbon.

Leisure and recreation – Populations across this area appear to be relatively well served with accessible semi-natural green space, although

it should be noted that the sparse levels of settlement across this area means relatively few people receive this benefit.

iv. Land use pressures, constraints and other factors affecting nature recovery

This largely rural area has previously experienced limited urban growth, and this lack of development pressure is likely to continue in the future. The obvious exception to this has been the redevelopment of the Drakelow power station site, although this sort of large-scale development is unlikely to be repeated in this area in the future, given the absence of previously developed land likely to come forward for redevelopment. Great care is being taken to ensure that housing growth within South Derbyshire District does not affect water quality within the River Mease SAC.

Arable farming and agricultural intensification have already affected some parts of the hedgerow network, although it is unclear whether this deterioration is continuing.

The National Forest initiative has been effective in promoting new woodland planting in this area, as well as providing new recreational and visitor opportunities, most notably at the Rosliston Forestry Centre.

v. Description of potential opportunities for nature recovery in the Mease/Sence Lowlands

MSL1 - Rivers, river corridors and other watercourses – The river Mease is the most valuable individual ecological receptor in this part of the county. The focus should be on protecting and enhancing this watercourse, including by continuing to tackle diffuse and point source pollution, and providing buffers such as riparian woodland between the river and adjacent farmland. This would improve water quality for the benefit of the species for which the site was designated. This is a trans-boundary site, which begins in Staffordshire, flows along the Derbyshire border and into Leicestershire. Effort should ensure the middle stretch, through Derbyshire, maintains functional linkages with the site both up and downstream sections. LNRS action for the river Mease should be coordinated with neighbouring LNRS RAs.

MSL2 - Woodland and trees – new woodland planting has bolstered the previous woodland resource, and further woodland planting could continue this trend. Many existing woodlands in the area are of recent origin and would now benefit from positive management to diversify their structure and species composition, and to address ash dieback. Squirrel damage is a significant issue and could be addressed to ensure the long-term health of the young woodland resource.

MSL3 - Ecological connectivity – although parts of the hedgerow network remain robust, particularly around the villages of Rosliston and Coton in the Elms, the effort should be on restoring and reinstating hedgerows including hedgerow trees in the wider landscape This would

help promote connectivity between woodlands in the areas where new woodland planting is unlikely because of productive agricultural land-uses.

MSL4 - Farmland – conservation measures to improve the value of the farmed landscape for small mammals and bats, invertebrates including pollinators, arable plants, and bird species. Measures should encourage habitat recreation as well as field margins, hedgerow restoration, beetle and butterfly banks, etc.

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3.15 The Urban Environment

As well as looking at these broad National Character Areas, it is important to consider the potential of the urban environment as a cross cutting, countywide theme.

Derbyshire has a network of urban land-use that sits across National Character Areas including the City of Derby, numerous towns, villages, and hamlets, scattered farmsteads, dwellings, and country houses connected by highways and other urban infrastructure. The expansion of urban areas is largely seen as a negative impact on the natural environment, but they are not without some value for nature as evidenced by the breeding peregrine falcons at Derby Cathedral and the many buildings across the county that provide roosts for our native bat species.

Where pockets of relict landscape persist within the urban fabric, allied to designed open space such as parks and cemeteries, these too can provide valuable spaces for wildlife. Domestic gardens support a range of common bird and insect species and small mammals such as hedgehogs. Urban ponds and wetlands, where they occur, are particularly valuable for amphibians and a variety of invertebrates such as dragonflies, damsel flies, and butterflies. Even previously developed land if abandoned can create habitat mosaics that can become enriched by nature.

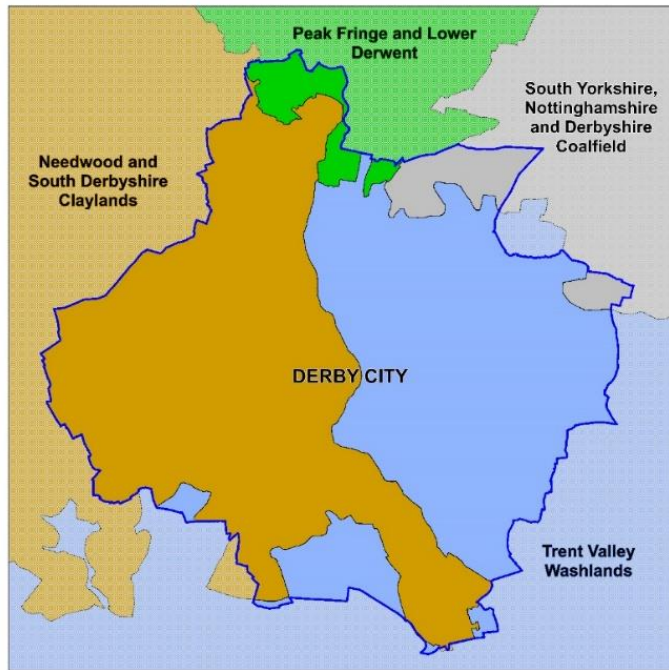
Across most of these National Character Areas, Derbyshire's towns and villages include a network of natural assets, important for nature and

enabling connections for wildlife through our urban areas as well as benefitting people and the economy. Urban greening will be important in reinforcing this connectivity and providing additional benefits for our communities.

The main urban areas in the county include the city of Derby, Chesterfield, Glossop, Buxton, Matlock, Dronfield, Staveley, Clowne, Bolsover, Shirebrook, Alfreton, Ripley, Heanor, Ilkeston, Long Eaton and Swadlincote. Most of these urban areas have green spaces, waterbodies, and other natural features, which can be described as "urban green infrastructure" that help us understand the range of benefits these natural assets provide.

3.15.1 Derby City

Derby is the only city in Derbyshire and is the county town. As with many major cities, Derby sits astride several National Character Areas, historically benefitting from the resources that each of these areas would have provided.



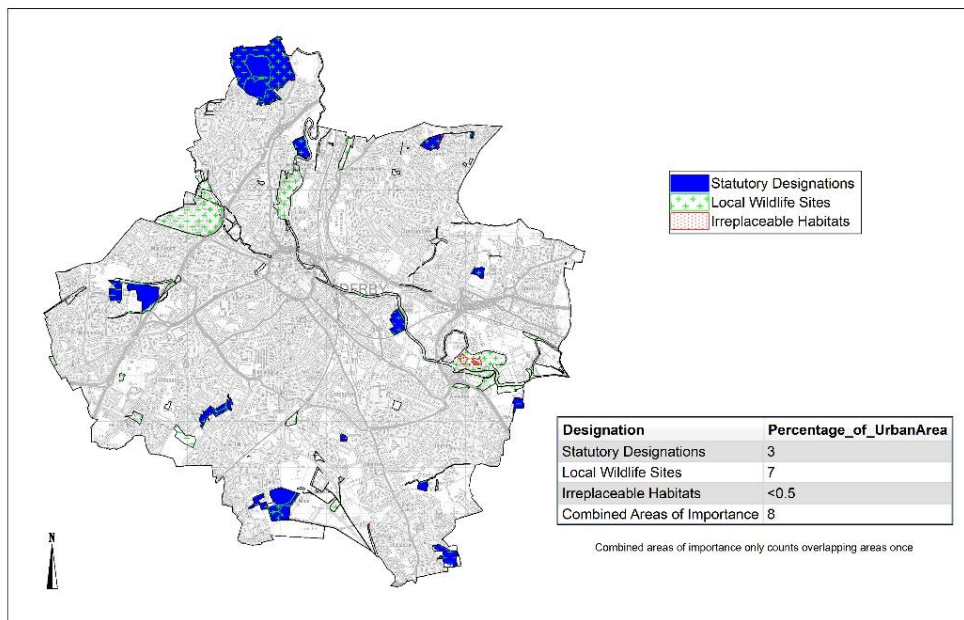
to the South Derbyshire Claylands due to its underlying geology and soils. The landscape to the north-east of Derby has a distinct estate character influenced by the parkland areas at Locko Park and Risley Park with their associated estate farms, similar to the effects Kedleston Park and Meynell Langley have on the landscape to the north-west of the city. The much-expanded southern side of the city now relates quite specifically to the Trent Valley landscape.

In the 18th and early 19th centuries, Derby quickly developed as a major industrial centre, firstly through the development of cotton mills along the Derwent valley and later as a major centre for the rail industry. Today Derby still has a railway manufacturing presence in the city as well as the Rolls Royce factory at Raynesway. The importance of Derbyshire as a pioneering industrial city is recognised in the designation of the Derwent Valley Mills World Heritage Site extending into Derby along the Derwent Valley to the north and including the Silk Mill.

Derby developed over 2000 years ago as a settlement on the banks of the river Derwent initially as a Roman fort but later as a Saxon village centred on the area known as Little Chester. Today, the much-expanded city sits broadly across former farmland of the Needwood and South Derbyshire Claylands and the river terraces of the Trent Valley Washlands, which includes the lower reaches of the river Derwent. The northern suburb of Allestree including Allestree Park impinges on the Peak Fringe and Lower Derwent NCA, with the northern limits of Oakwood and Spondon extending into the Derbyshire Coalfield NCA, although the southernmost part of this NCA is very similar in character

i. Key Sites for Nature

Percentage coverage of Areas of Particular Importance for Biodiversity within the Derby City Urban Area



Derby already has some identified 'Areas of Particular Importance for Biodiversity' with 7% of the area being protected by national and local designations comprising statutory designations (2%), Local Wildlife Sites (6%), and some small pockets of irreplaceable habitat relating to Ancient Semi-Natural Woodland and Lowland Fen.

Designation Type and Status	Site Name	Size/Area	Key Interests
National - Site of Special Scientific Interest (SSSI)	Boulton Moor	3.9 Ha	An area protected primarily for its geomorphological interest
Irreplaceable Habitat	Ancient and Semi-Natural Woodland Lowland fens	11.17 Ha 4.79 Ha	
Local Nature Reserve	11no individual sites	266.57 Ha	Several sizeable Local Nature Reserves dominated by Allestree Park to the north of the city
Local Wildlife Sites	69no individual sites	526.62 Ha	An intimate mix of habitat types comprising semi-natural broadleaf woodland (24%), unimproved neutral grassland including wood pasture (24%), open water and wetlands (22%), and habitat mosaics associated with previously developed land

			(30%). Key sites for nature within the city include the river Derwent running through the city and its tributary streams (open water and wetland), Markeaton and Darley Parks (wood pasture), and the abandoned golf course at Allestree Park (predominantly grassland habitat).
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Within the Derby city administrative area there is a single SSSI at Boulton Moor that is designated for its geological interest being underlain by glacial deposits and river gravels from different time periods and of particular interest to academic study.

There are 11 Local Nature Reserves some of which are quite sizeable and form part of the green infrastructure network of the city. Allestree Park is the largest LNR in the Peak Fringe and Lower Derwent NCA and the largest LNR in Derby City. This is a publicly accessible former golf course that is slowly being encouraged to 're-wild' to bring nature back to the city. It is notable for the number of records for veteran trees.

There is a network of smaller Local Wildlife Sites (6% of the city area) that protect a range of habitat types including woodland, grassland, and wetland, as well as habitat mosaics often associated with previously developed land, although these are often located around the periphery of the city or along the river corridors. The wetland habitat provides a strongly connected habitat corridor associated with the river Derwent and the Markeaton Brook system extending out towards Kedleston Park. The largest LWS is Markeaton Park that provides important parkland habitat with wood pasture and allows for that connection between Derby and the estate landscape to the west of the city.

The River Derwent is a notable ecological corridor into and through the city, to habitats beyond. As well as supporting coarse fish species, with Atlantic salmon have recently returned to the River Derwent, migrating up the River Trent, along the River Derwent, and through Derby City to reach spawning ground higher up the River Derwent and in its tributaries. Migratory fish species will continue to benefit from work to remove barriers to fish migration on the Rivers Trent and Derwent. Otter have been found within River Derwent corridor through the city, especially from Little Chester south eastwards to Borrowash and beyond. Markeaton Brook is another important ecological corridor into and through the city. The brook supports water voles, and previously white clawed crayfish within Markeaton Brook and Park, although it is understood that this population is now severely threatened by the presence of signal crayfish, which look highly likely to advance upstream to Kedleston Park where they will impact on that population. White clawed crayfish have also previously been recorded from parts of the river Derwent. There are records for bats from across the city, reflecting the relationship between bats and buildings, and the ease with which bats can be seen in flight in urban areas on light summer evenings, whilst the peregrine falcons which nest on Derby Cathedral are a much-loved example of wildlife in the heart of the city.

A key element of Derby's GI network is the 13 Green Wedges. These are areas of predominantly open land that penetrate the city from the surrounding countryside, providing separation between the different neighbourhoods and land uses within the city. While the primary function of all of the wedges is to define and enhance the urban structure of the city, they do provide a valuable GI resource, providing an uninterrupted link to the open countryside surrounding Derby. It is notable that there is very little recognised biodiversity interest within inner city areas although there are urban parks, playing fields, allotments, and gardens that could all be potentially enhanced to contribute to nature's recovery.

ii. Natural Capital and Key Ecosystem Services Provided by Nature

The predominantly urban character of Derby City means that in general, the city does not perform strongly for ecosystem services. However, larger green spaces including habitats along the River Derwent corridor, within the larger parks and local nature reserves, local wildlife sites, and within the green wedges that extend into the city, do offer some ecosystem services function, for example for natural flood management or carbon sequestration, depending upon the land use.

However, probably the largest ecosystem service provided by green space within the city is the benefit it offers for public access, sport and recreation and the promotion of health and wellbeing. While the city has a range of greenspace, ranging from Green Wedges, wildlife sites and a hierarchy of parks, there are still some areas of the city which have

low levels of accessible greenspace when assessed using ANGSt (Accessible Natural Greenspace Standards) size criteria.

iii. Land use pressures, constraints and other factors affecting nature recovery

The Derby city area is, by definition, a highly developed and urbanised area, with a population of over 261,000 residents. Consequently, the greenspaces within and around the city are already somewhat constrained by built development – very heavily so in places – and those spaces experience significant pressure both from recreational demands, and more generally due to their urban location and the impacts (development pressure, pollution etc) this entails.

Historically, urban growth and development pressure has generally been focussed on existing settlements and built-up areas. Whilst urban growth has been accommodated within and around Derby, it is understood that in more recent years, this demand has been too great to accommodate solely within the city and urban expansion has been channelled generally southwards, including into adjacent areas. As a large city – one of the 20 largest urban areas in the country – Derby City now faces intense pressure to continue to deliver urban growth and respond to demands for significant levels of new housing, together with associated employment land use. This will presumably exert pressure on undeveloped land both within or around the city, with the potential to impinge on some of the remaining habitats in this area, or at least on some of the remaining green space.

Once established, communities may add to the recreational pressure on the remaining green infrastructure and open spaces.

iv. Description of potential opportunities for nature recovery in Derby City

DE1 - Protection, conservation, and enhancement of existing high-quality sites – focussing on the most valuable areas of habitat. Within the Derby City context, this would mean existing LNRs, large or strategically located parks and Local Wildlife Sites, areas of interconnected habitats along the river corridors and other core green infrastructure assets should be prioritised for protection, conservation, and enhancement to improve their biodiversity value. Consideration should be given to how to retain an open mosaic habitat resource to compensate for brownfield sites lost to development.

DE2 - Rivers, streams, and watercourses – The River Derwent corridor is a stand-out ecological feature within the city, supporting many interconnected sites of ecological value. These sites support numerous protected and notable species and provide probably the greatest level of ecological connectivity through the city, from Allestree Park in the north, to Alvaston/Spondon in the city and beyond to Borrowash and Elvaston in the southeast. This ecological function and connectivity could be protected and enhanced through positive management and expansion of complementary habitats, and by taking opportunities to reconnect the floodplain and set back embankments.

DE3 - Accessible semi-natural greenspaces - Despite the presence of a significant number of Local Wildlife Sites, Local Nature Reserves, recreational spaces and other green infrastructure sites, many communities across this area are poorly serviced with accessible semi-natural green spaces. Such spaces could make a significant contribution to the health and wellbeing of these communities. Habitat creation and enhancement should therefore seek to maximise both nature recovery and public access benefit wherever possible or be strategically directed towards areas of disadvantage and green infrastructure deficit. Biodiversity Net Gain could be used to secure environmental enhancements in this area.

DE4 - Ecological connectivity – even in the built-up areas of the city, ecological connectivity and permeability, as well as other ecosystem services, could be enhanced through measures which support biodiversity in parks and in other green infrastructure assets such as cemeteries and other green spaces, as well as in residential gardens. Greening the city centre offers significant opportunities to create new connections, enhance biodiversity and reduce the impacts of climate change. The potential to provide significant and strategically located ecological enhancement of Green Wedges should also be carefully considered. In more confined areas, solutions such as green roofs and living walls can also be considered.

DE5 - Street trees – street trees are an important feature that can introduce nature into the urban environment and provide ecological connectivity even through heavily developed areas. In addition, their public benefits and ecosystem services – for shading and urban cooling,

the removal of pollution and contribution to clean air – cannot be overlooked.

DE6 - Species – The city provides many opportunities to conserve and enhance populations of protected and notable species, including by ensuring that they can both persist within and migrate through the city. Work should also focus on species which are associated with urban environments, including swifts, bats, and in Derby’s case, peregrines.

3.15.2 Other Urban Areas

Derbyshire remains an essentially rural landscape and the level of urbanisation is very varied across the county, with most of the population being located in the east of the county. Within the Peak District National Park built development has been largely limited by the statutory controls imposed by the landscape designation. Across much of the White Peak and Dark Peak settlement still tends to be in the form of small villages, hamlets and scattered dwellings and farmsteads with an intimate connection to their surrounding landscape. The main impacts in this area are associated with those settlements that lie just outside the National Park such as the settlements of Glossop, Chapel-en-le-Frith, Buxton, and Matlock.

In other parts of the county such as the East Derbyshire coalfield, development pressures have been much greater particularly following the demise of the coal industry. Here many former pit villages have grown very quickly in recent years and are targeted for more growth in current Local Plans. In some areas this has led to urbanisation of the

coalfield landscape with the coalescence of some settlements such as that seen around Chesterfield, Brimington, and Staveley but also around Alfreton and Somercotes, and Ripley to Ilkeston.

The Southern Magnesian Limestone NCA in Derbyshire has also experienced significant growth of former pit villages such as that seen at Barlborough, Clowne, Bolsover, and Shirebrook. Although these towns still retain their nucleated settlement pattern set within arable farmland, further expansion has the potential to impact further on features of existing biodiversity value. Conversely, there is also the potential to deliver more biodiversity through this development as part of a sensitively designed green infrastructure network.

The Trent Valley Washlands NCA has also experienced significant urbanisation particularly in those villages such as Hatton, Hilton and Etwell that have become satellite settlements to Derby and Burton. The Trent Valley has also been impacted because of sand and gravel extraction required to service this voracious growth in housing growth and leading to the loss of large areas of farmland year on year. These quarries now provide significant opportunities to deliver biodiversity and other environmental and social benefits as part of their long-term restoration strategies and connect to the local communities in these expanding towns across the valley through a framework of accessible green infrastructure.

Swadlincote is the largest town in the south of the county located within the Leicestershire and South Derbyshire Coalfield NCA. The town primarily evolved because of the coal and clay reserves in the area that

led to urbanisation, as collieries, brickworks, and potteries developed. Again, the demise of these industries has led to further development of new businesses attracted to the area as part of regeneration strategies.

Larger settlements such as Sheffield in the north, Greater Manchester in the north-west, and Burton-on-Trent have also seen significant growth and expansion in recent times and their settlement edges now extend up to the county boundary, placing Derbyshire within their urban fringe, and putting pressure on the landscape and its habitats in these areas.

i. Description of potential opportunities for nature recovery in other urban areas

Urban areas do not exist in isolation across Derbyshire but sit within the wider landscape. The NCA in which the urban area is located will give a strong indication of the nature recovery opportunities for that town or village, as it will share its topography, geology and general environmental context with the surrounding landscape. Nature recovery action in urban areas will likely be most successful if it matches the potential of the area in which it sits and facilitates ecological connectivity through the urban area itself. However, there will be ecological considerations and opportunities that may apply generally within urban areas:

U1 - Protection, conservation, and enhancement of existing high-quality sites – these should focus on the most valuable areas of habitat within that urban area. These won't necessarily be statutorily designated sites, but are more likely to include LNRs, large or

strategically located parks and Local Wildlife Sites, areas of interconnected habitats that extend through the urban area, and other core green infrastructure assets. Consideration should be given to how to retain an open mosaic habitat resource to compensate for brownfield sites lost to development.

U2 - Rivers, streams, and watercourses – Many urban areas were built up to and around rivers, streams, and watercourses, which they have now encroached upon, or even built over. Those watercourses and riparian corridors can provide key ecological linkages through urban areas, supporting protected and notable species as they do so. Improvements to rivers and watercourses should focus on strengthening the function and connectivity of these habitats through the urban area and beyond.

U3 - Accessible semi-natural greenspaces - Despite the presence of Local Wildlife Sites, Local Nature Reserves, recreational spaces and other green infrastructure sites, many urban communities lack access to semi-natural green spaces. This can be the case even in rural towns and villages, where the surrounding greenspaces and open countryside may not be accessible due to land ownership, or lack of infrastructure such as footpaths or pavements. Chesterfield is relatively well-served in terms of access to smaller areas of greenspace, although opportunities should be sought to increase access into greenspace in the east of the town.

High quality urban green spaces make a significant contribution to the health and wellbeing of communities, and habitat creation and enhancement should seek to maximise both nature recovery and public

access wherever possible or be strategically directed towards areas of disadvantage and green infrastructure deficit. Biodiversity Net Gain could be used to secure environmental enhancements in and around urban areas.

U4 - Ecological connectivity – even in the built-up areas, ecological connectivity and permeability could be enhanced through measures which support biodiversity in parks and in other green infrastructure assets such as cemeteries and green spaces, as well as in residential gardens. In more built-up areas, solutions such as green roofs and living walls can also be considered.

U5 - Street trees – street trees are an important feature that can introduce nature into the urban environment and provide ecological connectivity even through heavily developed areas. In addition, their public benefits and ecosystem services – for shading and urban cooling, the removal of pollution and contribution to clean air – cannot be overlooked.

U6 - Species – Urban areas provide opportunities to conserve and enhance populations of protected and notable species, including by ensuring that they can both persist within and migrate through the area. Work should also focus on species which are associated with urban environments, including swifts and bats.

3.15.3 Highway and Transport Infrastructure

Derbyshire is criss-crossed by several important strategic road and railway corridors all of which over time have impacted on our natural environment, either directly through historic habitat loss or indirectly through habitat severance.

The M1 motorway and the Midland Mainline railway both run north to south through the east of the county and now pose a significant obstacle for east to west habitat connectivity such as those impacts seen at Hardwick Park and along the Erewash Valley.

Similar impacts can be seen along the A50, which runs parallel to the Trent Valley. This route not only severs the landscape but also separates communities to the north from the river Trent landscape to the south.

Other important strategic roads through the county include the A38 running north to south through Derby, the A6 and A52 connecting Derby to the Peak District in a generally south-east to north-west orientation, and the A628 and A57 crossing through some of the most sensitive moorland landscape in the north of the county. The A6 (Wye Dale) and the A5012 (Via Gellia) also run through two of our most sensitive limestone dales protected by international and national designations.

However, in landscapes of intensive agriculture such as the White Peak and Magnesian Limestone plateau, road verges could contribute to the habitat network and connectivity through the sympathetic management of these areas. Furthermore, former railway corridors can be enhanced

as green infrastructure assets that provide for public access alongside nature conservation and habitat connectivity. Indeed, many former railway lines are now designated as SSSIs and Local Wildlife Sites because of the habitats they support.

i. Description of potential opportunities for nature recovery across the transport and highway network

T1 - Ecological connectivity – major transport infrastructure, particularly dual carriageways and motorways can cause significant habitat severance and prevent the movement of species, particularly terrestrial species, and species with poor capability of dispersal. Identifying and addressing ecological severance caused by those routes offers great potential to reconnect species across landscapes.

On the other hand, road verges and other land alongside road and transport infrastructure offers significant potential to enable ecological connectivity across landscapes and within urban areas. In many circumstances this could be achieved by modifying existing management practices such as mowing regimes to enable biodiversity to recover.

T2 - Creation of new habitats – new development, either the development of new transport infrastructure, roads and railways, or new urban development, offers opportunities to create verges and other land which will benefit biodiversity. This can be most successful if both ecological connectivity and future management requirements are considered and planned in at the outset.

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