National Character Area profile:

67. Cannock Chase and Cank Wood

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Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper[1], Biodiversity 2020[2] and the European Landscape Convention[3], we are revising profiles for England's 159 National Character Areas (NCAs). These are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.

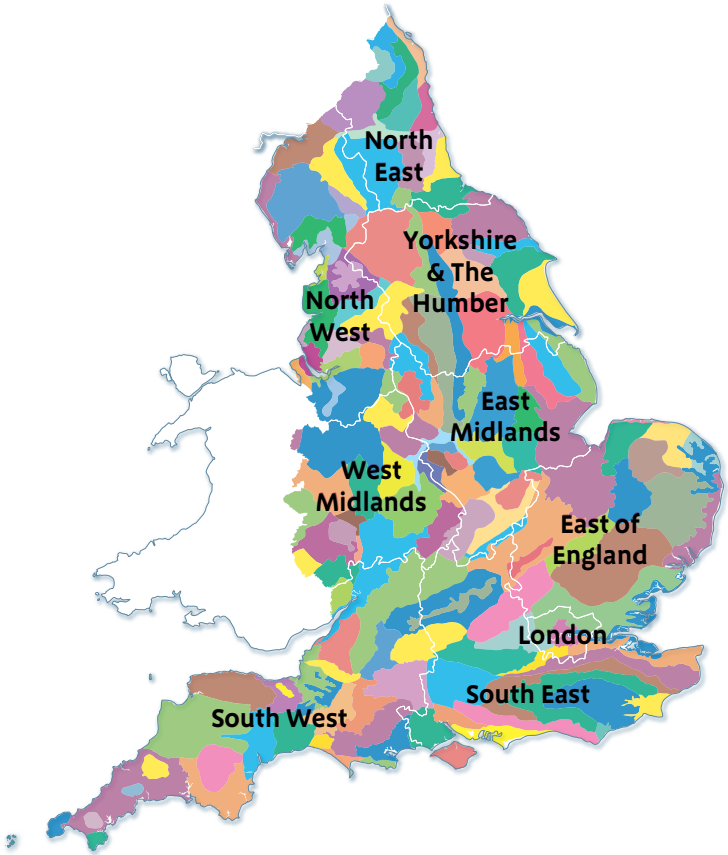
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and encourage broader partnership working through Local Nature Partnerships. The profiles will also help to inform choices about how land is managed and can change.

Each profile includes a description of the natural and cultural features that shape our landscapes, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics and ecosystem services. Statements of Environmental Opportunity (SEOs) are suggested, which draw on this integrated information. The SEOs offer guidance on the critical issues, which could help to achieve sustainable growth and a more secure environmental future.

NCA profiles are working documents which draw on current evidence and knowledge. We will aim to refresh and update them periodically as new information becomes available to us.

We would like to hear how useful the NCA profiles are to you. You can contact the NCA team by emailing **ncaprofiles@naturalengland.org.uk**

National Character Areas map



[1] The Natural Choice: Securing the Value of Nature, Defra (2011; URL: www.official-documents.gov.uk/document/cm80/8082/8082.pdf)

[2] Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, Defra (2011; URL: www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf)

[3] European Landscape Convention, Council of Europe (2000; URL: http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm)

Summary

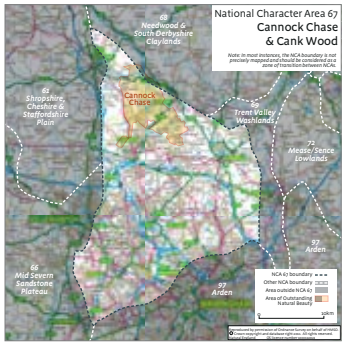
Cannock Chase and Cank Wood National Character Area (NCA) extends north of the Birmingham and Black Country conurbation and includes a major area of this city. It is situated on higher land consisting of sandstone and the South Staffordshire Coalfield. The NCA principally coincides with the historical hunting forest of Cannock Chase, with major remnants surviving within the Cannock Chase Area of Outstanding Natural Beauty (AONB), which supports internationally important heathland Special Areas of Conservation (SAC) and the Sutton Park National Nature Reserve.

There are no major rivers within the area, but canals are a significant feature and some major transport routes also cross the NCA. The current landscape is extremely varied, including extensive areas of urban development predominantly in the south of the NCA and extensive conifer plantations and heathlands in the north interspersed with farmland. The Forest of Mercia, a Community Forest, lies in the heart of the NCA. The NCA also has some outstanding geodiversity interest, extensive industrial archaeology and a good number of historic parks.

In addition to the ecosystem services of food and timber production, the NCA has an extensive rights of way network and areas of open access land offering good recreational opportunities to the surrounding population. Recreational use of the Cannock Chase SAC is of some concern and needs to be managed to ensure that future housing development does not harm the biodiversity interest of the site. Changes as a result of development have been significant within the NCA for many years and are likely to continue. This provides opportunities for enhancing both the landscape quality and biodiversity value through green infrastructure and through continued local initiatives such as the Forest of Mercia and the Cannock Chase AONB.

Statements of Environmental Opportunity:

- **SEO 1**: Expand lowland heathland to increase habitat connectivity, improve resilience to climate change and improve water quality.
- **SEO 2**: Manage, enhance and expand the network of green infrastructure, such as woodlands, restored mining sites, parklands and canal routes, to increase biodiversity, access and recreational use and increase understanding of the area's rich industrial heritage, particularly geodiversity.
- **SEO 3**: Conserve and enhance the essential character of this varied landscape, which includes the Cannock Chase Area of Outstanding Natural Beauty, the Forest of Mercia and the urban conurbation of the Black Country, to maintain food and timber production where possible; enhance landscape, sense of place and tranquillity; and increase resilience to climate change.



Click map to enlarge; click again to reduce.

Description

Physical and functional links to other National Character Areas

The National Character Area (NCA) forms an area of higher ground rising out of Shropshire and Staffordshire Plain NCA to the west. Much of this western boundary is defined by the transport corridor of the M6. Needwood and South Derbyshire Claylands NCA lies to the north, separated by the Trent Valley.

The eastern edge adjoins Trent Valley Washlands NCA. The NCA lies on the watershed, with much of it draining east into the River Trent via the River Tame and a number of smaller tributaries that drain Cannock Chase. The remainder of the NCA drains west into the Severn catchment. In the south the NCA merges with Arden NCA within the Birmingham conurbation, and here there are close links through the roads, railways and canals.

From Cannock Chase there are views west over the Shropshire, Cheshire and Staffordshire Plain and to the north-east and east over the Claylands and the Trent Valley. To the north of the NCA the plantations and heathland of the Chase create prominent views within the area. In the south of the NCA there are also significant viewpoints at Turners Hill at Rowley Regis and at Barr Beacon east of Walsall.

Distinct areas

- Cannock Chase
- Lichfield estate lands
- Black Country and Staffordshire Coalfield

View along the Dudley No.2 canal near Netherton, towards Cobb's Engine House with Rowley Hills in the distance.

Key characteristics

- A varied landscape ranging from the open heathlands and plantations of Cannock Chase, through towns, reclaimed mining sites and new developments, to dense urban areas.
- The dominant rounded central plateau is mainly formed of the Coal Measures of the South Staffordshire Coalfield, with other prominent hills in the south at Wren's Nest, Castle Hill, Rowley Hills and Barr Beacon.
- Extensive coniferous plantations, woodlands and historic parklands occur across the NCA, even within the urban areas where they are predominantly small and include lots of young plantations.
- Away from the unenclosed landscape of Cannock Chase, fields generally have a regular pattern and are frequently enclosed by mature hedgerows with some hedgerow trees. Here farming is generally mixed with arable cultivation in large fields. Livery is concentrated around the flanks of the Chase.

Continued on next page...

Sherbrook Valley in Autumn.

Key characteristics continued...

- Heathland and associated acid grassland were once much more extensive, although significant tracts still remain. Post-industrial sites and remnant countryside within the urban areas provide a mosaic of additional valuable habitats.
- The major rivers of the Trent and Tame lie adjacent to the NCA, both of which lie in broad flood plains. Streams and small rivers such as the Sow and the Penk drain radially from the higher ground into these rivers.
- The canal network is a notable feature and contributes significantly to the drainage of the urban areas.
- Industrial archaeology from the industrial revolution is a characteristic feature.
- The predominant building material of the 19th- and early 20th-century buildings is red brick, with more modern structures within the urban areas.
- The settlement pattern is complex and contrasting, with some areas densely populated and others relatively sparse. The conurbation includes a mosaic of urban areas, former industrial land and patches of farmland, with an extensive urban fringe.
- The extensive networks of canals and railways reflect the industrial history of the area. Major roads include the M6, the M6 Toll and the A5.

Cannock Chase and Cank Wood today

Cannock Chase and Cank Wood NCA is a landscape dominated by its history as a former forest and chase and by the presence at its centre of the South Staffordshire Coalfield. The area has a varied landscape; plantations and heathlands in the north contrast strongly with the dense settlements of the south, interspersed with farmland. There are no major rivers within the NCA, but canals are a significant feature and this includes the supply reservoir at Chasewater. Cannock Chase Area of Outstanding Natural Beauty (AONB) lies to the north, and immediately south of this is the Forest of Mercia, a Community Forest, which extends into the conurbation. Major transport routes include the M6, the M6 Toll and the A5, and a series of railway lines influence the character of the area. There is a mixed pattern of village-based and dispersed settlement, with 19th- and 20th-century development having subsumed many small settlements.

Cannock Chase lies on a central elevated plateau. It is an unenclosed, heavily wooded landscape with a varied, often steeply sloping surface dominated by heathland and conifer plantations. The large area of plantation is complemented by broad tracts of heathland and there are long views, usually to wooded horizons but sometimes to lower ground, which emphasise its elevation. There is much local variety within the many valleys, known locally as slades. The wild character of the heaths, dotted with patches of pine and birch and dominated by heather and bracken, is a strong contrast with the surrounding cultivated ground and built-up areas. The wildness is emphasised by the small pockets of enclosed agricultural land within the heaths.

A new meadow created on a public open space near Wolverhampton. The green-winged orchid is one of a group of threatened plants dependent on infertile or nutrient poor grasslands.

Cannock Chase is an AONB and is heavily used for recreation due to its proximity to the Birmingham conurbation and its large country park. The AONB includes the Cannock Chase Special Area of Conservation (SAC), designated because it is the most extensive area of heathland in the Midlands. The character of the vegetation is intermediate between the upland or northern heaths of England and Wales and the heaths to the south. Within the heathland, a unique assemblage of species occurs, with many species that are at either the southern or the northern extent of their range, including species such as cowberry and crowberry, and the main British population of the hybrid bilberry, a plant of restricted occurrence. There are important populations of butterflies and beetles, as well as European nightjar and five species of bat[4]. The open heathland provides a sense of tranquillity, as the Chase is largely devoid of settlements. Historic parks such as Beaudesert, Teddesley and Wolseley are a feature of the landscape lying around the edge of Cannock Chase.

View looking west from Wren's Nest NNR. Steeply dipping Silurian Limestone and a reef complex shown juxtaposed to high-density housing.

To the west of Cannock Chase a gently undulating landscape is characterised by a regular enclosure pattern of low-hedged fields, intensively managed plantation woodlands and coverts and numerous small watercourses set within the narrow flood plains of the rivers Penk and Sow.

East of Cannock Chase and extending south is a landscape of villages and hamlets set within intensive arable farmland that becomes more steeply undulating and wooded in the area between Tamworth and Sutton Coldfield. The more rural parts around Chorley are mainly used for stock rearing, although livery is increasingly prevalent. Here, small- to medium-sized irregular fields and small woodlands dominate, with intact hedgerows lining sunken lanes. Historic parks such as Shugborough, Beaudesert, Teddesley and Wolseley are a feature. Lichfield is largely a Georgian brick-built city, with some earlier brick and timber-framed buildings, a Gothic stone cathedral and a medieval street pattern. Many listed buildings survive within the historic core and contribute to its character.

South of the Chase, the landscape is dominated by the settlements, tips, open cast sites, quarries and reclaimed areas within the coalfield, and the landscape and settlement pattern of the Black Country is complex. Many of the towns have a strong historic core, and some older buildings survive.

[4] SAC selection data, Joint Nature Conservation Committee (URL:http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030107)

Some of the settlements such as Dudley, with its castle, wooded hill, medieval street plan and remaining Georgian buildings, have a strong sense of identity. Much of the area between the Chase and the Black Country conurbation has an urban fringe character, and settlements such as Cannock and Burntwood extend along the straight roads and field boundaries of 19th-century enclosure. Between the dense urban areas are small farms, patches of derelict land including disused quarries, and young woodlands, in addition to parks, golf courses and public open spaces. Small mature woods, pools and fragments of heathland are found and natural regeneration is common, contributing to a mosaic of valuable habitats.

A large area of heathland at Chasewater Country Park includes a large reservoir, which feeds the canal network to the south. The canal network here includes the Cannock Extension Canal, a short section of canal designated as an SAC due to its large population of floating water-plantain, which is at the eastern limit of the plant's natural distribution in England. Fens Pools SAC in Dudley, part of the Barrow Hill Local Nature Reserve (LNR), is a series of smaller pools that overlie Etruria Marls and Coal Measures of the Carboniferous Period. The site shows evidence of past industrial activities and includes a wide range of habitats, from open water, swamp, fen and wetland communities to unimproved neutral and acid grassland and scrub. Great crested newts occur as part of an important amphibian assemblage[5]. Other important open spaces include Sandwell Valley, the area around Barr Beacon, and Sutton Park National Nature Reserve (NNR) to the east within the suburban setting of Sutton Coldfield.

Rising above the plateau on which much of the Black Country lies are prominent small hills extending from south-west to north-east across the area. They include Rowley Regis, Turners Hill and Wren's Nest Hill. Forming prominent landmarks, they separate the core of the Black Country from the strongly undulating landscape of the Stour valley. To the north of Birmingham and west of West Bromwich there are many more areas of open land, primarily in agricultural use but with a large historic park at Sutton Park and with fragments of heathland, such as Barr Beacon. There are medium-sized fields, generally with good-quality hedgerows, patches of ancient enclosure fields and areas of semi-natural vegetation including acid grassland, pools, fens and fragments of ancient woodland. Narrow, hedged lanes are often present and there is a real feeling of countryside despite the nearness of the built-up area.

Dudley Castle, sited on a prominent outcrop of Silurian, Wenlock Limestone.

[5] SAC selection data, Joint Nature Conservation Committee (URL:http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030150)

The landscape through time

The central and higher parts of the NCA are comprised of rocks mostly of Carboniferous age, with the southern half traversed by a discontinuous ridge of hills. The Rowley Hills, composed of dolerite (an igneous rock intruded into the Coal Measures about 300 million years ago), lie at the centre of the ridge. To the north-west of the Rowley Hills, older limestone rocks of Silurian age form the steep-sided features of Castle Hill, Wren's Nest Hill and the high ground of Hurst Hill and Sedgley Beacon. Much of this area forms the exposed section of the South Staffordshire Coalfield and is covered by poorly drained heavy soils derived from glacial till.

Rowley Hills Local Geological Site. Unmanaged grassland, part of a mosaic of habitats in this former dolerite quarry.

Surrounding the coalfield are rocks of the Sherwood Sandstone Group of Early Triassic age. The sediments derived from the sandstones infilled ancient rift valleys east and west of the coalfield, historically forming wide desert basins that today form the gently rolling landform interspersed – where pebble beds predominate – by long, usually well-wooded ridges and hilly areas such as Cannock Chase and Barr Beacon. Cannock Chase is underpinned by the pebble beds of the Kidderminster Formation, which give rise to well-drained soils forming an important aquifer and to fertile, easily worked soils. Locally, the Bromsgrove Formation sandstones have been used as a building stone for churches and walls.

This area once formed the eastern fringe of the area settled by an ancient Celtic people called the Cornavii[6]. Prehistoric evidence of human settlement includes bronze-age barrows on Cannock Chase, the iron-age hill fort of Castle Ring and a number of other sites. The majority of the area would have been extensive woodland and marshland. It is likely that the woodland was managed and utilised for grazing, with small-scale clearance commencing in the late prehistoric period.

The main evidence for Roman occupation can be found at Wall (Letocetum), an important military staging post and posting station near to the Roman roads of Watling Street and Ryknild (Icknield) Street.

[6] *The Cornovii*, Graham Webster (1991)

After the Norman conquest the area was declared a royal forest and would have been dominated by open woodland interspersed with grazed areas and some farmland and settlements. Cannock Chase was carved out of this royal forest and granted to the Bishop of Lichfield in 1290. The city of Lichfield has its origins in the 7th century, and Cannock and Rugeley both developed as local market towns in the late 12th century.

Piecemeal clearance and colonisation of the land continued throughout the medieval period, particularly around the settlements and small hamlets. These were frequently associated with industrial activities such as quarrying, mining, edge-tool manufacture and transport. By the mid-1600s the landscape had become more open, with more extensive heathland, due to timber extraction to produce charcoal for the local iron furnaces. Woodland, however, remained within the medieval deer parks of Beaudesert, Haywood, Teddesley, Wolseley and Sutton and on higher ground.

A large-scale programme of enclosure occurred between the 1770s and 1880s, although some areas remain unenclosed to the present day. The 18th and 19th centuries also saw the layout of more formal parks, notably Shugborough, and the intensification of arable farming and horticulture on sandstone-derived soils on the fringes of the growing urban areas of the Black Country and dairying on the heavy, poorly drained soils in the northern part of the area.

During the 17th century the Black Country and south Staffordshire rapidly developed into one of the country's largest centres for mining and quarrying of coal, iron and Silurian limestone as well as for manufacturing. The arrival of the canals in the late 18th and early 19th centuries sparked a further rise in activity. Individual towns came to specialise in the manufacture of particular goods; examples are locks in Willenhall and leather goods in Walsall. By the 1850s much of the coal had been worked out in the Black Country, and significant areas of land were reclaimed for industrial and residential use. The mining of coal moved north to Cannock, Burntwood and Hednesford in the 19th century, where large-scale mining of the concealed measures beneath led to the rapid expansion of these settlements. Sutton Coldfield developed as a dormitory suburb for Birmingham.

During the early part of the 20th century, Cannock Chase was used for military training and, from 1921 onwards, planting of conifers on the heath began. The designation of the Cannock Chase AONB in 1958 protected it from excessive development and it now provides a very popular recreational resource.

Recent developments include the expansion of residential settlements and industrial estates; reclamation of former mines and spoil tips; open cast mining; sand, gravel and clay extraction; waste disposal; and road developments – all of which are changing the character of the area. Ex-industrial mining sites now provide important bat hibernacula and educational and recreational opportunities. The construction of the M6 Toll has increased the opportunities for further land use changes. In many areas around the NCA, farming is now giving way to livery – particularly around the fringes of settlements.

Ecosystem services

The Cannock Chase and Cank Wood NCA provides a wide range of benefits to society. Each is derived from the attributes and processes (both natural and cultural features) within the area. These benefits are known collectively as 'ecosystem services'. The predominant services are summarised below. Further information on ecosystem services provided in the Cannock Chase and Cank Wood NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision**: A producer of store lambs and suckler calves with some beef and dairying. The soils in the area are predominantly light and free draining (Grades 3 and 4). Mixed farming occupies some 32 per cent of the NCA, with dairying and livestock prevalent in some parts and arable production to the south and east of Lichfield.

- **Timber provision**: Sections of low-grade soils in the NCA (generally of marginal agricultural use) support commercial forestry. The Forestry Commission estate at Cannock Chase covers approximately 2,500 ha and is managed for commercial timber production, recreation and biodiversity.

- **Water availability**: Most of the NCA overlays a major sandstone aquifer, which is at risk of over-abstraction mainly to provide water for public water supply and industry. There are few major rivers in this NCA, but the southern half of the NCA is crossed by an extensive network of canals comprising most of the Birmingham Canal Navigations (BCN) network. The 108-hectare Chasewater Reservoir, which lies in the middle of this NCA, has a capacity of 4.5 million cubic metres and is used to supply essential water to maintain levels in the canal network[7]. In the north of the NCA (between Cannock, Rugeley and Stafford), surface water sources have 'no water available' and groundwater sources are 'over-licensed'[8], while in the middle of the NCA, approximately between Cannock and Tamworth, surface and groundwater sources are over-abstracted. The River Stour runs for a short length through the southern corner of the NCA. This is over-abstracted and receives effluent discharges from sewage treatment works that maintain flows at an artificially high level.

Canals provide the blue infrastructue in the Black County and contribute to the local tourist economy.

[7] Chasewater Dam blog, Lichfield District Council (accessed October 2010; URL: www2.lichfielddc.gov.uk/chasewaterdam/)

[8] *The Staffordshire Trent Valley Catchment Abstraction Management Strategy*, Environment Agency (July 2007)

Regulating services (water purification, air quality maintenance and climate regulation)

- **Climate regulation**: The NCA supports significant areas of lowland heathland (2,368 ha), which are underlain by soils with a carbon content of 20–50 per cent, providing a significant carbon storage function. In addition the extensive area of woodland (8,823 ha) also contributes significantly to regulating climate locally.

- **Regulating water quality**: Natural regulating processes of the NCA provide services which ensure that most surface waterbodies are of a good or moderate quality, including those of an artificial or modified nature such as canals, which in this NCA are particularly important. The chemical status of surface waterbodies is generally classed as 'good', although there is one length of river/canal in the south-east of the NCA which is classed as 'failing to achieve good' status. Several water bodies, in particular in the south around Birmingham, fail standards for specific pollutant concentrations. Groundwater chemical status is 'poor' across the majority of the NCA.

- **Regulating water flow**: Infiltration into the permeable soils and underlying sandstone geology within this NCA generally help to reduce surface water run-off within rural areas and reduce the risk of flooding. The main areas of flood risk are within the Wolverhampton and Birmingham conurbation, where the channel capacity of the River Tame and its tributaries is insufficient due to the constraint imposed by built development.

- **Pollination**: Significant areas of the NCA support semi-natural vegetation, particularly heathland and grassland (4,000 ha), which provide important nectar sources for pollinating insects that have the potential to support local agriculture.

Cultural services (inspiration, education and wellbeing)

- **Recreation**: The NCA has significant recreational and potential health benefits, provided through a large network of rights of way (totalling 797 km), significant areas of open access land (covering 2,193 ha) and the Cannock Chase AONB, which offers a major focus for visitors and recreation – particularly within the Cannock Chase Country Park and adjoining forestry. Within the conurbation, formal public parks, open spaces such as those along river corridors and canals, and major areas of green spaces (such as Sandwell Valley, Barr Beacon, Wren's Nest and Sutton Park NNR) provide opportunities for recreation, as well as potential health benefits. Examples of educational benefits include the Wren's Nest 'Ripples Through Time' initiative. The access network within the NCA is particularly important in allowing links to the wider countryside from the urban areas, particularly into the urban fringe and the Forest of Mercia Community Forest.

- **Tranquillity**: Much of the Chase is associated with tranquillity[9], offering an antidote to the largely urban surroundings of the area. This feeling is further accentuated by wooded reclaimed coal tips and areas of historic wooded deer parks and small-scale intimate pastoral landscapes to the east.

- **Sense of history**: Aspects of the historic environment most evident to the general public are the canal network, the clearly distinct settlements of Dudley, the cathedral city of Lichfield and the many industrial buildings that have survived regeneration. There is a wealth of industrial heritage within the NCA, reflecting the area's mining and industrial past related to

[9] AONB unit, personal communication

the industrial revolution. Many country houses are evident, built upon the wealth created by the industrial revolution; notable houses and parkland at Beaudesert, Teddesley, Wolseley and Shugborough Hall all ring Cannock Chase. The history of Cannock Chase and Sutton Park, both relic of the former larger Cannock Chase hunting forest[10], also provide opportunities for historical interpretation of land use changes within the NCA.

- **Biodiversity**: There are three internationally designated habitats in the NCA, all of which are SACs: Cannock Chase (the lowland heathland described above), Fens Pools and the Cannock Extension Canal. There are 23 Sites of Special Scientific Interest (SSSI) in the NCA, totalling 4 per cent of the NCA area. The NCA supports significant areas of important semi-natural habitat (a total of 7 per cent of the NCA area is a Biodiversity Action Plan (BAP) priority habitat). This includes lowland heathland at Cannock Chase (2,368 ha), a site designated as an SAC because it is the most extensive area of this habitat in the Midlands[11].

  Other important habitats within the northern part of the NCA include a range of grassland habitats, woodlands and flood plain grazing marsh. There are a number of historic parks within the NCA such as Shugborough, Beaudesert, Teddesley and Wolseley. Brocton Coppice, which is part of Cannock Chase, is an important wood pasture site that adds significantly to the resource of veteran trees within the NCA.

  Within the urban conurbation in the south of the NCA, a wide range of habitats of high biodiversity value still exist, with important clusters of sites and open green space. These include Pelsall North Common (Walsall), Sandwell Valley (Sandwell) and the Fens Pools area including the SAC (Dudley)[12].

"In no part of England are more geological features brought together in a small compass than in the environs of Dudley or in which their characters have been more successfully developed by the labours of practical men." **Spoken by Sir Roderick Murchison in his inaugural address to the Dudley Geological Society at the Dudley Hotel in 1842.**

- **Geodiversity**: Geodiversity within the NCA contributes greatly to its sense of place and history through local topography, with sites such as Wren's Nest NNR, Barrow Hill LNR and the geotrail on Cannock Chase all providing important resources for tourism, education and recreation – as does the mining heritage of the area.

[10] *A History of Birmingham Places & Placenames ... From A to Y*, William Dargue (URL: http://billdargue.jimdo.com/placenames-gazetteer-a-to-y/places-s/sutton-park/)
[11] SAC selection data, Joint Nature Conservation Committee (URL: http://jncc.gov.uk/protectedsites/sacselection/sac.asp?EUcode=UK0030107)
[12] *Birmingham and Black Country Biodiversity Action Plan*, The Wildlife Trust (2010)

Statements of Environmental Opportunity

SEO 1: Expand lowland heathland to increase habitat connectivity, improve resilience to climate change and improve water quality.

For example, by:

- Maintaining the current extent of heathland and improving its management, for example by grazing, to increase biodiversity value.
- Planning the restoration of areas of former heathland and expanding the extent of heathland to improve filtration of clean water to the underlying aquifer, and improving habitat connectivity to increase resilience to climate change.
- Conserving and increasing the extent of habitats associated with heathland, such as acid grassland, to enhance the biodiversity value.
- Protecting below-ground archaeological deposits and upstanding features such as bronze-age barrows, iron-age hill forts, ridge and furrow and the military camps on Cannock Chase.
- Investigating ways of securing better management of designated heritage assets, which contribute to landscape character – particularly those that have been identified as 'heritage at risk'.

SEO 2: Manage, enhance and expand the network of green infrastructure, such as woodlands, restored mining sites, parklands and canal routes, to increase biodiversity, access and recreational use and increase understanding of the area's rich industrial heritage, particularly geodiversity.

For example, by:

- Reinforcing and expanding the existing green infrastructure network of open spaces, parks, farmland and countryside, woods, wetlands, reclaimed sites and access routes throughout the Black Country, the wider urban area, the adjoining urban fringe and in and around the freestanding towns.
- Taking advantage of opportunities to enhance educational access, particularly to nationally important geodiversity sites.
- Conserving and managing the outstanding geodiversity interest, particularly at the area's eight geological Sites of Special Scientific Interest (SSSI) and within the Black Country, and identifying opportunities to enhance the geodiversity resource linked so closely to the area's cultural heritage.
- Retaining and enhancing the biodiversity value of urban areas, and expanding and improving habitat connectivity.
- Increasing the extent of native woodland and managing existing woodlands, for example as a source of wood fuel, to improve landscape, increase recreational opportunities, increase carbon storage for climate regulation and improve water filtration to the underlying aquifer for water quality.
- Creating new wetlands, enhancing existing watercourses and ensuring public access to these features as part of sustainable urban drainage systems in urban areas and close to new developments.
- Managing and expanding access to the networks of rights of way, cycle routes, canal towpaths and access land and enhancing recreational opportunities.
- Maintaining and improving the existing rights of way network and the Staffordshire Way, Heart of England Way and Beacon Way long-distance routes.
- Planning new or improved links between urban areas and the wider countryside or major open spaces within or near the conurbation such as Sandwell Valley, Barr Beacon, Sutton Park and Chasewater.
- Improving access to a wider range of local sites so as to reduce recreational pressure at sensitive locations.
- Improving links to or within the wider network of canal towpaths and cycle routes.
- Conserving the industrial archaeology of the Black Country and the South Staffordshire Coalfield, particularly buildings and sites associated with the iron, manufacturing and mining industries, and the canal network, and promoting access and awareness.
- Protecting and managing historic parks and urban parks to conserve significant historic landscapes and important features and habitats such as veteran trees, wood pasture and urban trees and the associated invertebrate populations.

SEO 3: Conserve and enhance the essential character of this varied landscape, which includes the Cannock Chase Area of Outstanding Natural Beauty, the Forest of Mercia and the urban conurbation of the Black Country, to maintain food and timber production where possible; enhance landscape, sense of place and tranquillity; and increase resilience to climate change.

For example, by:

- Protecting and managing the Cannock Chase Area of Outstanding Natural Beauty (AONB), to maintain its special qualities as a protected landscape, working within the framework of the AONB Management Plan.
- Conserving and enhancing the distinctive unenclosed landscape of the AONB to retain the sense of wildness and tranquillity.
- Supporting the continued provision of forestry and agriculture within the area as appropriate, and ensuring they are sustainably managed to bring benefits for carbon sequestration and biodiversity networks.
- Protecting and managing the historic and cultural heritage of the area to further its conservation and promote access and understanding.
- Protecting and appropriately managing the mixed landscape of fields, woodlands and unenclosed land found outside the urban areas to retain the historic contrast between different areas, enhance landscape character, improve biodiversity and maintain food production.
- Retaining the mixed land use pattern of pasture, arable and woodland, and conserving and restoring landscape character, particularly in urban fringe areas.
- Maintaining and enhancing the distinctive enclosure patterns to conserve the historical record of regular enclosure to the west, irregular small- to medium-sized fields between Cannock Chase and Lichfield, and 19th-century enclosure around the mining settlements.
- Planting new hedgerows, hedgerow trees and associated grassland buffer strips to restore landscape character and improve habitat connectivity, particularly where this can assist in regulating soil erosion.
- Managing hedgerows in traditional local style to enhance landscape character and improve biodiversity value.
- Conserving ridge and furrow and other archaeological features.

Supporting document 1: Key facts and data

Total area: 72,790 ha

1. Landscape and nature conservation designations

Some 6,617 ha (9 per cent) of the Cannock Chase Area of Outstanding Natural Beauty (AONB) falls within the NCA.

Management Plans for the protected landscape(s) can be found at:

- www.cannock-chase.co.uk

Source: Natural England (2011) Cannock Chase AONB Management Plan

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	Percentage of NCA
International	Ramsar	n/a	0	0
European	Special Protection Area (SPA)	n/a	0	0
	Special Area of Conservation (SAC)	Cannock Chase SAC; Fen Pools SAC; Cannock Chase Extension Canal SAC	1,268	2
National	National Nature Reserve (NNR)	Sutton Park NNR; Wren's Nest NNR	845	1
	Site of Special Scientific Interest (SSSI)	A total of 23 sites wholly or partly within the NCA	2,590	16

Source: Natural England (2011)

Please note: (i) Designated areas may overlap (ii) all figures are cut to Mean High Water Line, designations that span coastal areas/views below this line will not be included.

There are 527 local sites in Cannock Chase and Cank Wood NCA covering 4,697 ha, which is 5 per cent of the NCA.

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at: http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm
- Details of Local Nature Reserves (LNR) can be searched at: http://www.lnr.naturalengland.org.uk/Special/lnr/lnr_search.asp
- Maps showing locations of statutory sites can be found at: http://magic.defra.gov.uk – select 'Designations/Land-Based Designations/ Statutory'

1.2 Condition of designated sites

SSSI condition category	Area (ha)	Percentage of SSSI in category condition
Unfavourable declining	7	<1
Favourable	466	18
Unfavourable no change	41	2
Unfavourable recovering	2,031	78

Source: Natural England (March 2011)

- Details of SSSI condition can be searched at: http://www.sssi.naturalengland.org.uk/Special/sssi/reportIndex.cfm

2. Landform, geology and soils

2.1 Elevation

Elevation ranges from 57 m above sea level to a maximum of 271 m. The highest point is at Turners Hill, Rowley Regis.

Source: Natural England (2010)

2.2 Landform and process

Prominent hills in the NCA include the Silurian Limestone hills of the Wren's Nest and Castle Hill in Dudley and the Carboniferous dolerite of the of the Rowley Hills surrounded by the Carboniferous Staffordshire Coalfield.

Source: Cannock Chase and Cank Wood Character Area Description; Geological Narrative West Midlands Geodiversity Partnership

2.3 Bedrock geology

The landscape of the central core is mainly formed of the Coal Measures of the South Staffordshire Coalfield. The highest elevation is found in the prominent north-north-west–south-south-east Rowley–Sedgley ridge formed of dolerite and the hills of the Silurian limestone inliers of Dudley. Triassic rocks outcrop around the north and east of the coalfield, with the harder sandstones of the Kidderminster formation giving rise to the higher ground of Cannock Chase AONB and Barr Beacon.

Source: Geological Narrative West Midlands Geodiversity Partnership

2.4 Superficial deposits

Thick glacial till and glacio-fluvial sands and gravels cover much of the bedrock north of Wolverhampton. Strewn boulders (erratics), characteristic of the area north of Wolverhampton to Walsall, denote the maximum advance of the Devensian Stage ice sheet. Deposits have been widely exploited for aggregates over the last 200 years.

Source: Geological Narrative West Midlands Geodiversity Partnership

2.5 Designated geological sites

Tier	Designation	Number
National	Geological Site of Special Scientific Interest (SSSI)	8
National	Mixed Interest SSSI	0
Local	Local Geological Sites	6

Man-made sections – including disused quarries and road, rail and canal cuttings – are of critical importance to the geological understanding of the NCA. For example, the Wren's Nest NNR, in the heart of Dudley, comprises a network of disused limestone quarries and underground workings. The NNR is internationally important for both the sequence of Silurian Limestone and its extremely diverse and well-preserved fossil fauna.

Source: Natural England (2011)

**Local sites are non statutory designations*

- Details of individual Sites of Special Scientific Interest can be searched at: http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm

2.6 Soils and Agricultural Land Classification

Much of the central coalfield area is covered by glacial till of varying thickness which gives rise to poorly drained soils originally covered by heathland. There are extensive coniferous plantations on Cannock Chase itself and significant areas are affected by active or reclaimed minerals sites. On the good sandstone-derived soils at the eastern and western edges, there is substantial arable cultivation.

Source: Cannock Chase and Cank Wood Character Area Description

The main grades of agricultural land in the NCA are broken down as follows (as a proportion of total land area).

Agricultural Land Classification	Area (ha)	Percentage of NCA
Grade 1	0	0
Grade 2	6,695	9
Grade 3	24,277	33
Grade 4	4,186	6
Grade 5	0	0
Non-agricultural	8,759	12
Urban	28,873	40

Source: Natural England (2010)

Maps showing locations of sites can be found at: http://magic.defra.gov.uk – select 'Landscape' (shows ALC and 27 types of soils).

3. Key waterbodies and catchments

3.1 Major rivers/canals

The following major rivers/canals (by length) have been identified in this NCA.

Name	Length in NCA (km)
River Tame	16
River Sow	7
River Stour	4
River Penk	3

Source: Natural England (2010)

Please note: other significant rivers (by volume) may also occur. These are not listed where the length within the NCA is short.

The major rivers in the immediate area are the Trent and the Tame, both of which lie in broad floodplains to the north and east of the NCA itself. Streams drain radially from the high ground around Cannock Chase to the surrounding rivers of the Penk, Sow and Trent. Further east and south, the higher ground drains through various tributaries to the Tame. The vast majority of the NCA lies within the Trent part of the Humber Catchment; a small part around Dudley in the south-west is within the Severn Catchment. The canal network is a notable feature of the NCA, and contributes significantly to the drainage of the urban areas. Apart from the extensive network in Birmingham and the Black Country, the Staffordshire and Worcestershire Canal and Coventry Canal both provide links to the Trent and Mersey Canal which runs along the Trent Valley.

3.2 Water quality

The total area of nitrate vulnerable zone (NVZ) is 72,791 ha, 100 per cent of the NCA.

Source: Natural England (2010)

3.3 Water Framework Directive

Maps are available from the Environment Agency showing current and projected future status of water bodies at:
http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

4. Trees and woodlands

4.1 Total woodland cover

This NCA contains 8,823 ha of woodland (where woods are over 2 ha in size), including 940 ha of ancient woodland. Forestry plantations and woods over 2 ha in size cover 9 per cent of the NCA. Some 21,844 ha (30 per cent) of the NCA is within the Forest of Mercia Community Forest; 90 per cent of the forest area is within this NCA.

Source: Natural England (2010)

4.2 Distribution and size of woodland and trees in the landscape

There are extensive coniferous plantations on Cannock Chase, interspersed with pockets of sessile oak and birch, with alder on the damper soils and beech along the edges of roads and forestry compartments. Brocton Coppice is an area of national importance. In the surrounding landscapes, there is a mixture of ancient, plantation and secondary woodlands. Historic parks such as Beaudesert, Teddesley, Shugborough and Wolseley contain significant areas of woodland and veteran trees. Sutton Park includes areas of oak/holly/rowan woodland of national importance. The urban areas are characterised by many small woodlands and, since 1990, there has been quite extensive new planting through the Forest of Mercia and Black Country Urban Forest initiatives.

Source: Cannock Chase and Cank Wood Character Area Description

4.3 Woodland types

A statistical breakdown of the area and type of woodland found across the NCA is detailed below.

Area and proportion of different woodland types in the NCA (over 2 ha):

Woodland type	Area (ha)	Percentage of NCA
Broadleaved	5,143	7
Coniferous	2,409	3
Mixed	193	<1
Other	1,078	<1

Source: Forestry Commission (2012)

Area and proportion of ancient woodland and planted ancient woodland sites (PAWS) within the NCA:

Woodland type	Area (ha)	Percentage of NCA
Ancient semi-natural woodland	557	1
Planted ancient woodland sites (PAWS)	384	<1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Mature hedgerows (including some species-rich hedgerows) with hedgerow trees are a feature of much of the farmland across this NCA. There has been deterioration through over-cutting and neglect, particularly in arable areas. Ha-has and woodland belts are features of the historic parks. Wire fences and thin or gapped hedges are associated with land on the urban fringe, particularly where horse grazing predominates and where land has been reclaimed from past minerals working.

Source: Cannock Chase and Cank Wood Countryside Character Area Description; Countryside Quality Counts (2003)

5.2 Field patterns

The central area of Cannock Chase is an unenclosed landscape of open heathland and woodland. On the western fringes of the Chase, there is a regular field pattern of low-hedged fields reflecting enclosure in the 18th and 19th centuries. To the east of the Chase, and around Lichfield, the landscape shows a mix of regular and irregular field patterns, reflecting different historical enclosure periods – some medieval, some 18th- and 19th-century planned enclosure, as well as arable areas where fields have been amalgamated in the 20th century. In the southern part of the NCA, in the Black Country and Staffordshire Coalfield, fields are of a smaller size and the pattern of enclosure is more irregular.

Source: Cannock Chase and Cank Wood Countryside Character Area Description; Countryside Quality Counts (2003)

6. Agriculture

The following data has been taken from the Agricultural Census linked to this NCA.

6.1 Farm type

The area's mixed farming character is reflected in the breakdown of farm types: 84 grazing livestock holdings (21 per cent); 81 cereal farms (20 per cent); 43 general cropping farms (11 per cent). Farms classified as 'other' (which will include smallholdings) number 128 (31 per cent). Trends between 2000 and 2009 show a decrease in the total number of holdings from 456 (an 11 per cent decrease). Trends also show a significant increase in cereal farms (up from 64 – an increase of 27 per cent) and decreases in grazing and dairy farms.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Farms of 5–20 ha are the most common, accounting for 33 per cent of holdings, followed by farms of 20–50 ha, accounting for 23 per cent of holdings. Trends between 2000 and 2009 show a small decrease in the number of all farm sizes, except for holdings over 100 ha. This category totals 69 as it did in 2000 but now makes up 17 per cent of the total, up from 15 per cent in 2000.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

Some 72 per cent of the total farmed area is owner occupied.

Source: Agricultural Census, Defra (2010)

6.4 Land use

The dominant land use is grassland, accounting for 10,659 ha (45 per cent of farmed area). This is followed by cereals (7,104 ha or 30 per cent and oilseeds (1,960 ha or 8 per cent). Between 2000 and 2009, there was a slight increase in the area of grassland and a slight decrease in the area of cereals.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

Sheep are the most numerous livestock type (a total of 15,300 animals) followed by cattle (12,700) and pigs (6,100). In every case there has been a significant decrease in overall numbers between 2000 and 2009.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The figures suggest that the majority of holdings are run by dedicated farmers or managers. These comprise some 45 per cent of the total workforce. The total workforce increased by 16 per cent between 2000 (1,151) and 2009 (1,333). This increase is accounted for solely by an increase in the number of casual workers, by 172 per cent. Other numbers have remained similar but there are fewer holders and managers.

Source: Agricultural Census, Defra (2010)

Please note: (i) Some of the Census data are estimated by Defra so may not present a precise assessment of agriculture within this area (ii) Data refers to commercial holdings only (iii) Data includes land outside of the NCA where it belongs to holdings whose centre point is recorded as being within the NCA.

7. Key habitats and species

7.1 Habitat distribution/coverage

Internationally important heathland habitats are found on Cannock Chase. Extensive lowland heathland was once a characteristic of this NCA and relic areas occur across the NCA, even within the urban areas, with nationally important heathland sites for example at Chasewater and Sutton Park. The remaining areas of heathland and acid grassland are floristically distinct from the heathlands of southern England and represent a transition between lowland and upland heath; here, the open heathland habitats grade into semi-natural woodland and, on Cannock Chase, conifer plantations. The complex range of habitats supports a wide range of species which include nationally rare hybrid bilberry and nationally rare birds such as nightjar and woodlark and a rich and important invertebrate community. Significant habitats exist within the urban areas and the urban fringe. There are often remnants of ancient habitats, such as species-rich marshy grassland, ancient woodland and heathland. Post-industrial sites have also provided a diverse range of habitats, which include important wetlands such as Fens Pools and Clayhanger.

Source: Midland Plateau Natural Area Profile

7.2 Priority habitats

The Government's new strategy for biodiversity in England, Biodiversity 2020, replaces the previous Biodiversity Action Plan (BAP) led approach. Priority habitats and species are identified in Biodiversity 2020, but references to BAP priority habitats and species, and previous national targets have been removed. Biodiversity Action Plans remain a useful source of guidance and information. More information about Biodiversity 2020 can be found at: www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/englandsbiodiversitystrategy2011.aspx

The NCA contains the following areas of mapped priority habitats (as mapped by National Inventories). Footnotes denote local/expert interpretation. This will be used to inform future national inventory updates.

Priority habitat	Area (ha)	Percantage of NCA
Broad-leaved mixed & yew woodland (broad habitat)	2,680	4
Lowland heathland	1,375	2
Coastal and floodplain grazing marsh	394	<1
Lowland meadows	240	<1
Lowland dry acid grassland	105	<1
Purple moor grass and rush pasture	21	<1
Fens	44	<1
Reedbeds	8	<1
Lowland calcareous grassland	1	<1

Source: Natural England (2011)

- Maps showing locations of priority habitats are available at: http://magic.defra.gov.uk – Select 'Habitats and Species/Habitats'

7.3 Key species and assemblages of species

- Maps showing locations of some key species are available at: http://magic.defra.gov.uk – Select 'Habitats and Species/Habitats'
- Maps showing locations of S41 species are available at: http://data.nbn.org.uk/

8. Settlement and development patterns

8.1 Settlement pattern

The northern part of the NCA is dominated by Cannock Chase, a former hunting forest that is largely devoid of settlement. Around the periphery of the Chase, Cannock and Rugeley developed as market centres from the late 12th century. The cathedral city of Lichfield has its origins in the 7th century, and the present cathedral dates in part from the 12th century. Urban expansion continues, particularly in the vicinity of the M6 toll road. The southern part of the NCA covers much of the Black Country and part of Birmingham. Coal, iron and manufacturing industries developed at many different centres, and there is a complex pattern of dispersed towns and villages which tend to sprawl; yet there are significant areas of captured countryside within these. Originally, there was a mixed pattern of village-based and dispersed settlement, with 19th- and 20th-century urban development having subsumed many small settlements. Very small or small- to medium-scale farmsteads were dominant across the centre of the area, with areas of large-scale and very large-scale farmsteads concentrated to the east and the west.

Source: Cannock Chase and Cank Wood Countryside Character Area Description; Countryside Quality Counts (2003)

8.2 Main settlements

The total estimated population for this NCA (derived from Office for National Statistics (ONS) 2001 Census data) is 1,173,217; much of this is concentrated within the conurbation, but the populations of the significant freestanding towns are: Cannock (pop. 65,000); Lichfield (pop. 28,400); Rugeley (pop. 22,700); and Burntwood (pop. 22,200).

Source: ONS Census data (2001); Cannock Chase and Cank Wood Countryside Character Area Description; Countryside Quality Counts (2003); Natural England (2012)

8.3 Local vernacular and building materials

The predominant building material of the 19th-century and early 20th-century buildings is brick, usually red, with Welsh slate roofs. There are some timber-framed buildings of medieval to 17th century date. Sandstone was used for some of the more important buildings, particularly churches. Furnace slag was used locally as a material for walls.

Source: Cannock Chase and Cank Wood Countryside Character Area Description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

Evidence for legible prehistoric activity is limited, apart from bronze-age barrows on Cannock Chase and the iron-age hill fort of Castle Ring. Commencement of woodland clearance resulted in heathland. Ryknild Street and Watling Street cross the NCA, but the only upstanding evidence of Roman occupation is at Wall. Cannock Forest covered most of the NCA in the 11th to early 14th centuries. The Chase was granted to the Bishop of Lichfield in 1290 as a private hunting forest. Continuing woodland clearance had left the high plateau of Cannock Chase as mainly heathland by the mid 17th century. Sutton Park was a medieval deer park and contains extensive, well-preserved archaeological remains of deer park management. Much of it is a Registered Park and a Scheduled Monument. Historic parks are a feature, and often incorporate historic deer parks and large, planned estate farms. Shugborough Park is an 18th-century designed landscape. A complex range of industrial archaeological features (particularly in the Black Country) including an extensive canal network constructed during the late 18th and early 19th centuries are notable. Cannock Chase was used extensively for military activity from the early 20th century, with large training camps in both world wars now surviving only in template form as roads.

Source: Countryside Quality Counts Draft Historic Profile; Cannock Chase and Cank Wood Countryside Character Area Description

9.2 Designated historic assets

This NCA contains the following numbers of designated heritage assets:

- 13 Registered Parks and Gardens covering 1,402 ha.
- 1 Registered Battlefield.
- 42 Scheduled Monuments.
- 1,336 Listed Buildings.

Source: Natural England (2010)

- More information is available at the following address: http://www.english-heritage.org.uk/caring/heritage-at-risk/

  http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/

10. Recreation and access

10.1 Public access

- 9 ha of the NCA's 6,561 ha are classified as being publicly accessible.
- There are 798 km of public rights of way at a density of 1.1 km per km^2.
- There are no National Trails but two long-distance footpaths, the Heart of England Way and the Way for the Millennium, running through the NCA.

Sources: Natural England (2010)

The following table shows the breakdown of land which is publically accessible in perpetuity:

Access designation	Area (ha)	Percentage of NCA
National Trust (Accessible all year)	n/a	0
Common Land	1,630	2
Country Parks	2,629	4
CROW Access Land (Section 4 and 16)	3,986	5
CROW Section 15	393	1
Village Greens	12	<1
Doorstep Greens	7	<1
Forestry Commission Walkers Welcome Grants	1,046	1
Local Nature Reserves (LNRs)	978	1
Millennium Greens	0.1	<1
Accessible National Nature Reserves (NNRs)	845	1
Agri-environment Scheme Access	7	<1
Woods for People	3,687	5

Sources: Natural England (2011)

Please note: Common Land refers to land included in the 1965 commons register; CROW = Countryside and Rights of Way Act 2000; OC and RCL = Open Country and Registered Common Land.

11. Experiential qualities

11.1 Tranquillity

Based on the Campaign to Protect Rural England (CPRE) map of tranquillity (2006), the highest scores for tranquillity are on Cannock Chase, within the AONB. The lowest scores for tranquillity are at all the towns and within the Black Country conurbation. The majority of this NCA falls within areas considered to be least tranquil.

A breakdown of tranquillity values for this NCA are detailed in the table below:

Tranquillity	Score
Highest value within NCA	41
Lowest value within NCA	-121
Mean value within NCA	-43

Sources: CPRE (2006)

- More information is available at the following address: http://www.cpre.org.uk/resources/countryside/tranquil-places

11.2 Intrusion

The 2007 intrusion map (CPRE) shows the extent to which rural landscapes are 'intruded on' from urban development, noise (primarily traffic noise), and other sources of visual and auditory intrusion. This shows that the undisturbed areas are confined to the Cannock Chase AONB. A breakdown of intrusion values for this NCA is detailed in the table below.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	48	60	54	+6
Undisturbed	17	5	3	-14
Urban	35	35	43	+8

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are a significant decrease of 14 percentage points in the proportion of undisturbed or intruded land, matched by increases in urban and disturbed land.

- More information is available at the following address: www.cpre.org.uk/resources/countryside/tranquil-places

12. Data sources

- British Geological Survey (2006)
- Natural Area Profiles, Natural England (published by English Nature 1993-1998)
- Countryside Character Descriptions, Natural England (regional volumes published by Countryside Commission/Countryside Agency 1998/1999)
- Joint Character Area GIS boundaries, Natural England (data created 2001)
- National Parks and AONBs GIS boundaries, Natural England (2006)
- Heritage Coast Boundaries, Natural England (2006)
- Agricultural Census June Survey, Defra (2000,2009)
- National Inventory of Woodland & Trees, Forestry Commission (2003)
- Countryside Quality Counts Draft Historic Profiles, English Heritage (2004)*
- Ancient Woodland Inventory, Natural England (2003)
- BAP Priority Habitats GIS data, Natural England (March 2011)
- Special Areas of Conservation data, Natural England (data accessed in March 2011)
- Special Protection Areas data, Natural England (data accessed in March 2011)
- Ramsar sites data, Natural England (data accessed in March 2011)
- Sites of Special Scientific Interest, Natural England (data accessed in March 2011)
- Detailed River Network, Environment Agency (2008)
- Source protection zones, Environment Agency (2005)
- Registered Common Land GIS data, Natural England (2004)
- Open Country GIS data, Natural England (2004)
- Public Rights of Way Density, Defra (2011)
- National Trails, Natural England (2006)
- National Tranquillity Mapping data, CPRE (2007)
- Intrusion map data, CPRE (2007)
- Registered Battlefields, English Heritage (2005)
- Record of Scheduled Monuments, English Heritage (2006)
- Registered Parks and Gardens, English Heritage (2006)
- World Heritage Sites, English Heritage (2006)
- Incorporates Historic Landscape Characterisation and work for preliminary Historic Farmstead Character Statements (English Heritage/Countryside Agency 2006)

Please note all figures contained within the report have been rounded to the nearest unit. For this reason proportion figures will not (in all) cases add up to 100 per cent. The convention <1 has been used to denote values less than a whole unit.

Supporting document 2: Landscape change

Recent changes and trends

Trees and woodlands

- Woodland covers 12 per cent of this NCA and is a significant feature in the landscape with a total of 5,143 ha of broadleaved woodland (woods over 2 ha), including 940 ha of ancient woodland plus a further 2,409 ha of coniferous plantations. The Forest of Mercia Community Forest covers some 30 per cent of this NCA. It supports many significant areas of woodland, and also provides an opportunity for further woodland expansion.

- For the period covered by the Countryside Quality Counts (CQC) data from 1990 to 2003, the proportion of ancient woodland sites covered by Woodland Grant Scheme agreements went up from 14 to 21 per cent. The total woodland stock increased by 4 per cent with approved new planting under Woodland Grant Scheme agreements (267 ha) indicating that the woodland character of the NCA has been strengthened and woodland cover increased. Significant contributions were made during this period within the Forest of Mercia and throughout the Black Country by various urban forest initiatives.

Boundary features

- Hedges show a mixed picture with new planting and improved management in some areas such as within the Forest of Mercia but deterioration through neglect and over-cutting in others, particularly in areas where there are concentrations of arable farming and livery. Only about 4 per cent of field boundaries (hedges) were covered by Countryside Stewardship agreements between 1999 and 2003. There has however, been some woodland planting in the form of shelter belts, which affords some strengthening of character through Countryside Stewardship Schemes and the Woodland Grant Scheme during the same period.

- The introduction of Environmental Stewardship in 2005 has led to an increase in positive environmental management of boundary features including; fencing (43 km), hedge management (14 km), hedge planting and restoration (29 km), restored boundary protection (28 km) up to 2009.

Agriculture

- The dominant land use in this NCA is grassland, accounting for 10,659 ha (45 per cent of farmed area). This is followed by cereals (7,104 ha or 30 per cent) and oilseeds (1,960 ha or 8 per cent).

- Agricultural character continues to change with changing pasture management, arable conversion and an increasing use for livery. Between 2000 and 2009 there was a slight increase in the area of grassland and a slight decrease in the area of cereals.

- Mixed farming pattern has continued but between 2000 and 2009 there has been a decrease in the total number of holdings and a progressive loss of larger, economically active units. There has also been a significant decrease in overall livestock numbers.

Settlement and development

- The settlement character of the area continues to be transformed with significant expansion of the urban fringe into the area around Cannock, Lichfield, Burntwood and Norton Canes. Development pressures continue to transform many parts of the area with the completion of the M6 Toll Road and potential changes to the rail network bringing further significant landscape change.

- In places, large scale quarrying of aggregates (some within AONB and many around the flank of it) continue to be worked.

- Within the urban areas there is a great deal of brownfield land, which is subject to continued development pressure resulting in future potential changes in the landscape.

Semi-natural habitat

- The NCA supports substantial areas of heathland, some of the most northerly in England with a significant quantity of this resource within SSSI, mainly at Cannock Chase SAC, with other fragments at Shoal Hill, Gentleshaw, Sutton Park and Chasewater.

- Overall the extent of priority BAP habitats across the NCA are focussed outside the conurbation but even within the urban areas there are some important areas rich in wildlife. Some 2,590 ha (just over 3 per cent) of the NCA is designated as SSSI, most (78 per cent) of which requires more continued management to bring it into favourable condition.

- In addition to the extent of SSSI there are 527 locally designated sites covering an additional 4,697 ha (5.2 per cent of the NCA).

Historic features

This NCA has the following historic designations: 13 Registered Parks and Gardens covering 1,402 ha, the Registered Battlefield of Hopton Heath (1643), 42 Scheduled Monuments and 1,336 Listed Buildings.

- Evidence for legible prehistoric activity within the NCA is somewhat limited, apart from bronze-age barrows on Cannock Chase and the iron-age hill fort of Castle Ring supporting significant Celtic/pre Christian and bronze-age archaeology.

- Ryknild Street and Watling Street cross the NCA, but the only upstanding evidence of Roman occupation is at Wall.

- Close to Lichfield is the location of the 'Staffordshire Hoard', the largest hoard of Anglo-Saxon gold and silver metalware yet discovered in the United Kingdom.

- Cannock Forest covered most of the NCA in the 11th to early 14th centuries. The Chase was granted to the Bishop of Lichfield in 1290 as a private hunting forest. Continuing woodland clearance had left the high plateau of Cannock Chase as mainly heathland by the mid 17th century. Sutton Park was a medieval deer park and contains extensive well-preserved archaeological remains of deer park management. Much of it is a Registered Park, and a Scheduled Monument. Historic Parks are a feature, and often incorporate historic deer parks and large planned estate farms. Shugborough Park is an 18th century designed landscape.

- Lichfield supports historic streets with over 230 listed buildings, many from the 14th and 15th century, with part of the Cathedral dating back to 1195 and with its

3 spires is unique amid Europe. Lichfield was the seat of the ancient kingdom of Mercia developed by St Chad in 669. It was a thriving coaching city in the 18th century when it was also the home of many famous people including Samuel Johnson, David Garrick and Eramus Darwin and Anna Seward.

- The NCA supports a complex range of industrial archaeological features particularly in the Black Country, with places like Smethwick being of international importance as the cradle of the Industrial Revolution, and an extensive canal network constructed during the late 18th and early 19th centuries are notable.

- Cannock Chase was used extensively for military activity from the early 20th century, with large training camps in both world wars with the road network of the camp layout still existing.

Rivers

- The aquifer underlies much of the area, and abstraction levels are above those needed to achieve 'good status' in line with the Water Framework Directive. In particular the rivers Stour and Sow are over-abstracted. The main rivers that lie within the NCA include the River Tame (16 km), River Sow (7 km), River Stour (4 km) and River Penk (3 km).

Minerals

- Thick glacial till and glacio-fluvial sands and gravels cover much of the bedrock of the NCA north of Wolverhampton and these deposits have been widely exploited for aggregates over last 200 years.

- Rowley Rag which is the igneous dolerite intrusion (intruded about 300 million years ago), makes up the Rowley Hills. The area has been and still is quarried for dolerite, which is mainly used as an aggregate and road stone.

- The central core of the NCA is mainly formed of the Coal Measures of the South Staffordshire Coalfield which has seen extensive exploitation in the past with recent significant land reclamation. The ex-colliery waste and mineral sites are now often restored to open heathland.

Drivers of change

Climate change

- The fragmentation of heathland and other habitats within the NCA increases the risk of species extinction and exacerbates the problems for sustainable management.

- Climate trends suggest increased rainfall, periods of drought, and more frequent storm events.

- Over-abstraction of the aquifer is already an issue and may become a greater problem with hotter and drier summers.

- A changing climate, in particular summer droughts, is likely to increase the vulnerability of the iconic ancient oak woodland and heathland, with veteran trees increasingly vulnerable to damage, pest and disease. Heathland which represent a transitional form with distinct flora, and has significant carbon storage, will become more vulnerable to bracken incursion, drought and fire.

- Sandy acid soils may be more vulnerable to damage such as increased erosion through wind-blow and run-off, along with nutrient loss and decreased soil microbial activity.
- Increased demand for renewable energy installations and cropping.
- Increased risk of localised flooding.
- Agricultural change with the potential for new crops.

Other key drivers

- Continuing development pressure in and around the conurbation and the towns of Stafford, Cannock, Burntwood and Lichfield; the Black Country and Stafford are areas previously identified for growth.
- Further landscape change in the corridor of the M6 Toll Road, with new services and industrial development concentrated around junctions, with consequent landscape impact.
- New developments provide opportunities to ensure a high standard of design and a contribution to green infrastructure, building upon the network of sites in the Black Country and the urban fringe.
- The area is likely to remain attractive for recreation, with good access to nature along with opportunities for environmental education and understanding our heritage; this is both a challenge and an opportunity.
- The need for food security will result in continued agricultural production, along with changing farming practices, which may impact on ecological habitats, networks and species, as well as landscape character including increase in horse pasture, particularly in urban fringe areas. Agri-environment schemes provide opportunities to work with land managers to incorporate farmland habitats, develop networks of linked habitats and enhance the rural character of the landscape.
- Increased agricultural production may impact on the quality of the soils and will need careful management.
- Continued demand for sand and clay from existing quarries and for waste disposal provides opportunities for restoration of sites back to amenity or nature conservation use.
- Increased demand for recreational facilities around the edge of the conurbation with opportunities to reduce travelling by locating facilities close to urban areas.
- Increased recreational pressures at Cannock Chase due to planned residential development; presenting management challenges alongside opportunities such as the Environmental Stewardship scheme.
- Plant health issues at Cannock Chase, and potentially beyond, such as the Phytophora outbreaks which threatens the flora, particularly the ancient oaks and bilberry.

- Major opportunity for heathland restoration, expansion and development of better ecological networks in the area within and south of Cannock Chase working in partnership with the AONB and Forest of Mercia.
- The Forest of Mercia and Black Country Urban Forest initiatives have left a legacy of young woodlands that will need to be managed. There is potential for more woodland planting in the urban fringe. This is both a challenge and an opportunity, with potential for wood fuel.
- Potential for biomass production and renewable energy installations with attendant wider benefits and local impacts to be reconciled.
- Challenges in securing new uses for historic buildings in areas experiencing major structural change in the economy; and in securing a sustainable future for the surviving stock of historic farm buildings.
- Challenge to identify and protect important habitats on previously developed land.
- Urban areas within the NCA provide potential for public engagement, for example Ripples Through Time.

Supporting document 3: Analysis supporting Statements of Environmental Opportunity

The following analysis section focuses on a selection of the key provisioning, regulating and cultural ecosystem goods and services for this NCA. These are underpinned by supporting services such as photosynthesis, nutrient cycling, soil formation and evapo-transpiration. Supporting services perform an essential role in ensuring the availability of all ecosystem services.

Biodiversity and geodiversity are crucial in supporting the full range of ecosystem services provided by this landscape. Wildlife and geologically-rich landscapes are also of cultural value and are included in this section of the analysis. This analysis shows the projected impact of Statements of Environmental Opportunity on the value of nominated ecosystem services within this landscape.

View looking south-east from Rowley Hills Local Geological Site into the neighbouring Arden NCA.

Statement of Environmental Opportunity	Ecosystem service																		
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass energy	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Expand lowland heathland to increase habitat connectivity, improve resilience to climate change and improve water quality.	↘ *	↘ *	↗ **	n/a	↗ *	↗ *	↑ **	↗ *	↑ **	↗ **	↗ *	↗ *	n/a	↑ **	↑ **	↑ **	↑ **	↑ **	○
SEO 2: Manage, enhance and expand the network of green infrastructure such as woodlands, restored mining sites, parklands and canal routes to increase biodiversity, access and recreational use and increase understanding of the area's rich industrial heritage, particularly geodiversity.	↘ *	↑ ***	↗ **	n/a	↗ **	↑ **	↗ **	↗ *	↗ **	↗ ***	↑ ***	↗ *	n/a	↑ **	↗ *	↗ **	↑ ***	↑ **	↗ *

Note: Arrows shown in the table above indicate anticipated effect on service delivery: ↑ = Increase ↗ = Slight Increase ↔ = No change ↘ = Slight Decrease ↓ = Decrease. Asterisks denote confidence in projection (*low **medium***high) ° symbol denotes where insufficient information on the likely effect is available.

Dark plum = national importance; mid plum = regional importance; light plum = local importance

Statement of Environmental Opportunity	Ecosystem service																		
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass energy	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 3: Conserve and enhance the essential character of this varied landscape, which includes the Cannock Chase Area of Outstanding Natural Beauty, the Forest of Mercia and the urban conurbation of the Black Country, to maintain food and timber production where possible, enhance landscape, sense of place and tranquillity and increase resilience for climate change.	↔ *	↗ **	↗ **	n/a	↗ *	↗ *	↗ *	↗ *	↗ **	↗ **	↗ *	↗ *		↑ **	↑ **	↗ *	↑ ***	↑ **	○

Note: Arrows shown in the table above indicate anticipated effect on service delivery: ↑ = Increase ↗ = Slight Increase ↔ = No change ↘ = Slight Decrease ↓ = Decrease. Asterisks denote confidence in projection (*low **medium***high) ° symbol denotes where insufficient information on the likely effect is available.

Dark plum = national importance; mid plum = regional importance; light plum = local importance

Landscape attributes

Landscape attribute	Justification for selection
A very varied landscape that forms part of the larger 'midlands plateau' and including distinctive areas of higher ground that provide extensive views.	■ The landscape ranges from the wild and open Cannock Chase, to productive agricultural land, through freestanding towns and an extensive urban fringe to dense urban areas. ■ The underlying character appears throughout the urban fringe and the Black Country as heathland, small woods and fragments of farmland. ■ There are extensive views from parts of Cannock Chase and viewpoints within the urban area include Turners Hill, Castle Hill, Wren's Nest Hill, Sedgeley Beacon and Barr Beacon.
Outstanding geodiversity interest.	■ The Wren's Nest NNR contains limestone rocks with an exceptionally well preserved fossil fauna. The exploration of this site played a significant role in the development of the science of geology. ■ There are 8 geological SSSI with a range of different features; and a significant number of local geodiversity sites. ■ There is a legacy of past mining and quarrying related to the area's industrial development, such as the limestone caverns in Dudley.
The Cannock Chase Area of Outstanding Natural Beauty is a varied landscape of open heathland and woodland that provides a sense of wildness and tranquillity.	■ An Area of Outstanding Natural Beauty since 1958, subject to an AONB Management Plan implemented by a local partnership. ■ It is a largely unenclosed landscape with little settlement or habitation, but used extensively for recreation; a 2000 survey estimated the number of visitors at 1.5 m per annum. ■ It contains a variety of important habitats including lowland heathland and commercial forestry plantations, with a significant proportion designated as a SAC. ■ Historic features include Castle Ring Fort, upstanding evidence for ancient hollow ways and historic land management principally in the form of banks and ditches, and military sites associated with training during the two world wars. ■ The sense of wildness and tranquillity is reinforced by the wildlife which includes deer, birds such as nightjar, bats and a range of amphibians and reptiles.

Landscape attribute	Justification for selection
Distinct field boundary patterns with regular enclosure to the west of Cannock Chase, areas of small- to medium-sized fields of irregular pattern between the Chase and Lichfield, and the straight field boundaries of 19th century enclosure around the mining settlements south of the Chase.	■ The different patterns reflect the different periods of enclosure and illustrate the varied history of the area. ■ There is also a strong contrast with the largely unenclosed landscape of Cannock Chase. Remnant countryside and farmland within the Black Country also shows similar variation. ■ The hedgerows are characteristic of the midlands consisting mainly of hawthorn with hedgerow trees, and are important as landscape features and for biodiversity value; but condition and management vary with many in poor condition.
The distinctive settlement pattern of the Black Country and parts of Birmingham with dense urban areas interspersed with remnant countryside, farmland, woods and reclaimed land that forms a network of habitats and open spaces that spreads into the surrounding urban fringe.	■ The settlement pattern reflects the industrial and mining history with towns specialising in particular trades and surrounding land exploited for minerals and then re-used for other purposes. ■ There are significant 'green wedges' and large open areas such as Sandwell Valley, the area around Barr Beacon and Sutton Park that provide a real feeling of countryside. ■ Small woods, pools and sites that have been reclaimed or have regenerated naturally form a mosaic of valuable habitats. There are a number of SSSI and the Cannock Extension Canal and Fens Pool are SAC; and the wider canal network is an important habitat for water floating plantain and freshwater crayfish. ■ Much of the urban fringe is Green Belt, and is home to a range of agricultural, recreational and quarrying activities.

Landscape attribute	Justification for selection
Diverse woodlands and plantations that vary in size and type including commercial coniferous plantations, ancient woodland, wet woodland and many small woods and young plantations.	■ Overall woodland cover of 12 per cent which is probably an underestimate given the number of small woods under 2 ha in size and many new plantations. ■ Coniferous plantations on Cannock Chase and nearby provide commercial woodland and recreation. Management and different height/age structures contribute to biodiversity, for example, value for ground-nesting birds. ■ Small broadleaved woods are a feature of the urban and urban fringe areas, providing valuable habitats and opportunities for public access. ■ Ancient woodlands have wider historic value and are likely to incorporate upstanding evidence of historic management, principally in the form of banks and ditches. ■ The Forest of Mercia and Black Country Urban Forest initiatives have provided a legacy of young plantations between five and twenty years old that have considerable potential if managed properly.
Extensive areas of lowland heathland with associated acid grassland and woodland that provide a mosaic of habitats; that are found particularly in the arc between Cannock Chase and Sutton Park.	■ 2,368 ha of lowland heathland, some 3 per cent of the national resource of a priority habitat; of a type that represents a transition between lowland and upland heath. ■ The flora reflects the transitional nature, including the largest UK population of hybrid bilberry which is found on Cannock Chase. ■ The habitat is important for many of the native species of amphibians and reptiles, various birds notably the nightjar, and insects. ■ The major areas of heathland are found at Cannock Chase, around Chasewater and at Sutton Park, and there are smaller areas around the fringes of the Chase and on the northern edge of the conurbation. ■ The SAC designation of much of Cannock Chase is due to the heathland.

Landscape attribute	Justification for selection
Extensive industrial archaeology, including significant sections of canal network, that reflects the area's industrial history and its central place in the industrial revolution.	■ Complex range of industrial archaeology features in the Black Country which reflects the association of the different towns with different trades and gave rise to distinctive buildings such as lock works in Willenhall and leather works in Walsall. ■ The legacy of mining and quarrying such as the limestone caverns in Dudley; and evidence for of coal mining and the remnants of small mining settlements south of the Chase. ■ There is an extensive canal network that was constructed in the late 18th and early 19th centuries; and the Trent and Mersey and Staffordshire and Worcestershire canals were vital links between the four major rivers of England.
Historic parks that often incorporate former deer parks, designed landscapes and urban parks from the 19th and 20th centuries.	■ A number of historic parks incorporate former deer parks, including Beaudesert, Teddesley, Wolseley, and notably, Sutton Park, which is a Registered Park and Scheduled Ancient Monument. ■ Parks include archaeological features such as boundary earthworks. ■ Shugborough Park is a designed landscape with House and a range of smaller buildings and monuments, from the 18th and 19th centuries. ■ There are urban parks throughout the Black Country, such as Walsall Arboretum; and in towns such as Lichfield with its Cathedral Close and associated park. ■ As well as being of historic value theses parks are popular for recreation and contain valuable habitats such as the heathland and woodland at Sutton Park.
An extensive rights of way network and areas of access land.	■ Nearly 800 km of public rights of way including parts of several long-distance routes – Staffordshire Way, Heart of England Way, Beacon Way. ■ The canal network provides additional routes and there are a number of dedicated cycle routes. There are good links between the urban areas and major recreational sites such as; Sandwell Valley, Barr Beacon, Sutton Park and Chasewater plus the wider countryside outside of these sites. ■ Over 2,000 ha of open access land, much of which is on Cannock Chase, where there is also unrestricted access to the majority of the woodlands, which are currently in public ownership.

Landscape opportunities

- Protect and manage the Cannock Chase Area of Outstanding Natural Beauty so as to retain the sense of wildness and tranquillity and balance the needs of habitat management for biodiversity and protection of the Cannock Chase SAC, conservation of the historic environment, commercial forestry and public access and recreation.
- Plan for significant new green infrastructure provision within in association with areas of new urban development to expand the existing ecological networks.
- Plan for the significant expansion and sustainable management of lowland heathland and associated habitats through management, restoration and creation (particularly in the area between Cannock Chase and Sutton Park – as identified in the Staffordshire and the Birmingham and Black Country Local Biodiversity Action Plans), to maintain priority habitats and species, protect designated sites, improve habitat connectivity, and maintain the open landscape character.
- Protect and manage the distinctive geodiversity and industrial archaeology of the NCA, including geological exposures (particularly in the Black Country), buildings and sites associated with the iron, manufacturing and mining industries, and the canal network, so as to conserve the geological record and the industrial legacy.
- Protect and manage historic parks and urban parks so as to maintain significant historic landscapes and to conserve important archaeological features and habitats such as veteran trees, wood pasture and urban trees and the associated invertebrate populations.
- Protect and manage the existing network of farmland, woods, open space and water bodies within the Black Country and adjoining urban fringe to protect the underlying landscape character, maintain the mosaic of valuable habitats and associated priority species, and provide accessible local green space.
- Protect the landscape setting of historic towns, villages and farmsteads, manage heritage assets which contribute to the landscape character of the area and plan new development, and the change of use of historic buildings, that respects local character and distinctiveness.
- Manage the distinctive field boundary patterns across the NCA to maintain the historic record of regular enclosure to the west, irregular small- to medium-sized fields between the Chase and Lichfield, and 19th century enclosure around the mining settlements; manage and re-plant hedgerows in traditional style to restore landscape character and improve biodiversity value.
- Manage the small woods throughout the NCA to maintain and enhance biodiversity value and plan continued new broadleaved planting in appropriate locations particularly where opportunities exist to expand or link existing woodland areas.
- Manage the existing access network of rights of ways, cycle routes, towpaths and plan new links, particularly within urban areas and between the urban areas and the wider countryside.

Ecosystem service analysis

The following section shows the analysis used to determine key ecosystem service opportunities within the area. These opportunities have been combined with the analysis of landscape opportunities to create Statements of Environmental Opportunity.

Please note that the following analysis is based upon available data and current understanding of ecosystem services. It does not represent a comprehensive local assessment. Quality and quantity of data for each service is variable locally and many of the services listed are not yet fully researched or understood. Therefore the analysis and opportunities may change upon publication of further evidence and better understanding of the inter-relationship between services at a local level.

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Soils – sandy soils which are predominantly Grade 3 agricultural supporting arable farming	Approximately 23,500 ha (32 per cent of the NCA area) is farmed, comprising just over 400 holdings. Overall agricultural Grade 3 soils dominate. Farming is mixed, with dairying and livestock prevalent in some parts and arable important in the areas south and east of Lichfield and on the western fringes, on the lighter sandstone derived-soils. There are approximately 10,500 ha of grassland and 7,000 ha of cereals at the 2009 agricultural census. Sheep are the most numerous animals (approximately 15,000) followed by cattle (approximately 12,500) and pigs (approximately 6,000). Horse grazing utilises an increasing proportion of the grassland in some areas.	Regional	Food provision is an important service within the area. Expansion of food provision (if possible) within the NCA (through further intensification/cultivation) would lead to increased production but could, potentially, lead to decreased water availability (due to increased irrigation) biodiversity and pollination services (through loss of uncultivated habitat) if it is not done in a sustainable way. It may also possibly reduce the ability of the ecosystem to reduce water quality and regulate soil erosion and alter sense of place if vegetated area is further reduced. Crucially reduction in these other services may threaten future yields and potentially limit cropping options for the future (if pollination services greatly declined). Due to these interdependencies provision of food needs to be balanced to ensure sustainability.	There is an opportunity to improve long term viability of agriculture/ yields by ensuring agriculture is managed sustainably and does not compromise other services or assets, for example, water supply, soil quality.	**Food provision** **Biodiversity** **Water availability** **Regulating water quality** **Sense of place/ inspiration** **Pollination** **Regulating soil erosion** **Regulating soil quality**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Cannock Chase Forest estate approx 2,000 ha. managed for timber alongside other interests (recreation and biodiversity) Soils – poor grade	There are significant commercial coniferous plantations on Cannock Chase. 2,095 ha of Forestry Commission plantations are projected to produce an average annual timber volume of 18,400 cubic metres over the next ten years.	Regional	Current timber provision in this NCA is regionally significant. Increase in timber could increase climate change regulation through carbon sequestration and local heating effects, but only if planted on non-woodland sites. It may also (if strategically placed) provide some flood regulation and could provide increased opportunities for recreation if located within the correct place and does not affect the potential for heathland expansion.	There is an opportunity to review the extent of timber production to ensure maximum benefits for other services particularly in relation to relieving public pressure on Cannock Chase SAC from increasing pressure from visitors for example associated with new developments. There is also an opportunity to manage existing broadleaved woods throughout the NCA to provide timber.	**Timber provision** **Climate regulation** **Water availability** **Regulating water** **Recreation** **Biodiversity** **Sense of place/ inspiration**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biomass energy	The existing woodland cover (8,823 ha, 12 per cent of the NCA area)	The existing woodland cover offers moderate potential for the provision of biomass, potentially as a by-product of commercial timber production associated with the extensive conifer plantations in Cannock Chase. There is a high potential yield for miscanthus in the southern half of the NCA, coinciding with the urban, built up areas of the NCA; and a low potential yield in the northern half of the NCA. For short rotation coppice (SRC) there is a low potential yield in the south and west of the NCA, increasing to medium yield in the north and east of the NCA. For information on the potential landscape impacts of biomass plantings within the NCA, refer to the tables on the Natural England website. http://www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/default.aspx	Local	Biomass production in the area is currently low, however the area has medium potential for SRC. Increase provision of SRC for fuel has the potential to increase climate regulation, but could decrease provision of future food if placed on farmed areas or on biodiversity if placed on areas of non-agricultural production. Major expansion could also affect sense of place if SRC becomes a major component of the landscape.	There is an opportunity to increase production of biomass as a bi-product of existing commercial timber production and through introducing management in currently unmanaged woodlands. There is also an opportunity for small-scale biomass production through planting on sites including, for example, small parcels of land isolated by development and closed landfill sites. There is also an opportunity to plant new broadleaf woodland or short-rotation coppice where extension or introduction of woodland character would be desirable, avoiding other priority habitats and historical features.	**Biomass energy** **Biodiversity** **Climate regulation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	Aquifer (limited contribution) Rivers Canals Chasewater Reservoir	There are few major rivers in this NCA, although it does form part of the catchment for the Trent. The southern half of the NCA is crossed by an extensive network of canals comprising most of the Birmingham Canal Navigations (BCN) network. The 108-hectare Chasewater Reservoir lies in the middle of this NCA (within Lichfield District), with a capacity of 4.5 million cubic metres of water and supplying essential water to maintain levels in the BCN[13]. The River Stour runs for a short length through the southern corner of the NCA, and is over-abstracted along its length although the river receives effluent discharges from sewage treatment works. At times of low flow up to two thirds of the flow can be treated sewage effluent. This helps maintain flows in the River Stour at an artificially high level[14]. The River Sow runs for a short length through the northern corner of the NCA, and has 'no water available' for further abstraction[15]. **Continued on next page...**	Regional	Abstracted water is used for agricultural irrigation, as a water supply to the canal network and to maintain river flows within adjoining NCAs. This abstraction results in low groundwater levels and low base-flows in the relatively few rivers on the surface of the landscape. It has also been recognised as a potential issue affecting the Cannock Chase SAC. For this reason increasing water availability (through greater capture/ infiltration) and further management of abstraction is likely to increase wetland biodiversity and improve water quality. Retaining water within landholdings through water storage could increase the water availability and improve agricultural outputs at times when water for irrigation is limited (for example droughts).	There is an opportunity to manage water within the NCA to slow runoff to increase infiltration to the sandstone aquifer. There is also an opportunity to manage over-abstraction from the aquifer and rivers through careful and efficient use of water and through use of alternative more sustainable sources of water supply where possible.	**Water availability** **Biodiversity** **Regulating water quality** **Food provision** **Regulating water flow**

[13] Chasewater Dam blog, Lichfield District Council (accessed October 2010; URL: www2.lichfielddc.gov.uk/chasewaterdam/)
[14] *The Worcestershire Middle Severn Catchment Abstraction Management Strategy*, Environment Agency (December 2006)
[15] *The Staffordshire Trent Valley Catchment Abstraction Management Strategy*, Environment Agency (July 2007)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability		**... continued from previous page.** Most of the NCA (mainly the north and east) overlays a major sandstone aquifer, where at present (2012) there is 'moderate risk' to groundwater from groundwater abstraction with the majority of this groundwater resource, as in the case of the rivers, at risk of over-abstraction[16]. In the north of the NCA (between Cannock, Rugeley and Stafford), surface water sources have 'no water available', and groundwater sources are 'over licensed'[17], while in the middle of the NCA, approximately between Cannock and Tamworth, surface and groundwater sources are over-abstracted[18]. The main abstraction uses are for public water supply and industry.				

[16] *The Tame, Anker and Mease Catchment Abstraction Management Strategy*, Environment Agency (March 2008)
[17] *The Staffordshire Trent Valley Catchment Abstraction Management Strategy*, Environment Agency (July 2007)
[18] *The Tame, Anker and Mease Catchment Abstraction Management Strategy*, Environment Agency (March 2008)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Heathland, Woodland Soils	Significant lowland heathland (2,368 ha) in the north west of the NCA providing a carbon store[19]. These soils are likely to include the freely draining very acid sandy and loamy soils (8 per cent) that have organic and peaty topsoils but may also extend over areas of freely draining slightly acid sandy soils. In addition, there are small areas of loamy and sandy soils with naturally high groundwater and a peaty surface (4 per cent) potentially associated with the Fen Pools SAC (Dudley) and other flood plain areas that typically have organic or peaty topsoils comprising thin remnants of former peat coverings which have oxidised away as a result of drainage and cultivation; although some pockets of deeper peats remain. These are also very important carbon stores and should be conserved. Organic-rich soils may also be found underlying smaller areas of semi-natural grassland and flood plain grazing marsh. Also important for carbon sequestration and storage will be the significant areas of woodland (covering the 12 per cent of the NCA) with carbon stored both in the underlying carbon-rich soils and in the standing timber. **Continued on next page...**	Regional	Carbon storage in the areas of extensive heathland and woodland is currently relatively high, but may be increased by the expansion of heathland and native woodland planting. This is likely to lead to a reduction in provisioning of food if planted on agricultural land. There is potential for additional heathland creation within the areas of forestry and outside where there are appropriate soils, for example, ex mineral extraction sites. This would have a positive impact on the carbon sequestration and storage capacity of the NCA by increasing extent of semi-natural habitat, increased organic matter inputs and reducing the frequency / area of cultivation. If heathland and woodland are created there is good potential to increase biodiversity services and reducing impacts of recreation on Cannock Chase SAC (if access is provided). Heathland and woodland creation may also increase the sense of place by enhancing the character of Cannock Chase and Cank Wood NCA.	There is an opportunity to increase the carbon storage potential of the area through the net expansion of new heathland on appropriate soils and planting of new woodland. There is also potential to reduce fertiliser inputs and support appropriate anaerobic digestion of farm waste to reduce greenhouse gases.	**Climate regulation** **Biodiversity** **Sense of place/ inspiration** **Water availability** **Regulating water flow** **Pollination**

[19] *NSRI National Soils Map for England and Wales*, Environment Agency (January 2009)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation		**...continued from previous page.** Elsewhere in the NCA, the dominant mineral soils generally have a low carbon content of between 0-5 per cent, this will be further exacerbated by the long history of mining in the area which is likely to have resulted in the loss of topsoils.				

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Soils Semi-natural vegetation cover Hedgerows/ windbreaks Woodland/ copses/scrub	The slowly permeable seasonally wet soils covering some 40 per cent of the NCA area are not prone to soil erosion. This is also generally the case for the loamy soils with naturally high groundwater (2 per cent) except where coarser textured variants occur on sloping ground. For the remaining soils of the NCA, however, soil erosion is a risk where they are not under hard surfacing. The freely draining slightly acid sandy soils and the freely draining slightly acid loamy soils (together covering 27 per cent) are at risk of erosion, especially on moderately or steeply sloping land where cultivated or bare soil is exposed, exacerbated where organic matter levels are low or soils are compacted. There is also widespread potential for wind erosion where soils are exposed, especially in spring. Similarly, there is a high probability of wind erosion where peaty soils (4 per cent) dry out. The freely draining very acid sandy and loamy soils can also erode easily where vegetation is removed, especially on steeper slopes where there may be rapid runoff during storm events. **Continued on next page...**	Local	Low regulation of soil erosion is an important issue in this NCA. Increasing regulation of soil erosion would require an expansion of the existing service by taking small areas of land out of production in high risk areas to reduce compaction trap sediment and improve soil health. This approach would lower food production very slightly in the short term but could offer benefits to biodiversity by reducing sedimentation in rivers and may also help store limited amounts of carbon and could help maintain fertility in the longer term.	There is potential to increase the organic matter content of the freely draining slightly acid sandy soils (agricultural soils) within this NCA through management interventions. These will improve soil structure, help increase water infiltration (aiding aquifer recharge) and reduce the risk of soil erosion. There is also a potential to reinstate and strengthen hedgerows and create grass buffer strips across steeper slopes under arable cultivation Also potential to strengthen the hedgerow network and increase the population of hedgerow trees across the flood plain of the River Trent in the north of the NCA to filter out soils in time of flood.	**Regulating soil erosion** **Regulating soil quality** **Water availability** **Biodiversity** **Food provision** **Regulating water quality** **Regulating water flow**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion		**... continued from previous page.** By comparison, the slightly acid loamy and clayey soils with impeded drainage (13 per cent) are easily compacted and prone to capping/slaking, leading to increased risk of soil erosion by surface water run-off, especially on steeper slopes. The restored soils associated with the history of opencast and coal mining are also often compacted and subject to erosion from rainfall that cannot infiltrate.				

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Soils Heathland/ Semi-natural vegetation cover Hedgerows/ windbreaks Forestry/ Woodland/ copses/scrub	There are 9 main soilscape types in this NCA: ■ Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, covering 30 per cent of the NCA. ■ Freely draining slightly acid sandy soils (17 per cent); Slightly acid loamy and clayey soils with impeded drainage (13 per cent). ■ Freely draining slightly acid loamy soils (10 per cent). ■ Slowly permeable seasonally wet acid loamy and clayey soils (10 per cent). ■ Freely draining very acid sandy and loamy soils (8 per cent). ■ Loamy and sandy soils with naturally high groundwater and a peaty surface (4 per cent). ■ Restored soils mostly from quarry and opencast spoil (4 per cent). ■ Loamy soils with naturally high groundwater (2 per cent). Those covering 10 per cent or more of the NCA are described below. The slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (30 per cent) and the slowly permeable seasonally wet acid loamy and clayey soils (10 per cent) may suffer compaction and/ or capping as they are easily damaged when wet. In turn this may lead to increasingly poor water infiltration and diffuse pollution as a result of surface water run-off. Management measures that increase **Continued on next page...**	Regional	It is important to minimise compaction and/ or capping risk on clayey soils, which can arise from over-grazing, trafficking or other mechanised activities. These will tend to exacerbate run-off problems as well as damaging soil structure. These soils may have limited potential for increasing organic matter levels by management interventions.	There is a potential to employ minimal tillage and incorporate organic matter to increase level of soil organic matter and relieve soil compaction.	**Regulating soil quality** **Food provision** **Regulating soil erosion** **Regulating water quality** **Biodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality		**... continued from previous page.** organic matter levels can help reduce these problems. Similarly, the slightly acid loamy and clayey soils with impeded drainage (13 per cent) are easily poached by livestock and compacted when wet, with weak topsoil structures easily damaged. Careful timing of activities is required to reduce the likelihood of soil compaction. The freely draining slightly acid sandy soils (17 per cent) and the freely draining slightly acid loamy soils (10 per cent) may have potential for increasing organic matter levels by management interventions reducing erosion risk and improving soil structure. These soils may be valuable in aiding aquifer recharge requiring the maintenance of good soil structure and the matching of nutrients to needs to prevent pollution of groundwater.				

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Woodland Wetlands Rivers Canals Surface waters	The ecological status of artificial or modified surface water bodies such as canals, which in this NCA is generally 'moderate' or 'good', although several water bodies, in particular in the south around Birmingham, fail standards for specific pollutant concentrations. The chemical status of surface water bodies is generally classed as 'good', though there is one length of river/canal in the south east of the NCA classed as 'failing to achieve good' status. Groundwater chemical status is 'poor' across the majority of the NCA, but 'good' in the south west corner of the NCA and in a band in the north, in the vicinity of Cannock[20]. There are no Defra Priority Catchments in this NCA.	Regional	Groundwater chemical status is 'poor' across the majority of the NCA, so improvements are required to the water quality through selective reduction in inputs from point source pollution and diffuse pollution from, for example, agricultural activities, through better land management and the buffering water courses should help address specific pollutant issues in water bodies in the south around the conurbation that fail standards.	There is potential to increase the organic matter content of the freely draining slightly acid sandy soils (agricultural soils) within this NCA through management interventions. These will improve soil structure, help increase water infiltration (aiding aquifer recharge) and reduce the risk of soil erosion. There is also a potential to reinstate and strengthen hedgerows and create grass buffer strips across steeper slopes under arable cultivation Also potential to strengthen the hedgerow network and increase the population of hedgerow trees across the flood plain of the River Trent in the north of the NCA to filter out soils in time of flood.	**Regulating water quality** **Water availability** **Biodiversity** **Regulating soil erosion**

[20] *River Basin Management Plan: Humber River Basin District, Annex : Current state of waters*, Environment Agency (December 2009)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Rivers	At Stafford there is a low risk of flooding from the River Sow; a recent flood defence scheme here has raised the river walls along the Sow. In Rugeley the main source of flood risk is from River Trent, and flood risk here is assessed as low with only approximately five properties at risk. A flood relief channel has been built for the town of Cannock, taking flood flows from Ridings Brook, protecting the A5 motorway and approximately 100 properties[21]. Around the Wolverhampton/Birmingham conurbation, the main flood risk comes from insufficient channel capacity on the River Tame and its tributaries due to the constraint of built development as they pass through the urban areas.	Local	Flooding within the Wolverhampton/Birmingham conurbation can be reduced through river restoration and creation of new wetlands to retain water in situ and up- stream within the drainage basin.	There is an opportunity to reduce run-off from rural areas in this NCA by maximising infiltration into the underlying sandstone geology and high permeability soils, through, for example, changes in farming practices and retaining water in-situ through creating wetlands and storage reservoirs. Opportunities for reducing flooding by the use of SUDS within developments and by land use changes, for example increasing areas of wetlands or more sustainable river maintenance and restoration, creation of and extend semi-natural flood plain habitats could also be considered to attenuate flood flow downstream.	**Regulating water flow** **Biodiversity** **Water availability** **Climate regulation**

[21] *River Trent Catchment Flood Management Plan*, Environment Agency (December 2010)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Areas of semi-natural habitat Hedgerows Grass margins	Heathland, grassland and meadows (totalling almost 4,000 ha or 5 per cent of the NCA area) plus other semi-natural vegetation all support a variety of pollinators which are essential to maintaining the habitats and to agricultural production. It is possible that the population of pollinators has fallen, with some species becoming isolated in pockets, due to the increase of commercial scale farming, the changing climate or use of chemicals, but the causes are unclear.	Regional	Increasing populations of pollinators is likely to require a reduction of intensity of food production in some areas (leading to a likely reduction in food provision). However, the consequences of such activity are likely to lead to a significant increase in biodiversity (which would benefit from the provision of these nectar-rich areas).	There is an opportunity to Increase the area under semi-natural habitats, especially lowland heathland, unimproved grassland, flood plain grazing marsh and woodland with a diverse ground flora, and plant and manage flowering hedgerows and nectar and forage mix areas (particularly in arable areas), to increase the diversity of flowering plants and increase the sustainability of local agricultural production.	**Pollination** **Biodiversity** **Sense of place / inspiration** **Climate regulation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place/ inspiration	Landscape Biodiversity Geodiversity Historic environment	A sense of place is provided by the diverse, heavily urbanised landscape that rises above the surrounding lowlands (within other NCAs to the west and east). In the north between Stafford, Rugeley, Lichfield and Cannock, is the former hunting forest of Cannock Chase, an unenclosed, heavily wooded landscape with a varied, often steeply-sloping surface with many valleys, locally known as slades. The Chase is dominated by heathland and conifer plantations with long distance panoramic views, usually to wooded horizons, but with occasional glimpses down to lower ground, emphasising its elevation. Elsewhere the great deer parks of the area give a sense of place such as Shugborough and at Sutton Park, and locally the views of Lichfield cathedral provide a reminder of the city's historic importance. This contrasts with the landscape to the south of the South Staffordshire Coalfield with its linear mining settlements extending along the straight roads and field boundaries of 19th century enclosures, reclaimed and naturally colonised tips, subsidence flashes, past open cast sites, naturally colonised colonised and wet clay pits, such as Doulton's Pit in Dudley and high density post-war development, with each settlement surrounded by a mosaic of actively farmed land, rushy pastures and unenclosed areas, often the product of past **Continued on next page...**	Regional	Management to enforce sense of place is likely to increase sense of history. Conserving and enhancing the distinctive landscape features is also likely to benefit biodiversity by enhancing or expanding available habitat.	There is an opportunity to maintain a sense of place, valued by local people and visitors by conserving the variety of landscape features which give the NCA its distinctive sense of place. Most prominently there are opportunities it to conserve and promote the Cannock Chase AONB, without further increasing recreational pressure on the SAC. There is an opportunity to maintain the historic features that provide local distinctiveness within the different parts of the NCA. There are opportunities to protect and maintain areas of open countryside and the network of open spaces and routes within the Black Country and adjoining urban fringe within the Forest of Mercia which would have positive benefits for recreational opportunities. The long distance views from Cannock Chase, Barr Beacon, the Rowley Hills and other significant viewpoints should be protected as should the views of Lichfield cathedral from surrounding areas.	**Sense of place/ inspiration** **Recreation** **Sense of history** **Biodiversity** **Geodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place/ inspiration		**... continued from previous page.** mining. Within the conurbation there are a number of 'beacons' in the Black Country that offer long-distance views over the conurbation and beyond. The more rural parts of the NCA to the east, around Chorley, are characterised by stock rearing with a small to medium, irregular field pattern, intact hedgerows and mature oaks with small woodlands, narrow sunken lanes and clustered red-brick and whitewashed farmsteads giving a very rural character to this landscape. Across the whole NCA building stones of red and yellowish sandstones, brick from the Etruria Marls of the Carboniferous and in places Silurian limestones characterise the area. The area has literary links to Dickens, who captured life in the area's industrial past; and Samuel Johnson was born and educated in Lichfield. 'Dudley bug' fossil trilobite is included on the coat of arms of Dudley and illustrates the strong ties between geology and the area's cultural identity.				

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Landscape Biodiversity Geodiversity Historic environment	Reflecting the area's strong industrial past, lying within the South Staffordshire Coalfield, there are limited prehistoric archaeological features, apart from bronze-age barrows on Cannock Chase and Castle Ring, an iron-age hill fort. Nevertheless, there is a wealth of industrial archaeology reflecting the area's mining past and a strongly contrasting and complex settlement pattern ranging from uniform terraced, sprawling coal mining settlements of red brick and Welsh slate roofs to scattered villages and whitewashed farmsteads predominately in the south and east and earlier timber framed buildings in locations such as Brocton. Field patterns range from the large unenclosed areas of Cannock Chase, enclosed strip fields, piecemeal enclosures to the strong rectilinear pattern of parliamentary enclosures largely aimed at ensuring the control of mineral rights over common land. Aspects of the historic environment that are most likely to be evident to the general public are the canal network, the clearly distinct settlements of Dudley and the cathedral city of Lichfield and the many industrial buildings associated with the industrial revolution which have survived regeneration or are being recreated within museums. Also evident are many country houses, built upon the wealth of the industrial revolution, with notable houses and parkland at Beaudesert, Teddesley, Wolseley and notably Shugborough Hall all ringing Cannock Chase, as well as Sutton Park on the edge of Birmingham.	Regional	Increasing sense of history has potential to increase sense of place. This could in turn lead to increase biodiversity and recreational opportunities by reinforcing the historic character of the landscape.	There is an opportunity to increase sense of history by protecting the character and historic resource across the NCA including historic townscapes, rural buildings, the parkland estates, extensive areas of heathlands and the matrix of hedgerows that contribute to the landscape character. There is also an opportunity to conserve and interpret the important geodiversity within the NCA.	**Sense of history** **Recreation** **Biodiversity** **Geodiversity** **Sense of place/ inspiration**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	AONB Heathlands and other semi-natural habitats Forestry/ woodlands Geodiversity Urban green spaces	The NCA has experienced a decline in tranquillity from the 1960s, with only 3 per cent of the area now classified as undisturbed (CPRE Intrusion Map, 2007). Nevertheless, work undertaken by the Cannock Chase AONB has demonstrated that much of the Chase is associated in people's minds with tranquillity, offering an antidote to the largely urban surroundings of the area, further accentuated by wooded reclaimed coal tips and areas of historic wooded deer parks, and small scale intimate pastoral landscapes to the east.	Local/regional	Increasing tranquillity through expanding areas of heathland and deciduous woodland could also increase biodiversity/natural beauty, sense of place and management of mine relics could improve sense of history.	There is an opportunity to protect tranquillity in some core areas where intrusion are presently low such as within Cannock Chase AONB. This will increased opportunity for people to feel connected to nature and contribute to wellbeing and health. There is an opportunity to reduce where possible the impact of settlement in the urban fringe areas and along roads by planting woodland shelter belts, strengthening the hedgerow pattern and ensuring new development on settlement fringes is sensitively designed. There is also an opportunity to manage areas of countryside or parkland within or near urban areas, such as Sutton Park, Barr Beacon and Sandwell Valley, in a manner that retains a feeling of countryside and tranquillity, and offers access to nature.	**Tranquillity** **Recreation** **Biodiversity** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation	Cannock Chase AONB Cannock Chase Country Park & forest estate Sutton Park NNR Local Nature Reserves/ Green spaces Canals Foot paths Open Access Land Forest of Mercia Historic parklands Archaeological features Local geological features	The NCA offers a network of rights of way totalling 797 km at a density of just over 1 km per km^2 as well as a significant area of open access land covering 2,193 ha or just over 3 per cent of the NCA largely comprising Cannock Chase, a major focus for recreation, as one the main areas of semi-natural landscape within the West Midlands. In addition, there are a wealth of recreational opportunities including reclaimed land and naturally colonised once derelict land (the nature conservation value of which was captured in the book *The Endless Village* by Bunny Teagle; amenity areas, public open spaces and open land including Sutton Park on the edge of Birmingham, formal public parks, open space along river corridors as well opportunities offered by the Forest of Mercia Community Forest covering parts of the West Midlands and South Staffordshire. The areas historic environment, industrial archaeology and geology also offer many recreational and educational opportunities.	National	It is likely that recreational opportunity could be increased in some areas of the NCA without significant effects on other services. However, increased recreation within the Cannock Chase SAC should be avoided due to the potential impacts on biodiversity. Increased recreation across the NCA may also have a minor negative effect on tranquillity, and potentially a small effect on food production (for example, through taking land out of production to produce paths in some areas).	Opportunity to maintain and enhance the access throughout the area on public rights of way, on the long-distance routes (Staffordshire Way, Heart of England Way and Beacon way), on canal towpaths and cycle routes, and to areas of open access land and recreational sites; and as proposed in the Staffordshire, Dudley, Sandwell, Walsall and Wolverhampton Rights of Way Improvement Plans. There is an opportunity to promote the recreational and education opportunities offered by the public access to the large houses and estates in the area, the Cannock Chase Country Park, Sutton Park NNR and other large areas of open space such as Chasewater. An opportunity to expand the recreational corridors and links through the provision of green infrastructure particular emphasis being on links from the urban areas out to the urban fringe of the Forest of Mercia.	**Recreation** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	Semi-natural/ priority habitats (species-rich grasslands, heathlands wetlands, deciduous woodlands) Local Nature Reserves/green spaces Canals Urban sites awaiting redevelopment	A total of 7 per cent of the NCA area is a priority habitat, including an internationally designated area of lowland heathland (Cannock Chase- 2,368 ha), which is the most extensive such habitat in the Midlands[22]. Other priority habitats include undetermined grassland, wet woodland, and flood plain grazing marsh. There are three internationally designated habitats in the NCA, all SAC: Cannock Chase (the lowland heathland described above), Fens Pools, and the Cannock Extension Canal. There are 23 SSSI in the NCA, totalling 4 per cent of the NCA area.	International/ National	Improvement in the condition of designated sites is likely to have a positive impact on other services. The improvement in the condition, and expansion, of heathland and other priority habitats will also assist in climate regulation through the storage of carbon. Increases in habitat extent could also have a positive effect on water quantity, water quality, soil erosion but is likely to have a negative impact on the forestry and agriculture.	There is an opportunity to increase areas of heathland, unimproved grassland and flood plain grazing marsh, creating extensive and connected areas of semi-natural habitat which are managed in favourable condition, to increase the resilience of these habitats to climate change. There is an opportunity to Improve management of heathland and associated habitats, through introduction of further grazing of heathland sites. There is an opportunity to integrate woodland management for biodiversity with timber and biomass production. There is also an opportunity to protect, manage and extend the varied habitats and open areas within the Black Country and adjoining urban fringe to retain and increase biodiversity value and improve network connections, including the identification and management of 'open mosaic habitats'.	**Biodiversity** **Recreation** **Sense of place/ inspiration** **Regulating water quality** **Water availability** **Regulating water flow** **Regulating soil erosion** **Climate regulation**

[22] SAC selection data, Joint Nature Conservation Committee (URL: http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030107)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Geology Exposed rock formations Designated geodiversity sites	There are currently 8 nationally designated geological sites within the NCA and 6 local sites. These consist mainly of man-made exposures in particular disused quarries. (Recreational services and contributions to sense of place made by geology are picked up above).	Regional	Designated sites provide important, and accessible sections allowing the interpretation, understanding and continued research into the geodiversity of the NCA.	Opportunity to further promote the geodiversity of the NCA particularly for recreational and educational resources adding to the sense of place and sense of history. There is an opportunity to manage the geological sites to enhance biodiversity.	**Geodiversity** **Biodiversity** **Sense of place/ inspiration** **Sense of history**

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