

## Ecological Sub-area Statement of Biodiversity Priorities – Technical Appendix

<b>Sub-area name</b>	Stour Valley	<b>Sub-area ref.</b>	CL11
<b>Natural Character Area</b>	Mid Severn Sandstone Plateau & Cannock Chase and Cank Wood & Arden	<b>NCA ref.</b>	66 67 97
<b>Local Authority Area</b>	Dudley & Sandwell	<b>Area km<sup>2</sup></b>	4.48

### Ecological Sub-area Description

#### Overview

The Stour Valley comprises the main river channel, its tributaries and the areas of green space along their banks in the urban Black Country. The ecological sub-area is located predominantly in the south of the borough of Dudley, along with small areas to the north of the main river in the south-west of Sandwell. Urban settlement entirely surrounds the area including Halesowen, Cradley Heath, Lye, Stourbridge and Wordsley. The headwaters of the Stour lie to the south-east of the ecological sub-area in Core Landscape 13 Illey, Lapal & Hasbury. To the west lies Staffordshire, through which the rivers flows on into Worcestershire and its confluence with the River Severn at Stourport-on-Severn.

The river played a key role in the industrial development of the area, providing power for a range of industries from at least the late mediaeval period, with significant expansion of large industrial complexes formed along the banks in the 18<sup>th</sup> and 19<sup>th</sup> century. The present-day surrounding landuse is both residential and industrial.

#### Land Use

The main river and its significant tributaries the Mousesweet Brook, Black Brook, Illey Brook and Lutley Gutter flow through areas of both public open space and privately-owned green space along almost their entire length. Exceptions include short stretches with artificial banks that are entirely constrained by urban development including industrial sites and road complexes. Substantial and well-known open spaces include The Leasowes, Haden Hill Park and Saltwells. There are numerous additional small areas of public open space, and where sites are in private ownership, unofficial access is frequent.

Semi-natural woodland dominates the steep valley sides in the east and post-industrial sites further west, with amenity grassland, semi-natural grassland and some remnant open mosaic habitats present in former floodplain sites.

#### Topography

The River Stour enters the ecological sub-area in the south-east at an elevation of 120 meters and follows the natural contours of the area westwards to an elevation of 60 metres where it enters Staffordshire. The Black Brook and Mousesweet Brook rise or enter the ecological sub-area at an elevation of 130 metres and flow southwards to their confluence with the Stour in the approximate centre of the area at an elevation of 70 metres.

In the east of the ecological sub-area the Stour and Illey Brook lie in steeply incised channels where the watercourse has cut through the soft mudstone, siltstone and sandstone bedrock. In places the creation of made ground at former industrial sites has further exaggerated the watercourse valleys.

In the west the Stour flows through a shallower natural valley and what would have presumably formerly been floodplain habitats, though steep-sided sections remain a feature in places.

#### Geology

The western section of the ecological sub-area is Chester Formation sandstone and conglomerate, interbedded, formed between 250 and 247.1 million years ago during the Triassic period, and Wildmoor Sandstone Member – sandstone formed between 252.2 and 247.1 million years ago during the Triassic period. The central section is Pennine Middle Coal Measures Formation mudstone, siltstone and sandstone formed between 318 and 309.5 million years ago during the Carboniferous period, and Pennine Lower Coal Measures Formation mudstone, siltstone and sandstone formed between 319 and 318 million years ago during the Carboniferous period. The eastern section is Etruria Formation mudstone, sandstone and conglomerate formed between 319 and 308 million years ago during the Carboniferous period, and Etruria Formation sandstone formed between 319 and 308 million years ago during the Carboniferous period, with some Halesowen Formation sandstone formed between 309.5

and 308 million years ago during the Carboniferous period, and Halesowen Formation mudstone, siltstone and sandstone. Sedimentary bedrock formed between 309.5 and 308 million years ago during the Carboniferous period.

The western section is overlain with superficial deposits of clay, silt, sand and gravel alluvium formed between 11.8 thousand years ago and the present during the Quaternary period, with some Ipswichian River Terrace Deposits of sand and gravel formed between 126 and 116 thousand years ago during the Quaternary period, and some Holt Heath Sand and Gravel Member sand and gravel formed between 362 and 126 thousand years ago during the Quaternary period.

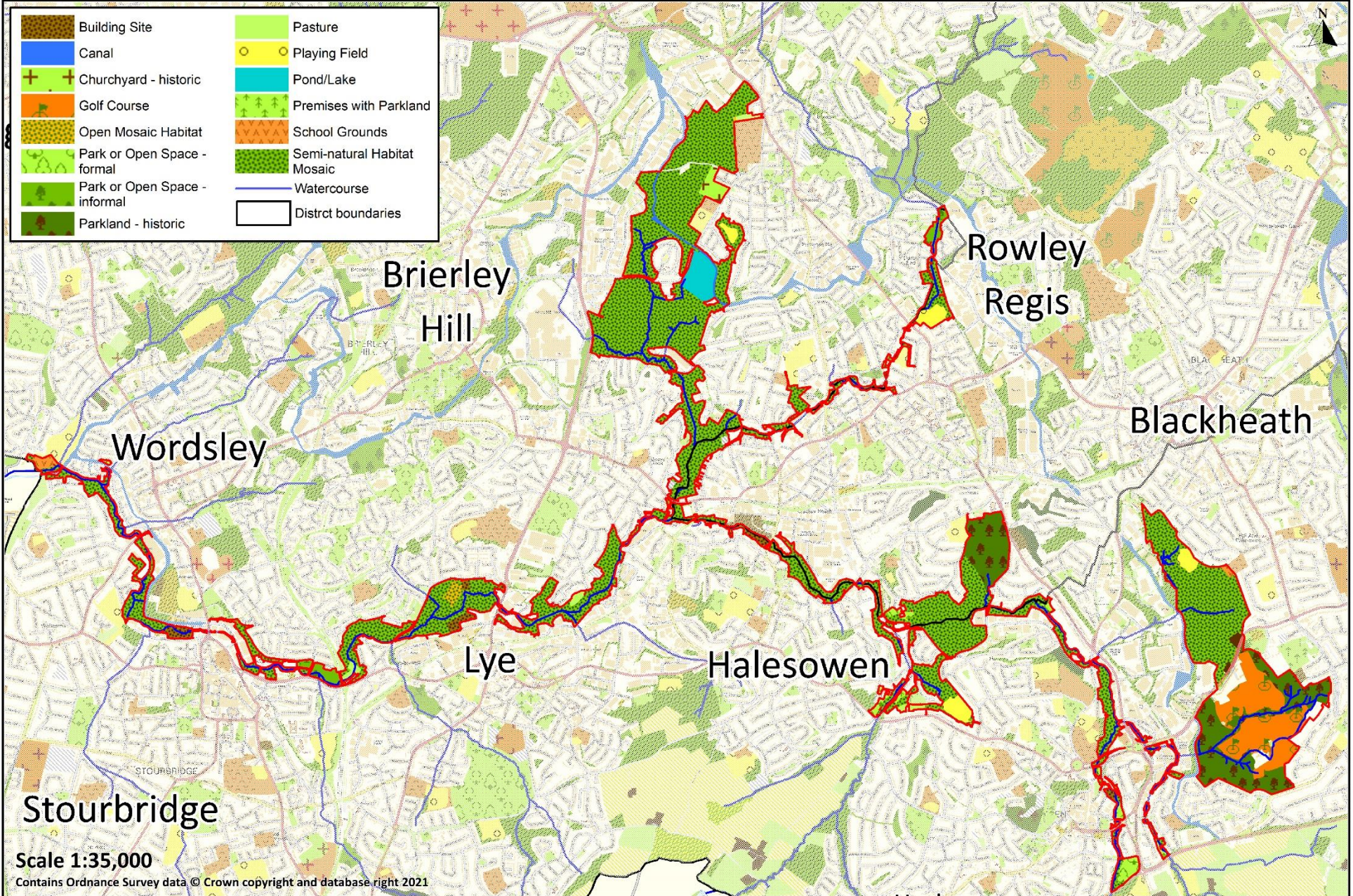
#### **Geopark Sites**

- Saltwells Local Nature Reserve (GR SO 93558 87067)
- Coombswood Valley (GR SO 972 852)
- Leasowes Park (GR SO 975 840)

#### **Soils**

In the western section of the ecological sub-area the soils are freely draining, slightly acid and sandy with low fertility. In the northern and central western section, the soils are slowly permeable, seasonally wet acid loamy and clayey soils with low fertility. In the central eastern section, the soils are slightly acid, loamy and clayey soils with slightly impeded drainage and moderate to high fertility. In the eastern section the soils are slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils with moderate fertility.

# CL11 Stour Valley – Land Use



**Historic Landscape Character Areas**

<b>Reference</b>	DY01	<b>Name</b>	Netherton
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An area in the north of the ecological sub-area is within DY01 Netherton Historic Landscape Character Area. This Character Area lies to the east of the Borough, situated on a sandstone, mudstone and conglomerate geology, and in general over the coal measures. The modern character of the area is defined by residential development associated with the modern town of Dudley, although the area also incorporates recreation and wooded areas together with industrial areas which straddle the canal. On the high ground in the north, the housing is in many cases a legacy of the southern expansion of Dudley and, in the north-west in particular mid-to-late Victorian terraces and villas survive. Much of the remainder of the north comprises large areas of inter-war semi-detached housing survive from the 20th century suburbanisation of Dudley.

<b>Reference</b>	DY02	<b>Name</b>	Halesowen
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The western and southern sections of the ecological sub-area lies within Historic Landscape Character Area DY02 Halesowen. This Character Area lies in the south-east of the Borough, situated on sandstone, mudstone and conglomerate geologies with only a small area at Coombeswood overlying the coal measures. The modern character of the area is dominated by mid-late 20th century housing which covers around 75% of the Character Area.

Due to the underlying geology of the area, away from the coal measures this area remained a landscape of small-scale settlement and agriculture until the 20th century. In the pre-industrial period the settlement at Halesowen was large in Black Country terms, surrounded by open fields and streamside meadows. In the early industrial period these streams became the power behind a string of mills and forges. These sites led to the development of the north west corner of the Character Area, Cradley, where the Stour exists and is at its strongest. This area contains the largest area of colliery land in the Character Area. Canals arrived in the area in the 1790s, linking Coombeswood to the rest of the Black Country and railways were not established in the Character Area until the late 19th century.

<b>Reference</b>	DY04	<b>Name</b>	Stourbridge
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The western section of the ecological sub-area lies within DY04 Stourbridge Historic Landscape Character Area. This Character Area lies in the south-west of the Borough, situated on a geology of sandstone, mudstone and conglomerate, with pebble beds in its west and the southern end of the coal field in the north-east. The modern character of the area is defined by the commercial centre of Stourbridge, (in the centre) and the industrial town of Lye (in the north-east). The area is predominantly residential, but the north edge runs along the river Stour, which has important industrial sites along its banks.

Stourbridge developed at a relatively late point receiving a market and a fair at the end of the 15th century. Prior to this the settlements in the south (Old Swinford and Pedmore) were probably equally important. The Stour is a particularly important feature within this character area, and historically this water course supported a string of mills and forges along its banks.

During the 20th century the previously agricultural land within the Character Area was developed for suburban housing and new industrial developed replaced the collieries.

<b>Reference</b>	DY09	<b>Name</b>	Brierley Hill
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The very northern part of the ecological sub-area is within Historic Landscape Character Area DY09 Brierley Hill. This Character Area lies in the centre of the Borough over an area of coal measures as well as sandstone, mudstone and conglomerate. The modern character of the area is dominated by commercial and retail land, which encompassed the older centres of Dudley and Brierley Hill.

The Character Area has had important commercial and retail functions since the medieval period when Dudley (laid out in the 13th century) was one of the Black Country's few towns. During the medieval period most of the area was part of Pensnett Chase, an area of common ground covering most of the central area of what is now the Metropolitan Borough of Dudley. This area remained open until the 18<sup>th</sup> century, although by this time the area had been subject to mineral extraction and the creation of woodland plantations to provide fuel for iron smelting.

Dudley Canal was cut through the area in 1779, surrounded by brickworks, glassworks and iron furnaces. A railway, running alongside the canal, was constructed in the 19<sup>th</sup> century and remained in use until the 1960s. By the same period, large parts of the landscape had become dominated by collieries. The 20th century saw a shift away from coal extraction and the development of planned industrial districts.

## Historic Landscape Character Areas

Reference	SD10	Name	Cradley Heath
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The central western section of the ecological sub-area lies within Historic Landscape Character Area SD10 Cradley Heath. This Character area is situated in the south-west of the Borough on a geology of sandstone, mudstone and conglomerate. This is an area of generally mixed character, with both residential neighbourhoods and, particularly in its west, important commercial and industrial districts.

The River Stour is not only the southern boundary of the Character Area (as well as of Sandwell), but has also had a particular significance during the Industrial Revolution. At that time, this local river is said to have boasted more water-powered installations that could be found on a similar length of any other English watercourse. Cradley Heath was also the location of important technological changes and was, for example, the venue for 17th century experiments to smelt iron using coal as an alternative to charcoal. The Character Area, together with the adjoining area to the east, also has a long tradition of chain and anchor making. In the late 19th and early 20th centuries Cradley Heath and Old Hill formed part of a network of chain-making townships in the Black Country.

## Historic Environment Area Designations [1]

Reference	AHHLV 33	Name	Coombeswood
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The AHHLV falls within the historic township of Hill and includes an area of medieval open cast coal mining and a brick and tile works. It also contains Greenshill, an area of semi-natural ancient woodland, which contains some old quarry pits. The southern part of the AHHLV contains a well-preserved field system dating back to at least the 19th century, associated with a medieval holloway and Pottery Farm. The holloway leads from Pottery Farm over to the canal which is on the edge of the area. This area is very important ecologically, historically and archaeologically as well as making a very important contribution to the scenery of the borough.

The old quarry pits, within the AHHLV may provide evidence of medieval mining activities, while the holloway and field system provide evidence about medieval and post-medieval agricultural activity in the area. The AHHLV also contains areas of semi natural ancient woodland; these areas are relicts of the early post-medieval landscape. Coombeswood is a prominent topographic feature in the south of the Borough. Its prominence and steepness is due to its proximity to the edge of the Northfield Sedgley Ridge. The southern area is important for the contribution that the residual agricultural landscape gives to this otherwise urban area. Pottery Farm is unique as a collection of buildings that represent the 'hill farming' in this part of the Black Country in the 17th century. The farmstead and Barn to the west are Grade II listed buildings (NHLE 1063732, 1356152).

Reference	AHHLV 52	Name	River Stour Corridor
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The AHHLV contains the steeply sided gorge of the River Stour from Haysech in the east to Brierley Hill just outside the western limit of the Borough. The southern boundary of Sandwell Borough follows the course of the river and the AHHLV continues on the other side of the borough boundary in Dudley.

The route of the river is marked by a corridor of public and private green space which contain relic hedgerows and tree lines which indicate former agricultural divisions within the landscape prior to the extensive industrialisation of the area. The river provides a natural wildlife corridor and contains areas of woodland, often planted as coppice to fuel industrial activity in the surrounding area. The river itself has provided a source of water power since at least the later medieval period with numerous corn and fulling mills recorded along its length, many of these facilities were converted to metal working uses such as powering forges and metal working.

During the 18th and 19th century industrial activity expanded dramatically in the area and large industrial complexes formed along the banks of the river. To support the growing industrial activity along the river additional water management systems were created along the river. Settlement expansion occurred in this period in association with the expanding industry.

The AHHLV passes through a number of former industrial sites including Cradley Forge, Stour Works and Colliery, Lodge Forge and Tile Works, Hedges Mill and Haysech Works. Environment Agency LiDAR shows earthwork remains associated with former quarrying activity along the length of the AHHLV and the area has the potential to contain surviving structures associated with the industrial activity and water management practices along the length of the Stour.

<b>Historic Environment Area Designations [1]</b>			
<b>Reference</b>	AHHLV 68	<b>Name</b>	Netherton Hill
<p>The AHHLV contains Netherton Hill an important open area within a built-up and industrial part of the Borough. The prominence of this hill offers visual relief from the urban environment. Capped by woodland and Netherton Church and visible from many parts of the Borough, Netherton Hill is a pleasing and well-loved landscape and key landmark in the Borough. Much of the hillside is reclaimed colliery land and the south and south westerly gorse covered slopes with cattle grazing has a rural ambience.</p>			
<b>Reference</b>	AHHLV 69	<b>Name</b>	Saltwells
<p>The AHHLV covers an areas known as Saltwells, situated within the Blackbrook Valley. It includes mature woodland, wetland, grassland and the deep Doultan's Claypit.</p> <p>The AHHLV contains a large expanse of water, Lodge Farm Reservoir and the Dudley Canal. They are valuable historic and scenic resources for their nature conservation value. The area was part of Pensnett Chase in Norman times though the valley has for centuries been exploited for industrial purposes. Coal was mined from the medieval period while clay extraction which produced the massive claypit ceased working as recently as the 1940's. The remains of medieval coal-mining activity are designated as a scheduled monument.</p> <p>The area gets its name from the saline water that welled up in the mine workings. In the 19th and early 20th century people came to bathe in the water, the remains of the baths are a heritage asset located near to the present day Saltwells Inn.</p>			
<b>Reference</b>	AHHLV 70	<b>Name</b>	River Stour Corridor
<p>The AHHLV includes a corridor of land running along the steep sided gorge of the River Stour from Halesowen in the east to Stourbridge in the west and beyond to the western limit of the borough (where it continues as AHHLV 52). Along this route the river corridor provides a ribbon of public and private green open space which forms a buffer between the towns along the southern edge of the borough (Halesowen, Cradley, Lye, Stourbridge and Wollaston and those to the north, particularly Quarry Bank, Brieley Hill and Amblecote). In some areas it also provides an accessible footpath linking the various settlements and running through green areas away from busy road routes. Relict hedgerows and tree lines provide an indication of the former divisions of land within the area as part of the functioning agricultural landscape. The river provides a natural wildlife corridor and the route is accompanied by areas of woodland, many of which were planted as coppices to provide fuel for industrial processes and now form areas of ancient woodland. The fast-flowing river has provided a source of waterpower since, at least, the later middle ages with numerous corn and fulling mills recorded, many of which had been converted to metal working uses such as powering forges and producing scythe blades and other edge tools or for slitting rods and boring gun barrels. These sites developed into extensive complexes in the 18th and 19th centuries, with works to the river's course to create ever more complex water management systems and settlements going in association with the manufacturing centres. Where new transport systems such as the canals and railways met the river, they often involved dramatic engineering such as the Stambermill Viaduct, joining the earlier road bridges as historic structures of note.</p>			
<b>Reference</b>	DLHHV 17	<b>Name</b>	Haden Hill Park
<p>The DLHHV contains Haden Hill Park. A parkland laid out in the 19th century on the site of a 16th century manor. The park contains three Grade II listed buildings including the late 19th century Haden Hill Hall (NHLE 1077144), a dovecote to the north-east of Haden Hall and an associated wall (NHLE 1077145) and a cross base to the east of Haden Hall (NHLE 1287707).</p> <p>The house and parkland belonged to the Haden Family and the present day Haden Hill Hall was built in 1878 by George Alfred Haden. The house and estate were sold to Rowley Regis Urban District Council on George Alfred Haden's death in 1921 and were converted into a public park. The park was extended to the south west in the 1920s.</p>			
<b>Reference</b>	APA 93	<b>Name</b>	Early Industrial Complex, Mill Race Lane
<p>The APA contains an area on either side of the River Stour in which industrial activity took place in the past. Previous assessments have demonstrated that there is potential in this area for archaeological remains of medieval and later date. The APA was identified in the Stourbridge Urban HLC. The APA contains a number of former industrial complexes, including the site of Fosters and Orme's Forge, an extension of the John Bradley Works west of the road bridge. The forge is mentioned in a lease of 1833 with records the building of a new steam mill and a timber yard. The area later became an Anvil Spade and Shovel Works. The Stourbridge Town Mill and later Cloth and Leather Fulling Mills, and their associated Mill Ponds also fall within the APA, as does the Ambrose Crowley's 2 Steel Houses and the extension to the Stourbridge Extension Canal, which was built in 1830</p>			

### Historic Environment Area Designations [1]

to serve the Foster and Orme Iron Works. Other industrial activity in this area includes Pitmans and Later Turney's Leatherworks and Turney's Glue Works and Parchment Works.

<b>Reference</b>	APA 119	<b>Name</b>	Cradley Forge Millpond
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The APA contains the site of Cradley Forge Millpond. The pond was first mentioned in a document of 1662, as one of the ponds powering Cradley Forge (known as New Pool). It became a boating lake in the 1860s when the forge turned to steam power but was eventually drained in 1878. The pool straddles the Dudley/Sandwell boarder. The APA is considered to have the potential to contain archaeological remains, such as dams and leats, associated with early post-medieval water course management. Since the draining of the lake the area has been retained as green space within the Black Brook Valley. The area may have the potential to contain waterlogged deposits which may contain preserved environmental remains and/or organic materials. Such remains could provide insight into the local environment and land use in the area during the early post-medieval period.

<b>Reference</b>	APA 124	<b>Name</b>	Lowndes Road Early Industrial Complex
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Ironworking on this site began with the water powered Royal Meadow Forge (APA 181) which was recorded in 1680. The opening of the canal in 1779 allowed access to wider coalfields and following this, several other buildings were erected for use in ironmaking, known as 'Bradleys Ironworks'. By 1802 the site housed a forge, steam engine, workshops, a slitting mill, a rolling mill and several other ancillary buildings. Following the success of the existing works, the Foster & Rastrick Foundry (often known as the 'New Works') was built in 1821. Whilst the other buildings have been cleared, the Foster & Rastrick Foundry and a small number of other remaining structures remain providing the only remaining link to the early industrial origins of the canal side site of John Bradleys Old Works, which was set up in 1800 by John Bradley next to James Dovey's Glassworks in 1808.

Bradley leased 22 acres to the west of the Royal forge to tip spoil in 1809 and in 1813 bought the lease to Dovey's Glassworks. By the late 19th century the area contained a canal wharf and a number of small industrial buildings. By the early 20<sup>th</sup> century the site contained a galvanising works and Rolling Mills. The site was cleared of buildings in the early 2000s and is now occupied by a car park and rough ground.

The area has been included as an APA as it is considered to have the potential to contain 19th century industrial remains associated with John Bradleys works, and the later ironworks and rolling mills.

<b>Reference</b>	APA 199	<b>Name</b>	Saltwells
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The APA covers an areas known as Saltwells, situated within the Blackbrook Valley. The APA contains a large expanse of water, Lodge Farm Reservoir and the Dudley Canal. The area was part of Pensnett Chase in Norman times though the valley has for centuries been exploited for industrial purposes. Coal was mined from the medieval period while clay extraction which produced the massive claypit ceased working as recently as the 1940s. The remains of medieval coal-mining activity are designated as a scheduled monument.

The area gets its name from the saline water that welled up in the mine workings. In the 19th and early 20th century people came to bathe in the water, the remains of the baths are a heritage asset located near to the present day Saltwells Inn. The area has been included as an APA due to the surviving earthwork remains of the clay pit and coal mining remains.

### Waterbody Catchments

<b>River Basin District</b>	Severn	<b>Management Catchment</b>	Severn Middle Worcestershire
<b>Waterbody Catchment</b>	<b>Overall Classification</b>	<b>Ecological</b>	<b>Chemical</b>
Stour (Worcs) source to conf Smestow Bk	Poor (2019)	Poor (2019)	Fail (2019)

Key Habitats [2]			
<b>Broad Habitat Type</b>	Inland Rock	<b>Priority Habitat</b>	Open mosaic habitats on previously developed land
<p>Areas of open mosaic habitats on previously developed land may exist at sites including the former Caledonia sewage works in Lye and between the River Stour and the Stourbridge Canal in the west of the ecological sub-area. The condition of the habitat-type is not known and it is likely the extent of this has reduced through development and succession in recent years.</p>			
<b>Broad Habitat Type</b>	Boundary & Linear Features	<b>Priority Habitat</b>	Hedgerows
<p>There are remnant field boundary hedgerows in the surviving areas of open space that were not lost to industrial activity from the 18<sup>th</sup> century. These include the southern part of Coombeswood, at The Leasowes and the periphery of the former Caledonian Sewage Works. These are mostly associated with the small irregularly-shaped fields and include the boundaries of some remnant trackways.</p>			
<b>Broad Habitat Type</b>	Neutral Grassland	<b>Priority Habitat</b>	Lowland Meadows
<p>In Stambermill open space in the west of the ecological sub-area is a small area of species-rich neutral grassland that meets the definition of lowland meadow. Other small remnants of the habitat-type may exist elsewhere in the Stour Valley, however, many former grasslands within areas of public open space have been unmanaged for some time and are becoming increasingly rank and colonised by scrub. Some recent meadow creation had been undertaken at sites including The Leasowes, Coombeswood and Stambermill.</p>			
<b>Broad Habitat Type</b>	Neutral Grassland	<b>Priority Habitat</b>	
<p>Diverse remnant permanent pastures on ridge and furrow are present at the Leasowes NNR. These are of particular note for their high diversity of associated fungi. There are additional long-standing pastures at Coombeswood and several small horse-grazed pastures at locations along the River Stour.</p> <p>At sites including Saltwells and Coombeswood there are substantial areas of variously diverse grassland that has developed on restored post-industrial sites that now comprise public open space.</p>			
<b>Broad Habitat Type</b>	Broadleaved, Mixed and Yew Woodland	<b>Priority Habitat</b>	Lowland mixed deciduous woodland
<p>Areas of woodland designated as ancient by Natural England, along with further areas that may meet the definition of ancient (continually woodland since at least AD 1600), are present on some of the steep-sided valley sides of the River Stour and tributaries at sites including The Leasowes, Corngreaves Nature Reserve and near Lye (Bob's Coppice and Meer's Coppice). These woodlands pre-date the industrialisation and urbanisation of the landscape and represent an extension to the dingle woodland habitat-type present in the adjoining Core Landscape 13 Illey, Lapal &amp; Hasbury. Those in the Stour Valley have, however, frequently been subject to disturbance through industrial activity including historic tipping of colliery waste and are consequently less floristically and structurally diverse than those in the rural Stour headwaters.</p> <p>The woodlands at Saltwells that are designated as ancient woodland may, in fact, represent early restoration planting of a post-industrial landscape.</p>			
<b>Broad Habitat Type</b>	Broadleaved, Mixed and Yew Woodland	<b>Priority Habitat</b>	
<p>Semi-natural broadleaved woodland dominates the Stour Valley along the entire main river and on most tributaries. Some of this may have been planted in the 18<sup>th</sup> and 19<sup>th</sup> century to provide fuel for industry, however, the majority comprises maturing spontaneous woodland that has regenerated since the beginning of the 20<sup>th</sup> century, frequently on soils heavily disturbed by extractive and other industries. Most of this woodland appears to have received little or no management.</p> <p>Mature formal planted blocks of trees and woodland exist at sites including Haden Hill Park and The Leasowes, and there are recent planted blocks of native broadleaved at sites including Corngreaves Nature Reserve and Stambermill.</p>			



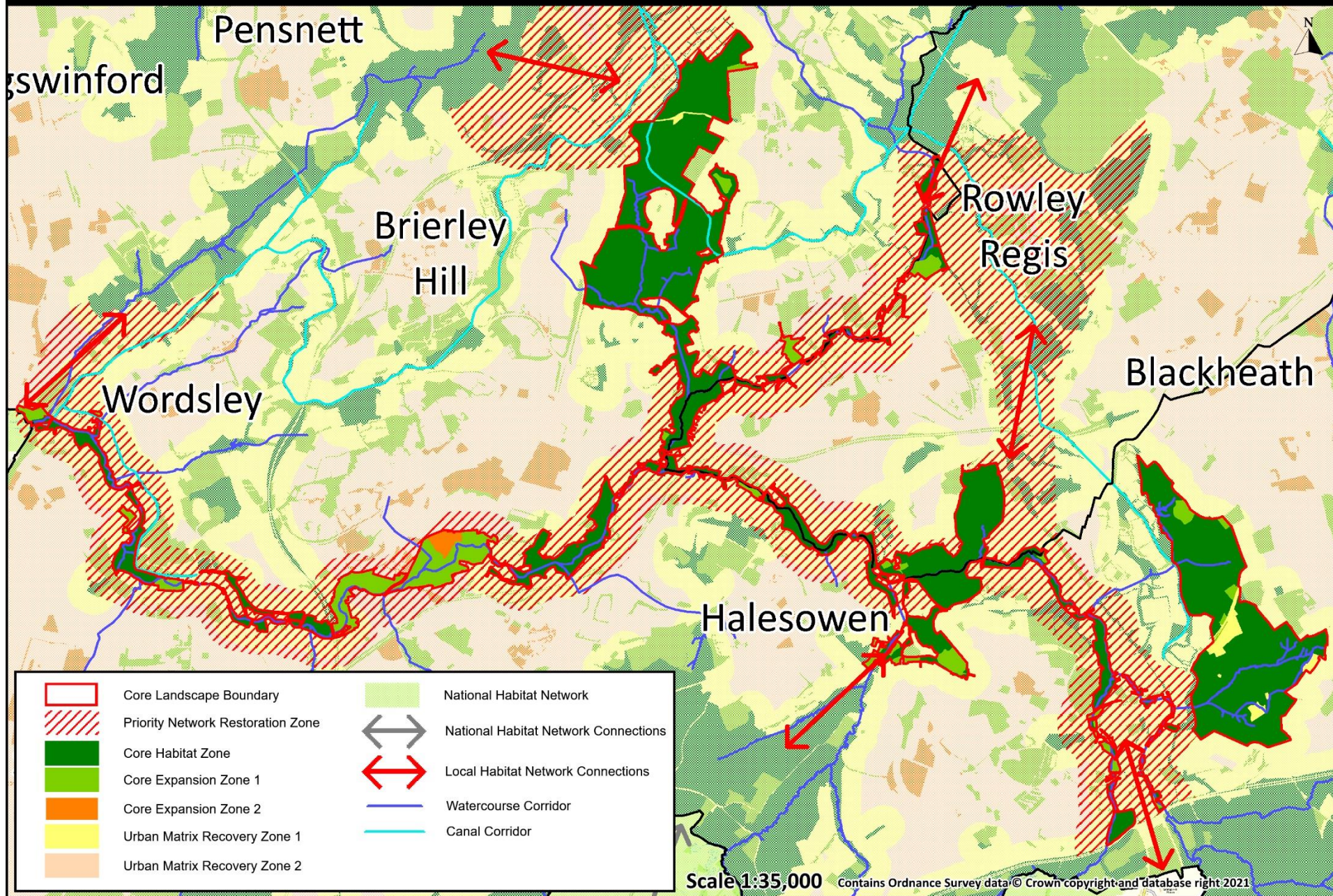
Broad Habitat Type	Rivers and Streams	Priority Habitat	Rivers
<p>The main channel of the River Stour enters the ecological sub-area in the south-east from the countryside of Core Landscape 13 Illey, Lapal &amp; Hasbury. From here it flows northwards to Halesowen, before turning west and flowing across the south of Dudley and Sandwell to the Staffordshire boundary. The Illey brook similarly rises in countryside to the south and enters the ecological sub-area fewer than 300 meters to the east of the Stour, flowing northwards to its confluence with the main river near to Halesowen. The Mousesweet Brook rises in the Rowley Hills to the north and is joined by the Black Brook, which rises in Saltwells, just to the north of the confluence with the main river at Cradley Forge in the approximate centre of the ecological sub-area. There are numerous other minor tributaries including the Coombes Brook, Lutley Gutter, Salt Brook, Ravensitch Brook, Shepherds Brook, Withy Brook and Coalbourne Brook. Many of these are culverted for much of their length and enter the Stour as outfalls.</p> <p>The hydromorphology of the open channels varies considerably, with many stretches having been artificially straightened and widened, with some sections with concrete, brick or piling banks. These homogenous stretches exhibit relatively few features associated with the natural erosion and deposition of sediment (e.g. bars, riffles and pools), and are consequently relatively ecologically poor. There are, however, significant sections that have been either less modified or have been unmanaged for an extended period of time. In these stretches natural processes have a significant influence and an associated natural diversity of features are present.</p> <p>All of the watercourses contain man-made structures which form barriers to the natural movement of sediment and wildlife (notably fish). Pollution from a range of urban sources including misconnections, road run-off and polluted post-industrial soils are a significant issue throughout the ecological sub-area, with the colour and smell of the water a clear and obvious indication of this throughout. Following periods of heavy rain in the headwaters the main river runs a red-brown colour due to the large amount of sediment carried from the fields of Core Landscape 13 Illey, Lapal &amp; Hasbury. Aquatic vegetation is almost entirely absent from most stretches of the main river and tributaries.</p>			

Key Species [3]	
Bird indicators	
<b>Farmland</b>	Common Reed Bunting, Eurasian Skylark, Goldfinch, Greenfinch, Jackdaw, Kestrel, Lapwing, Linnet, Starling, Stock Dove, Western Yellow Wagtail, Whitethroat, Woodpigeon.
<b>Woodland</b>	Blackbird, Chiffchaff, Coal Tit, Common Chaffinch, Dunnock, Eurasian Blackcap, Eurasian Blue Tit, Eurasian Bullfinch, Eurasian Nuthatch, Eurasian Wren, European Green Woodpecker, European Pied Flycatcher, Garden Warbler, Goldcrest, Great Spotted Woodpecker, Great Tit, Jay, Lesser Redpoll, Lesser Spotted Woodpecker, Lesser Whitethroat, Long-tailed Tit, Redstart, Robin, Siskin, Song Thrush, Sparrowhawk, Spotted Flycatcher, Tawny Owl, Tree Pipit, Treecreeper, Willow Warbler, Wood Warbler.
<b>Water &amp; Wetland</b>	Common Merganser, Common Reed Bunting, Dipper, Eurasian Coot, Grey Heron, Grey Wagtail, Kingfisher, Lapwing, Little Egret, Little Grebe, Mallard, Moorhen, Mute Swan, Reed Warbler, Sedge Warbler, Snipe, Teal, Tufted Duck, Western Yellow Wagtail.
<b>Other</b>	Black-headed Gull, Buzzard, Carrion Crow, Collared Dove, Common House Martin, Cuckoo, Eurasian Magpie, Gadwall, House Sparrow, Meadow Pipit, Mistle Thrush, Northern Raven, Peregrine, Pied Wagtail, Pied Wagtail, Pochar, Stonechat, Swallow, Swift, Whinchat.
Amphibians & Reptiles	
<b>Amphibians</b>	Common Frog, Common Toad, Smooth Newt.
<b>Reptiles</b>	Common Lizard, Grass Snake.
Mammals	
<b>Bats</b>	Brown Long-eared Bat, Common Pipistrelle, Daubenton's Bat, Noctule Bat, Soprano Pipistrelle.
<b>Other</b>	Eurasian Badger, European Otter, European Water Vole, West European Hedgehog.
Fish	
<b>Bony Fish</b>	none
<b>Jawless Fish</b>	none

<b>Invertebrates</b>	
<b>Assemblage type</b>	
<b>Flora (axiophytes)</b>	
<b>Woodland</b>	
<b>Grassland</b>	<i>Agrimonia eupatoria, Ajuga reptans, Alchemilla filicaulis subsp. vestita, Anacamptis pyramidalis, Blechnum spicant, Brachypodium sylvaticum, Briza media, Caltha palustris, Campanula rotundifolia, Carex caryophyllea, Carex pallescens, Centaurium erythraea, Cirsium palustre, Dactylorhiza fuchsii, Dactylorhiza fuchsii x praetermissa = D. x grandis, Dactylorhiza praetermissa, Danthonia decumbens, Daucus carota subsp. carota, Deschampsia flexuosa, Equisetum sylvaticum, Euphrasia nemorosa, Euphrasia officinalis agg., Filipendula ulmaria, Fragaria vesca, Galium saxatile, Genista tinctoria, Hypericum pulchrum, Isolepis setacea, Lathyrus linifolius, Lathyrus nissolia, Leontodon hispidus, Lotus pedunculatus, Odontites vernus, Ornithopus perpusillus, Persicaria bistorta, Picris hieracioides, Pimpinella saxifraga, Plantago media, Polygala vulgaris, Potentilla anglica, Potentilla erecta, Potentilla sterilis, Poterium sanguisorba subsp. sanguisorba, Rhinanthus minor, Sanguisorba officinalis, Scabiosa columbaria, Sherardia arvensis, Silene flos-cuculi, Stachys officinalis, Stellaria holostea, Succisa pratensis, Trifolium medium.</i>
<b>Heathland</b>	<i>Aira praecox, Blechnum spicant, Calluna vulgaris, Campanula rotundifolia, Carex nigra, Danthonia decumbens, Deschampsia flexuosa, Empetrum nigrum, Erica cinerea, Erica tetralix, Galium saxatile, Luzula multiflora, Melampyrum pratense, Ornithopus perpusillus, Potentilla erecta, Salix aurita, Teucrium scorodonia, Ulex gallii, Vaccinium myrtillus, Vaccinium vitis-idaea, Viola palustris.</i>
<b>Mires</b>	<i>Alchemilla filicaulis subsp. vestita, Angelica sylvestris, Athyrium filix-femina, Briza media, Caltha palustris, Cardamine amara, Carex nigra, Carex pallescens, Carex pseudocyperus, Carex rostrata, Carex viridula subsp. oedocarpa, Cirsium palustre, Dactylorhiza fuchsii, Dactylorhiza fuchsii x praetermissa = D. x grandis, Dactylorhiza praetermissa, Dryopteris carthusiana, Eleocharis palustris, Epilobium palustre, Equisetum fluviatile, Equisetum palustre, Erica tetralix, Filipendula ulmaria, Galium palustre, Glyceria declinata, Glyceria notata, Hydrocotyle vulgaris, Isolepis setacea, Juncus acutiflorus, Lotus pedunculatus, Luzula multiflora, Mentha arvensis, Menyanthes trifoliata, Pedicularis palustris, Persicaria hydropiper, Pinguicula vulgaris, Potentilla palustris, Pulicaria dysenterica, Ranunculus aquatilis, Ranunculus aquatilis, Ranunculus flammula, Silene flos-cuculi, Sparganium emersum, Stellaria alsine, Succisa pratensis, Valeriana officinalis, Veronica beccabunga, Viola palustris.</i>
<b>Open Water</b>	<i>Bidens tripartita, Butomus umbellatus, Carex pseudocyperus, Eleocharis palustris, Equisetum fluviatile, Galium palustre, Glyceria notata, Menyanthes trifoliata, Potamogeton friesii, Potamogeton perfoliatus, Potamogeton pusillus, Ranunculus aquatilis, Ranunculus aquatilis, Sagittaria sagittifolia, Schoenoplectus lacustris.</i>
<b>Post-industrial (water-stressed)</b>	<i>Agrimonia eupatoria, Aira praecox, Anacamptis pyramidalis, Anthyllis vulneraria, Arenaria serpyllifolia, Arenaria serpyllifolia subsp. serpyllifolia, Blechnum spicant, Catapodium rigidum, Centaurea scabiosa, Centaurium erythraea, Clematis vitalba, Daucus carota subsp. carota, Deschampsia flexuosa, Epipactis phyllanthes, Erigeron acris, Erophila verna, Fragaria vesca, Inula conyzae, Jacobaea erucifolia, Ophrys apifera, Ornithopus perpusillus, Picris hieracioides, Poa angustifolia, Poa compressa, Poterium sanguisorba subsp. sanguisorba, Reseda lutea, Senecio viscosus, Sherardia arvensis, Silene vulgaris, Trifolium arvense, Trifolium medium, Vicia tetrasperma.</i>
<b>Cultivation</b>	<i>Stachys arvensis, Thlaspi arvense, Vicia tetrasperma.</i>

<b>Ecological Connectivity</b>
<b>Local Habitat Network</b>
The ecological sub-area links directly to CL10 Bumble Hole, Warren's Hall & The Rowley Hills, CL12 Pedmore, Wychbury and Lutley and CL13 Illey, Lapal & Hasbury via narrow watercourse corridors. Priority Network Restoration Zones have been identified that increase the connectivity between the Stour Valley and each of these. A further Priority Network Restoration Zone links the Stour Valley to CL09 Cotwall End, Fens Pools & Barrow Hill to the north-west.
<b>National Habitat Network</b>
The Stour Valley links directly to the national habitat network in rural South Staffordshire to the west of the ecological sub-area via the main river.

# CL11 - Stour Valley - Components & Connectivity



## Ecological Sub-area Opportunities

Focus Habitats		
Habitat	Action	Measure
Hedgerows	Improve management of existing	Habitat in good condition
	Restore through gapping up	Habitat in good condition
	Establish hedgerow trees	Habitat structure improved
Ponds	Restore existing	Habitat in good condition
	Create new	New habitat at existing and new sites
Rivers	Restore hydromorphology (naturalise modified channels)	Improved ecological status
	Reduce artificial inputs	Improved chemical status
Lowland meadows	Enhance existing neutral grasslands	Increased floral diversity
	Create new species-rich neutral grasslands	Increased floral diversity and habitat structure improved
Lowland mixed deciduous woodland	Coppice	Habitat structure improved
	Create woodland edge	Habitat structure improved
	Diversify woody component	Habitat structure improved
	Diversify field-layer component of plantations	Increased floral diversity
Open mosaic habitats on previously developed land	Map extent and maintain	Habitat condition known and maintained

Target Species	
Species/Species Group	Measure
Atlantic Salmon	Confirmed recent records
Bats	Increased abundance of confirmed species
Breeding farmland birds (specialists)	Increased species and abundance
Breeding water & wetland birds (specialists)	Increased species and abundance
Breeding woodland birds (specialists)	Increased species and abundance
Brown/Sea Trout	Confirmed recent records
Dipper	Confirmed recent records
European Otter	Increased signs, confirmed breeding population
European Water Vole	Confirmed recent records
Hedgehog	Confirmed recent records
Grassland axiophytes	Recent records and increased abundance
Heathland axiophytes	Recent records and increased abundance
Mires axiophytes	Recent records and increased abundance
Open Water axiophytes	Recent records and increased abundance
Post-industrial axiophytes	Recent records and maintained abundance

Geodiversity		
Site	Action	Measure
Saltwells Local Nature Reserve	Maintain exposure free of scrub	Continued access to exposures

**Connectivity Opportunities****Local Habitat Network**

<b>Connection</b>	<b>Action</b>
Within Core Landscape CL11	Restoration of modified channel of the main river and tributaries (including barriers).
	Provide conditions for/introduce aquatic vegetation to main river and tributaries.
	Identify and reduce artificial inputs to all watercourses.
	Identify, assess feasibility and deliver de-culverting of tributaries.
	Species-rich neutral grassland enhancement and creation at sites including areas of public open space, golf courses, school grounds and sports fields.
	Semi-natural and plantation woodland enhancement.
	Creation of new ponds.
	Field boundary hedgerow restoration and creation.
	Planting of standard trees in parks, green spaces and school grounds.
With Core Landscapes CL10, CL12, CL13	Identify and reduce artificial inputs to Mousesweet Brook, Illey Brook and Lutley Gutter.
	Identify and assess feasibility of naturalising watercourse links between Core Landscapes (frequently road bridges and culverts).
Priority Network Restoration Zone Stour Valley Buffer	Species-rich neutral grassland enhancement and creation on undeveloped land including parks, green spaces, school grounds and substantial road verges.
	Woodland enhancement and small-scale planting.
	Planting of street trees along urban roads.
	Planting of standard trees in parks, green spaces and school grounds.
	Creation of new ponds.

Information and Data Sources		
	Source	Date
Landuse	Ecological Evaluation of Birmingham and Black Country GIS data set, EcoRecord.	2021
Topography	OS Terrain 50 GIS data set, Ordnance Survey.	2017
Geology	British Geological Society 1:625,000 bedrock & superficial GIS web map services from BGS website: <a href="http://mapapps.bgs.ac.uk/geologyofbritain/home.html">http://mapapps.bgs.ac.uk/geologyofbritain/home.html</a>	2021
	Black Country UNESCO Global Geopark sites names and location information <a href="https://blackcountrygeopark.dudley.gov.uk/bcg/">https://blackcountrygeopark.dudley.gov.uk/bcg/</a>	2021
Soils	Soilscapes, Cranfield Soil & Agricultural Institute website: <a href="http://www.landis.org.uk/soilscapes/">http://www.landis.org.uk/soilscapes/</a>	2021
Species and Habitats	EcoRecord species and habitat databases.	2021
Ecological Connectivity	EcoRecord, The Wildlife Trust for Birmingham and the Black Country (2021) <i>Draft Black Country Local Nature Recovery Opportunity Map</i>	2021
	EcoRecord et al. (2021) <i>Midlands Heathland Heartland Lowland Heathland Nature Recovery Opportunity Mapping</i> .	2021
Historic Landscape Character Areas	Wolverhampton City Council (2010) <i>Black Country Historic Landscape Characterisation</i> [data-set]. York: Archaeology Data Service [distributor] <a href="https://doi.org/10.5284/1000030">https://doi.org/10.5284/1000030</a>	2010
Historic Environment Area Designations	Black Country Historic Landscape Characterisation Study, Oxford Archaeology.	2019

#### [1] HISTORIC ENVIRONMENT AREA DESIGNATIONS

The Black Country Historic Landscape Characterisation Study has divided the Historic Environment Area Designations into four categories:

**Archaeological Priority Areas (APA):** sites with a high potential for archaeological remains of regional or national significance that have not been considered for designation as scheduled monuments, or where there is insufficient data available about the state or preservation of any remains to justify a designation. APAs are likely to have high archaeological and historic interest.

**Areas of High Historic Townscape Value (AHHTV):** areas where built heritage makes a significant contribution to local character and distinctiveness. The significance of AHHTVs is likely to be derived primarily from their architectural and historic interests. However, these areas may also have artistic and archaeological interests. Areas of High Historic Townscape Value are not limited to towns or cities, they also include villages, hamlets and areas of industry where the built heritage is considered to make a positive contribution to the historic environment of an area.

**Designed Landscapes of High Historic Value (DLHHV):** landscape areas that make an important contribution to local historic character but do not meet the criteria for inclusion on the national Register for Parks and Gardens. The significance of these areas is likely to arise from their historic, artistic and architectural interests, although such areas may also contain remains of archaeological interest.

**Areas of High Historic Landscape Value (AHHLV):** these recognise the quality of the wider landscape and their relative values. The significance of these areas arises from the natural and historic features contained within them (e.g. woodland, watercourses, hedgerows, and archaeological features). The significance of these areas is likely to be derived from their archaeological and historic interests.

#### [2] KEY HABITATS follows the UK Biodiversity Action Plan (BAP) Broad & Priority Habitat definitions

This is a UK-habitat classification prepared by the UK Biodiversity Group that classifies all terrestrial and freshwater habitats in the UK into 37 broad habitat types. UK BAP Priority Habitats are a range of semi-natural habitat types that were identified as being the most threatened and requiring conservation action. The original Priority Habitat list was created between 1995 and 1999 and revised in 2007. The list of Priority Habitats has been used to help draw up statutory lists of habitats of principal importance for the conservation of biodiversity in England, Scotland, Wales and Northern Ireland. The suite of habitats of principal importance for the conservation of biodiversity (formerly Priority Habitats) nest into the defined Broad Habitat Types.

#### [3] KEY SPECIES

**Bird Indicators:** Species listed under UK Biodiversity Indicator C5, Birds of the wider countryside and at sea (JNCC). The indicator shows changes in the breeding population sizes of common native birds of farmland and woodland and of freshwater and marine habitats in the UK.

**Amphibians & Reptiles:** All amphibian and reptile species native to the UK are included.

**Mammals:** Those protected by UK or EU law, included on the current list of Principal Importance in England under Section 41 of the NERC Act (2006 or amended), and those included on the latest B&BC LBAP list of Priority Habitats/Species.

**Fish:** Those protected by UK or EU law, included on the current list of Principal Importance in England under Section 41 of the NERC Act (2006 or amended), and those included on the latest B&BC LBAP list of Priority Habitats/Species.

**Invertebrates:** Pantheon Assemblage Types Analysis.

**Flora (axiophytes):** Those included on the Birmingham & the Black Country list of axiophytes (administered by EcoRecord) by four locally defined habitat types.