National Character Area profile:

68. Needwood & South Derbyshire Claylands

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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.

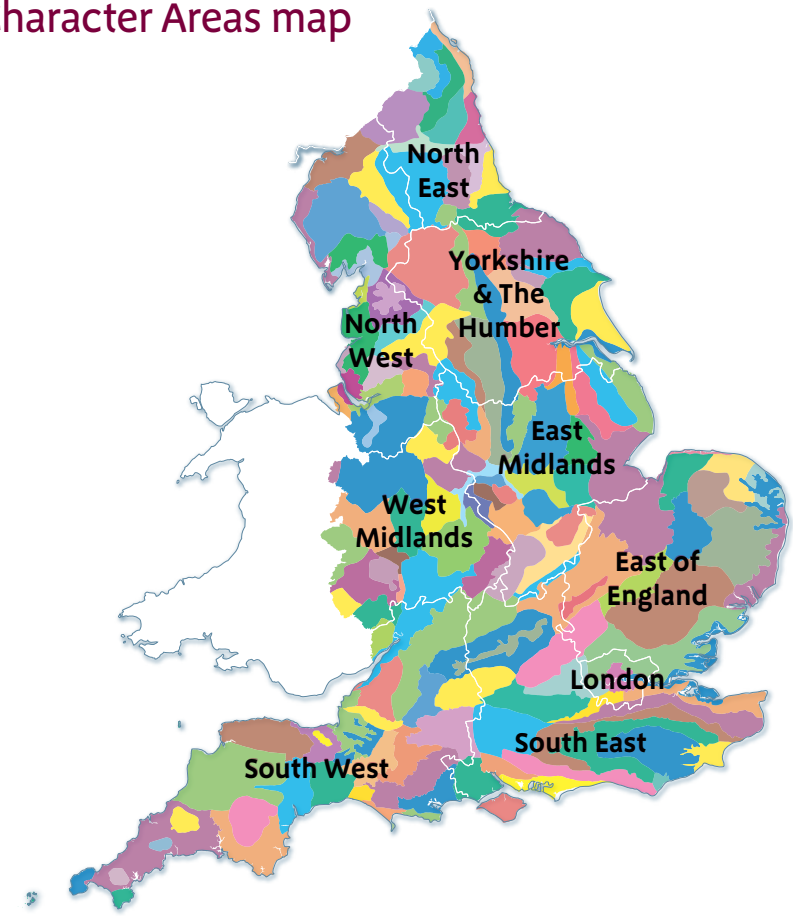
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and 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

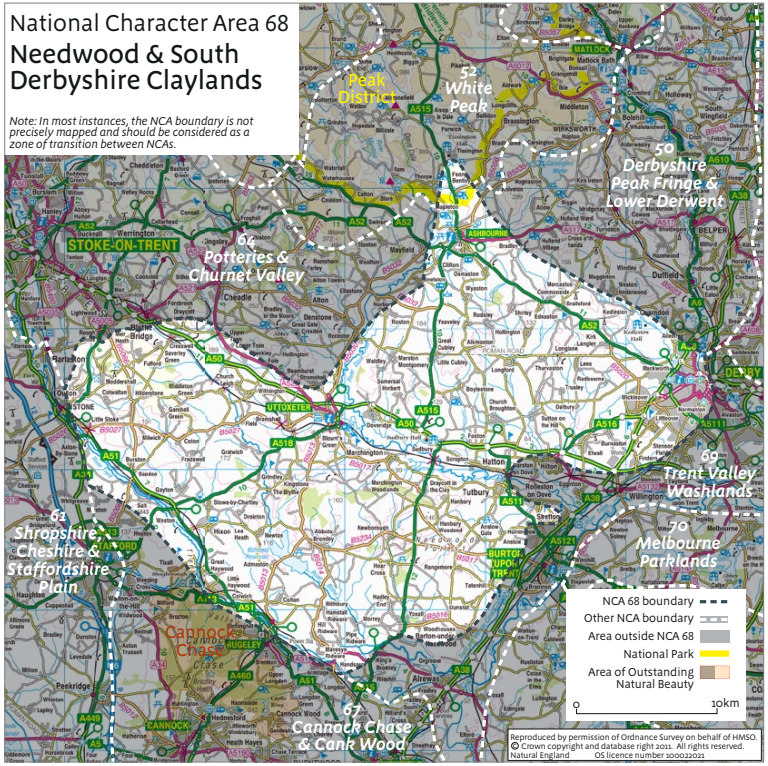


[1] The Natural Choice: Securing the Value of Nature, Defra (2011; URL: **www.official-documents.gov.uk/document/cm80/8082/8082.pdf**)
[2] Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, Defra (2011; URL: **www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf**)
[3] European Landscape Convention, Council of Europe (2000; **URL: http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm**)

Summary

Needwood and South Derbyshire Claylands National Character Area (NCA), though divided by the River Dove's wide flood plain, is predominately a rolling plateau that slopes from the southern edge of the Peak District to the valley of the River Trent in the south-west. Also in the south are frequent plantations and ancient woodlands of the former Forest of Needwood. Elsewhere, the extensively hedged and pastoral landscape is dominated by mixed farming and features a dispersed pattern of villages and other settlements. Hedgerow trees also contribute to the wooded character of this NCA. Internationally important wetland habitats that include Chartley Moss and Pasturefields Saltmarsh nature reserves occur in the west of the area. Part of the Derwent Valley Mills World Heritage Site and The National Forest are situated on the eastern side of the NCA. To the north and west respectively are found small parts of the Peak District National Park and Cannock Chase Area of Outstanding Natural Beauty.

Blithfield Reservoir and the River Dove provide important sources of public water supply for parts of Staffordshire and Leicestershire and also water for agricultural purposes. Running west to east, the A50, A51 and A52 form the main transport corridors through the area. They provide the main link to the settlements of Ashbourne and Uttoxeter. A good network of rights of way and other trails and paths, along with ease of access from the surrounding conurbations of Derby and Burton-upon-Trent, means that the area is important for recreation. Future challenges for the area include management of flooding, maintaining the character of the farmed landscape and settlements, safeguarding water quality, and expansion of woodlands and the restoration of existing wood pasture and parkland.



Click map to enlarge; click again to reduce

Statements of Environmental Opportunities:

- **SEO 1:** Conserve and enhance the essential character of this mainly pastoral mixed farm landscape with its distinctive field and settlement patterns, hedgerow trees, varied hedgerow types and heritage assets, enhancing and expanding the network of farmland habitats and improving access opportunities while sustaining food provision.

- **SEO 2:** Manage the area's diverse range of woodlands, veteran trees, wood pasture and parklands to enhance landscape character and safeguard their biodiversity value, while seeking opportunities to enhance access. Plan, with emphasis on The National Forest, for new opportunities to plant woods and new areas of wood pasture to expand existing sites; and create short-rotation coppice to enhance timber and biomass provision, increase carbon storage, regulate water flow and quality, and reduce habitat fragmentation.

- **SEO 3:** Protect the historic and cultural features of Needwood and the South Derbyshire Claylands, in particular the traditional settlement patterns of remaining villages, traditional farmsteads and the country estates that provide a strong sense of place.

- **SEO 4:** Manage and enhance the network of rivers, flood plains and wetlands, increasing the landscape's ability to naturally and sustainably manage flood and drought risk and provide other ecosystem services such as water supply and food provision, while recognising the needs of individual species and habitats.

View across typical estate farmland near Mecaston

Description

Physical and functional links to other National Character Areas

Needwood and the South Derbyshire Claylands are bounded by the wide Trent Valley of the Trent Valley Washlands National Character Area (NCA) and the rising ground of the Cannock Chase and Cank Wood NCA in the south-west. Much of the southern half of the area drains into the Trent. The higher ground of Cannock Chase is prominent in views to the south.

Chartley Moss to the west of Stone straddles the NCA boundary with the Shropshire, Cheshire and Staffordshire Plain NCA and forms part of the West Midlands Meres and Mosses Ramsar site and Special Area of Conservation (SAC). The Potteries and Churnet Valley NCA adjoins the north-west of the area from where the Trent rises before flowing into the Claylands. The Blithe flows south-east across the NCA to join the Trent.

To the north and north-east the area grades into the rising ground of the White Peak and the Derbyshire Peak Fringe and Lower Derwent NCAs, north and north-east of Ashbourne. The River Dove drains much of the White Peak before flowing through the Claylands to the Trent. Flowing eastwards to join the Dove at Uttoxeter are the rivers Churnet and Tean. Water supplied from Blithfield Reservoir provides 20 per cent of the drinking water for South Staffordshire Water's 1.25 million customers located across northern parts of the West Midlands.

From the higher ground of the Needwood area there are good views north to the fringes of the Peak District, and east over the Trent Valley. In addition to the historic road routes such as the A50, A51 and A52, the course of the Trent and Mersey Canal provides an east–west link between the East Midlands and Cheshire. The Derwent Valley Mills World Heritage Site, the 18th-century birthplace of the factory system, contains a series of historic mill complexes of outstanding international importance. It stretches15 miles from Matlock Bath to Derby along the north-western margin of the NCA.

The Staffordshire Way passes through the area, crossing into it just north of Uttoxeter and then running down to Rugeley and onwards south. In the south-east of the NCA is a portion amounting to a seventh of The National Forest, connecting the area to Burton-upon-Trent and Ashby-de-la-Zouch beyond.

The floodplain of the Dove allows space for the river to overflow when in flood

Key characteristics

- The area, which is dissected by the river systems of the Trent, the Blithe and the Dove, forms a rolling glacial till plateau that slopes south-eastwards from the southern edge of the Peak District to the valley of the River Trent. There is a distinctive scarp to the south of the Dove, whose broad flood plain divides the Staffordshire and Derbyshire elements.
- The south is dominated by heavy, seasonally waterlogged soils derived from glacial till. In the north, red and pink soils underlain by Mercia Mudstones and Sherwood Sandstone are more amenable to cultivation.
- A predominantly pastoral landscape of rolling countryside that is still largely rural and relatively tranquil, featuring distinctive field boundary patterns and characteristic hedgerows with hedgerow trees. Grassland for livestock is the dominant land use although dairy and cereal farming are also important. The majority of the farms are small- to medium-sized dairying and livestock holdings. Arable cultivation occurs on the better land north and south of the Dove and in the river flood plains.
- An overall wooded character derived from scattered ancient and semi-natural woods, parkland and boundary trees. Some large woodland blocks are prominent in Needwood Forest; however, much consists of smaller, fragmented remnants. There is new woodland creation within The National Forest.
- Predominantly hedgerow bounded, the field pattern varies from small- to medium-sized fields to the north of the Dove; mostly large-scale and rectilinear on the broad river flood plains; strongly rectilinear in Needwood Forest; and smaller and more irregular to the west.
- A wide range of habitats associated predominantly with pasture, varying from damp lowland grassland and marshland to drier neutral grassland. There are good surviving examples of watermeadows featured along the three main river valleys. Areas of open water such as Blithfield Reservoir and the major rivers are important for birds. Chartley Moss (a basin mire) and Pasturefields (an inland salt marsh) are internationally important examples of rare habitats.
- Wood pasture and designed parklands, often with veteran trees, are found throughout the area. They are generally associated with landscape parks and country houses, such as Sandon, Sudbury and Kedleston. Tutbury Castle and the internationally important Derwent Valley Mills, together with a variety of features such as moated sites and medieval settlements and the Trent and Mersey Canal, add to the historical richness of this landscape. Extensive earthworks relating to ridge and furrow and watermeadow systems survive, particularly around the Dove.
- A dispersed historical settlement pattern, particularly in the higher pastoral farmlands that fringe the Peak District to the north, with the older villages generally sited along the valleys or valley sides, and more recent crossroad settlements on the higher ground. Buildings are usually of red brick and clay tile roofs, and local sandstone. Timber frame buildings are rare with notable examples at Somersal Hall and the village of Abbots Bromley. There are market towns at Ashbourne, Stone, Tutbury and Uttoxeter, and the more significant urban areas of Burton-upon-Trent and the City of Derby extend into the eastern boundary of the NCA.
- The Trent and Dove valleys are major transport corridors. The Trent Valley includes the Trent and Mersey Canal, the West Coast Main Line railway and the A51 road, while the Dove Valley features the Derby to Stoke railway line and the A50 road. The A52 links Derby and Ashbourne.

Needwood and South Derbyshire Claylands today

A predominantly pastoral and wooded landscape that is still largely rural and relatively tranquil, Needwood and South Derbyshire Claylands NCA is bounded by the wide Trent Valley and Washlands in the south-east and the higher reaches of the River Trent and Cannock Chase to the south-west. To the north and east the area merges into the rising land of the Derbyshire Peak Fringe and Lower Derwent and includes the City of Derby. The remaining boundaries are formed by the Potteries and Churnet Valley to the north-west and the Shropshire, Cheshire and Staffordshire Plain to the west. In the vicinity of this latter boundary are located Chartley Moss, with a rare type of basin mire, and Pasturefields, a rare example of an inland salt marsh. Both sites are of international conservation importance and are designated as Special Areas of Conservation (SAC).

The general character of the area is one of rolling countryside, broadly divided by the wide, shallow valley of the River Dove, which also defines the Staffordshire and Derbyshire county boundary within the area. To the south, where remnants of Needwood Forest remain, the calcareous clays of Mercia Mudstones and thick overlying glacial till produce heavy, poorly drained soils. Much of the land here at one time or another lay within chase or forest land, and is now characterised by a managed, rectilinear landscape of fields, straight roads and woodlands, bounded in the north by a prominent wooded scarp above the River Dove.

Parklands make a locally significant contribution to the landscape and have veteran trees of considerable ecological value for invertebrates and fungi. Across the area are the remnants of medieval ridge and furrow and the earthworks of deserted and shrunken settlements, which testify to significant changes in land use and settlement in the 14th–17th centuries.

The principal river draining the area is the Dove, which cuts a wide, shallow valley in an arc south-westwards and then south-eastwards to join the Trent near Burton-on-Trent. Along much of its length the river has a broad flood plain of low-lying, wet meadows, mainly now improved for agriculture but still supporting a few pairs of breeding wading birds.

To the north of Needwood, on both the Staffordshire and Derbyshire sides there is less drift and the gently rolling landscape is dissected by numerous small valleys, with the exposed mudstones producing more easily cultivated red and pink soils. Here the landscape is less wooded and is characterised over much of the area by small- and medium-sized mixed farms with small, hedged fields, copses and ponds featuring strongly. The area is dissected by numerous streams which drain into the River Blithe on the Staffordshire side and the Dove or Sutton Brook in the Derbyshire Claylands. A number of valleys containing areas of semi-natural grassland and small wetlands are still to be found and parklands are again a strong landscape feature, supporting both parkland trees and areas of ancient woodland.

The overall settlement pattern of the NCA is dispersed and the majority of the area sparsely populated. Larger towns and villages, such as Uttoxeter and Ashbourne, are found around the perimeter in the river valleys. Approximately half of the City of Derby extends into the eastern corner of the NCA. This includes a small southern part of the Derwent Valley Mills World Heritage Site. Elsewhere in the rural villages red brick features as the main building material, with sandstone being more common in the north of the area; many buildings retain earlier timber frames.

The agricultural land is mainly pasture, which supports a range of grassland habitats, but there are significant areas of arable cultivation. Woodland is scattered throughout the area, particularly in the former Needwood Forest area, where historic country houses and associated designed parklands, dominated by veteran oaks, are characteristic. In addition 14 per cent of The National Forest lies in the south-east where the wooded character has been reinforced by extensive new woodland creation and improved management of hedgerows.

To the north of the Dove the landscape is gently rolling, comprising small- to medium-sized irregular fields surrounded by hedgerows with boundary trees and occasional small woodlands, particularly on steep slopes. The land is mainly used for pasture and dairying predominates, with localised arable farming. Historic parks with wood pasture and veteran trees are a common feature of the landscape, and often form the setting for country houses such as Sudbury Hall and Kedleston Hall, and offer recreational and access opportunities. The villages lie within the many shallow valleys, and although those nearest Derby have been substantially enlarged by post-war development, much of the area remains deeply rural. Patches of ridge and furrow and the earthworks of deserted settlements are evidence of a once village-based pattern of settlement in the medieval period.

There is moderate recreational access within the NCA, with part of The National Forest featuring in the east and the Staffordshire Way crossing between Uttoxeter and Rugeley. The Trent and Dove valleys are major transport corridors and many people experience the area while travelling along these routes. Despite urban and road expansion north-west of the Dove, the countryside remains essentially tranquil and rural.

The river valley of the Dove includes areas of ridge and furrow and in places traditional water meadows

The landscape through time

Needwood and the South Derbyshire Claylands have a relatively simple topography that largely reflects the uniform nature of the underlying geology and a range of past and present geomorphic processes. The majority is underlain by the Late Triassic Mercia Mudstone Group of the Needwood Basin, which forms a south-eastwards dipping plateau. The Mercia Mudstone Group includes the economically important Tutbury Gypsum, which is mined at Fauld. The northern and western margins of the area are formed by the Early Triassic Sherwood Sandstone Group.

Geomorphologically, the landscape was shaped principally by fluvial activity. The valleys of the Trent and Dove rivers are broad, flat floored and in places steep sided. This reflects the influence of glacial meltwater associated with the British ice sheets. The Late Devensian ice sheet covered virtually all of the area, terminating on the western side of Derby and Burton-upon-Trent, and discharged into the Trent and Dove via the River Churnet. The plateau was further dissected by the tributaries of these two main rivers.

North and south of the Dove there are thick deposits of glacial till that produce heavy, poorly drained soils. The Dove Valley is lined with a wide alluvial flood plain and river terrace deposits. To the north, west and east, the drift cover thins and the exposed mudstones produce more easily cultivated red soils. There is evidence of human activity by the late prehistoric period particularly within the Dove and Trent valleys. It is also likely that there was continuity of settlement within the western portion of the NCA from the prehistoric period onwards. During the Roman period, the fort at Rocester and the associated settlement on the western boundary of the NCA were linked by the road to Little Chester, located north of Derby. By the 11th century many of the villages within the river valleys had been established, surrounded by extensive open fields and with pockets of dispersed settlement and enclosed fields. Some of the medieval strip fields are fossilised within the landscape as extensive ridge and furrow earthworks surviving to the north and south of the River Dove in particular, overlain by later piecemeal patterns of enclosure.

Needwood Chase, an area of unenclosed land, became the hunting preserve of the de Ferrers barons following the Norman conquest. In 1399 it passed to the Crown as the Royal Forest of Needwood. Several private parks were established within the Needwood Forest area and clearance of woodland and wastelands around the edges of the forest began in the medieval period, encouraged by the barons and other landowners. This resulted in a landscape of scattered villages, hamlets and farmsteads within a variety of assarted enclosures. The presence of moated sites may reflect the process of colonisation, but some represent the sites of hunting lodges. Many of the medieval parks survive as the settings of country houses or in a relict form.

Ashbourne, Uttoxeter, Tutbury and Stone developed as market towns during the medieval period. Tutbury Castle was built in the late 11th century in its commanding position above the River Dove and belonged to the de Ferrers. They also founded a nearby priory, part of which survives in St Mary's Church. The isolated Chartley Castle was in existence by the mid-12th century when it passed to the Crown.

Landscape parks, manor houses, mansions and country houses emerged as a particular feature from the 16th century onwards, giving rise to a wealth of architecture. The Elizabethan hall at Somersal, the Jacobean mansion at

Sudbury Hall and the Georgian neoclassical hall at Kedleston are expressions of the productive landscape and its wealthy inhabitants.

During the late 18th century, Derby expanded dramatically through industrial development. In this area Darley Abbey is a surviving example of the Derwent Valley Mills, associated with the pioneering industrial practices of Richard Arkwright. It forms the southernmost extent of the Derwent Valley Mills World Heritage Site, which falls predominantly in the adjoining Derbyshire Peak Fringe and Lower Derwent NCA. The Trent and Mersey and Staffordshire and Worcestershire canals were established during this period and formed significant early links in the regional canal network.

Elsewhere, during the 18th and 19th centuries the area remained rural. Within the river valleys extensive networks of watermeadows survive, thought to have originally been created during the 18th and 19th centuries. Those along the Dove are particularly well preserved and were probably associated with dairying, the produce from them being sold through the important market at Uttoxeter. Needwood Forest was enclosed following an Act of Parliament in the early 19th century, resulting in a well-regulated landscape of large, regular fields, thorn hedgerows, straight roads, planned farmsteads and managed woodland blocks and shelterbelts. In contrast, the western side of the NCA retained much of the irregular, piecemeal enclosure patterns associated with clearance and colonisation from the 12th century onwards, although some heathlands were also enclosed in this period.

In the 20th century the most significant change has resulted from urban expansion and the improvement of the main roads. Many of the villages around the edge of the area increased in size during the post-war period. The edge of the City of Derby continues to expand, and Ashbourne, Uttoxeter and Burton-upon-Trent have seen considerable new development in recent years. The A50 has been improved to dual-carriageway standard and its corridor has attracted significant development, some of it in open country.

While much of the land remains as pasture, there has been an increase in arable cultivation in some parts. Blithfield Reservoir, at 320 ha, was a major addition to the landscape in Staffordshire. Today it is also used for recreational purposes – walking, angling, sailing and birdwatching.

The National Forest, established in 1990, has had a positive impact in the Needwood area where woodland planting has strengthened landscape character. Overall, despite recent urban and road expansion north-west of the Dove, the countryside of the NCA remains essentially tranquil and rural.

Ecosystem services

Needwood and South Derbyshire Claylands 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 Needwood and South Derbyshire Claylands NCA is contained in the 'Analysis' section of this document.

The complexity of interactions across these ecosystem services and across adjoining NCAs means that the summary provided here requires further refinement and analysis of evidence when applied at a more local scale.

Provisioning services (food, fibre and water supply)

- **Food provision**: The area is significant for the production of a range of food commodities including sheep and beef livestock, milk and cereals. The land features mainly Grade 3 soils, and the dominant use by area is grassland followed by cereals (at 17 per cent). Overall, there has been a marked decline in the dairy sector, evidenced by the reduction in both farm and livestock numbers. The extent of arable cultivation can vary in response to market prices.

- **Water availability**: Blithfield Reservoir and the River Dove provide significant volumes of potable water and this is supplied to parts of Staffordshire and Leicestershire. The area also provides large volumes of water for agriculture.

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

- **Regulating water quality**: Several significant rivers run through the area, including the River Dove and the River Trent. The ecological status of the NCA's rivers and waterbodies is mixed. Surface and groundwater supplies from the catchment of the regionally significant Blithfield Reservoir are assessed as good. Opportunities to increase the value of this service include landscape-scale improvements in soil management, more informed nutrient management and an expansion of wetland habitats adjacent to watercourses and in flood plains.

- **Regulating water flow (flooding):** Within the river valleys there is a high risk of flooding, particularly associated with the lower part of the River Dove which runs through the middle of this NCA and has several vulnerable settlements along its course. There is scope for mitigating existing flood risk through a combination of measures including expanding and managing semi-natural wetland habitats, improved soil management and sustainable urban drainage schemes.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration**: The NCA features a rolling and relatively tranquil rural and pastoral landscape with a variety of enclosure patterns and varying degrees of woodland, depending on the underlying soils. Dissected and bounded by broad river valleys such as those of the Dove and the Trent, it has a complex pattern of settlement.

- **Sense of history**: There is evidence in the NCA's many layers of visible history – from Roman and medieval fortifications, medieval field patterns and extensive ridge and furrow, the remnants of Needwood Royal Forest and the presence of large country parkland estates and houses. These many elements and features in the landscape reveal human activities across the ages and illustrate the rich historical character of the area.

- **Tranquillity**: The quiet reaches of undulating pastoral landscape within this NCA are important in providing accessible tranquil areas for both local residents and those of adjoining urban areas such as Derby and Burton-upon-Trent.

- **Recreation**: There is a good network of public rights of way combined with trails, cycle routes and canal towpaths in addition to historic parklands and woodlands in the Needwood area. Blithfield Reservoir and The National Forest are popular locations for recreational visits.

- **Biodiversity**: Though not large in extent, the NCA includes a notable broadleaf woodland resource and distinctive wetland habitats, including rare examples of inland salt marsh and basin mire habitat which form part of the Ramsar and SAC site designations.

- **Geodiversity**: There are few sites of geodiversity interest in this NCA, mostly in the Sherwood Sandstone Group. The superficial deposits provide much of interest, with recent work proving an easterly extension to the Devensian limit to the outskirts of Derby and Burton-upon-Trent.

Blithfield Reservoir, seen in the background, provides regional supply of drinking water and is popular for a wide range of recreational uses.

Statements of Environmental Opportunity

SEO 1: Conserve and enhance the essential character of this mainly pastoral mixed farm landscape with its distinctive field and settlement patterns, hedgerow trees, varied hedgerow types and heritage assets, enhancing and expanding the network of farmland habitats and improving access opportunities while sustaining food provision.

For example, by:

- Seeking to retain the mixed land use pattern of pasture and dairying, arable and woodland, which provides a rural character and a sense of tranquillity.
- Maintaining the distinctive enclosure patterns to conserve the historical record of small- to medium-sized fields north of the Dove; large-scale and rectilinear on the flood plains; strongly rectilinear in Needwood Forest; and smaller and more irregular to the west.
- Planting new hedgerows, hedgerow trees and associated grassland buffer strips, and managing hedgerows in traditional local Midlands style, to maintain and enhance landscape character and improve habitat connectivity, particularly where this can assist in regulating soil erosion.
- Maintaining and restoring areas of semi-natural grassland.
- Encouraging the restoration and creation of ponds.
- Conserving historical features in the landscape with heritage interest, including the remains of ridge and furrow, watermeadow infrastructure and other archaeological features.

Hedgerow trees in the wooded estatelands add to the sense of wooded enclosure in the surrounding farmland

SEO 2: Manage the area's diverse range of woodlands, veteran trees, wood pasture and parklands to enhance landscape character and safeguard their biodiversity value, while seeking opportunities to enhance access. Plan, with emphasis on The National Forest, for new opportunities to plant woods and new areas of wood pasture to expand existing sites; and create short-rotation coppice to enhance timber and biomass provision, increase carbon storage, regulate water flow and quality, and reduce habitat fragmentation.

For example, by:

- Managing commercial plantations to achieve a balance between timber production, biodiversity and recreation, while retaining intrinsic landscape character.
- Managing semi-natural woods and small woods to maintain and enhance biodiversity value and for wood fuel/biomass, including the legacy of young plantations resulting from The National Forest programmes.
- Expanding semi-natural woodland and restoring plantations on ancient woodland sites.
- Re-introducing traditional coppice management where appropriate.
- Expanding semi-natural woodland, particularly where it can link isolated woodland blocks and increase habitat connectivity within the former Needwood Forest and The National Forest; across flood plains, where wet woodland can aid the management of floodwater through water storage and provide a buffer between agriculture and wetland habitats; along lower valley sides and in the catchments of tributary streams, where it can aid the infiltration and storage of water and reduce soil erosion, particularly when planted across slopes; and also where it can help to filter views of the A50 or where it helps to integrate new development into its landscape setting.
- Seeking opportunities for planting new short-rotation coppice where this is appropriate in relation to local landscape character, and avoiding other priority habitats and archaeological features.
- Restoring existing wood pasture and extending it where appropriate to enhance the overall network of woodland habitats.
- Restoring and creating species-rich grassland and other habitats associated with wood pasture.
- Managing historic parkland, monuments, estate villages and urban parks to conserve and enhance historic landscapes and associated features and habitats. Management of parklands should include establishment of new generations of trees, appropriate management of mature and veteran trees, and retention of dead wood.

SEO 3: Protect the historic and cultural features of Needwood and the South Derbyshire Claylands, in particular the traditional settlement patterns of remaining villages, traditional farmsteads and the country estates that provide a strong sense of place.

For example, by:

- Establishing a strong landscape framework as the context for existing major settlements and potential development areas within and surrounding the National Character Area (NCA), and ensuring that their influence on the quality of the surrounding landscape is positive and that new green infrastructure is provided.
- Maintaining the setting of historic buildings, parklands, villages and farmsteads, and ensuring that new development proposals respect landscape character and local distinctiveness.
- Maintaining and restoring the diverse stock of farm buildings, encouraging continued agricultural use and managing proposals for re-use to ensure that their heritage interest is retained, making reference to Farmstead Character Statements.
- Protecting and managing parkland associated with country houses, for example Sudbury Hall, Sandon Park and Kedleston Hall, to manage vistas and preserve historic elements and veteran trees where these are present.
- Conserving and enhancing local architectural styles and traditional building materials.
- Conserving the tranquillity of the area through the planning of new development and its sympathetic design, and in particular minimising light spill and traffic noise, including from the main roads (for example, the A50, A51 and A52) to retain the 'undisturbed' feel of parts of the NCA.
- Conserving upstanding earthworks and structures of watermeadows and other archaeological remains, including ridge and furrow.

Mainly rural the NCA features a dispersed pattern of settlements giving it a sense of tranquility.

SEO 4: Manage and enhance the network of rivers, flood plains and wetlands, increasing the landscape's ability to naturally and sustainably manage flood and drought risk and provide other ecosystem services such as water supply and food provision, while recognising the needs of individual species and habitats.

For example by:

- Restoring, creating and managing grazing marsh, fens, reedbeds and ponds and ditches in flood plains and adjacent to watercourses to create a network of wetland habitats.
- Encouraging low-intensity grazing of these habitats to improve their biodiversity, minimise soil erosion and sediment run-off, and increase adaptation to climate change.
- Planting wet woodland, hedgerows and hedgerow trees in flood plains to enhance landscape character and aid water management.
- Retaining open water areas and margins at Blithfield Reservoir and former gravel pits and in the main rivers, which support wildfowl and waders; and promoting and managing recreational access in a manner sympathetic to wildlife.
- Maintaining the unique habitats and plant and animal communities at Chartley Moss and Pasturefields salt marsh through active management.

Additional opportunities

1. Manage and expand the access network of rights of way, cycle routes, canal towpaths and access land, and enhance recreational opportunities.

For example by:

- Maintaining and improving the existing rights of way network and the Staffordshire Way long-distance route.
- Creating new or improved links between urban areas and the wider countryside, particularly between Derby and land to the west, and between Burton-on-Trent and the Needwood area of The National Forest.
- Improving links to or within the wider network of canal towpaths and cycle routes.
- Promoting, increasing and enhancing areas of permissive access to woodland, wildlife sites, historic parks and other open spaces.
- Utilising opportunities to achieve the objectives of the Staffordshire, Derby and Derbyshire Rights of Way Improvement Plans.

Supporting document 1: Key facts and data

Needwood and South Derbyshire Claylands National Character Area (NCA): 81,540 ha

1. Landscape and nature conservation designations

The Needwood and South Derbyshire Claylands NCA contains 578 ha of the Peak District National Park (<1 per cent of the NCA area). In addition, 247 ha of the NCA lies within the Cannock Chase Area of Outstanding Natural Beauty (AONB).

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

- www.peakdistrict.gov.uk
- www.cannock-chase.co.uk

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Site(s)	Area (ha)	% of NCA
International	n/a	Midland Meres & Mosses - Phase 1(Chartley Moss)	107	<1
European	Special Protection Area (SPA)	n/a	0	0
	Special Area of Conservation (SAC)	West Midlands Mosses (Chartley Moss) SAC; Pasturefields Salt Marsh SAC; Cannock Chase (part) SAC	117	<1
National	National Nature Reserve (NNR)	Chartley Moss NNR	44	<1
National	Site of Special Scientific Interest (SSSI)	A total of 11 sites wholly or partly within the NCA	752	1

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.

Total area of European and international designation is 117 ha (<1 per cent of the NCA). Chartley Moss, Pasturefields Salt Marsh and Cannock Chase are all also SSSIs.

There are 259 local sites in Needwood & South Derbyshire Claylands covering 2,516 ha which is 3 per cent of the NCA.

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at: www.sssi.naturalengland.org.uk/Special/sssi/search.cfm
- Details of Local Nature Reserves (LNR) can be searched at: 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/website/magic/ – select 'Rural Designations Statutory'

1.1.1 Condition of designated sites

Condition category	Area (ha)	% of SSSI land in category condition
Unfavourable declining	9	1
Favourable	624	83
Unfavourable no change	0	0
Unfavourable recovering	117	16

Source: Natural England (March 2011)

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

2. Landform, geology and soils

2.1 Elevation

Elevation ranges from 39m above sea level to a maximum of 249m. The highest point is just south or Meir Heath, at the western boundary of the NCA, south of Stoke on Trent.

Source: Natural England 2010

2.2 Landform and process

The general character of the area is one of rolling countryside, broadly divided by the wide shallow valley of the River Dove. The area was almost certainly covered by glaciations in the early Quaternary, the last 2 million years, although there is little landform evidence of these episodes. The area was on the margin of the last (Devensian) glaciation and there is evidence of intense periglacial conditions in the form of ice wedge casts, sediment wedge polygons, solifluction and slope deposits. The changing climate over this time is recorded in the various river gravel terraces of the River Trent.

Source: Needwood and South Derbyshire Claylands Countryside Character Description, Needwood and South Derbyshire Claylands Natural Area

2.3 Bedrock geology

The majority of the region is underlain by Late Triassic mudstones of the Needwood Basin forming a south-eastwards dipping plateau. The northern margin of region is formed by Lower Triassic sandstones lying non-conformably on Carboniferous basement, producing a more rolling upland landscape. Elevated south-eastwards, the sloping plateau has been dissected by the fluvial actions of the tributaries of the River Trent and the River Dove. Triassic sandstones have been used as building stone throughout the area.

Source: Geological Narrative West Midlands Geodiversity Partnership

2.4 Superficial deposits

The broad and flat-floored nature of the River Trent and River Dove is associated with the influence of glacial meltwater that was routed through these valleys during glacial periods. Within the land bounded by the Trent, Dove and Blithe the mudstone is covered with a substantial layer of glacial till. Quaternary sands and gravels have been exploited for aggregates.

Source: Geological Narrative West Midlands Geodiversity Partnership

2.5 Designated geological sites

Designation	Number
Geological Site of Special Scientific Interest (SSSI)	0
Mixed interest SSSIs	1

There are 13 Local Geological Sites within the NCA.

Source: Natural England 2011

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

2.6 Soils and Agricultural Land Classification

South of the River Dove the thick overlying glacial till produces heavy, poorly drained soils. To the north and east the drift cover thins and the exposed Mudstones produce red and pink soils that are more easily cultivated. Pasture predominates, but arable cultivation occurs on the better land both north and south of the Dove, and in the river floodplains. There is significant woodland cover, particularly in the Needwood area.

Source: Needwood and South Derbyshire Claylands Countryside Character 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	% of NCA
Grade 1	0	0
Grade 2	5,250	7
Grade 3	56,982	70
Grade 4	15,641	19
Grade 5	0	0
Non-agricultural	654	1
Urban	3,012	4

Source: Natural England (2010)

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

3. Key water bodies and catchments

3.1 Major rivers/canals

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

Name	Length (km)
River Trent	31
River Dove	30
River Blithe	25
River Derwent	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 area is bounded to the south and east by the River Trent. The River Dove flows southwards from Ashbourne and then south eastwards to join the Trent near Burton-upon-Trent, and its wide central valley divides the NCA. To the north numerous streams drain directly into the Dove or via Sutton Brook; and in the south the rivers Blithe and Swarbourn drain southwards to join the Trent. The whole of the NCA lies within the Trent part of the Humber catchment. The Trent and Mersey Canal (25 km) is a significant feature of the southern part of the area and at Bromley Lakes and Wychnor, just outside the NCA, it joins the Trent for a short distance. The Staffordshire and Worcestershire Canal (1 km) joins the Trent and Mersey at Great Haywood.

3.2 Water quality

The total area of Nitrate Vulnerable Zone (NVZ) in the area is 81,540 ha (100 per cent of 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

The NCA contains 4,551ha of woodland, 6 per cent of the total area; of which 1,615 has is ancient woodland. 6,604 hectares, 8 per cent of the NCA, is within The National Forest; some 13 per cent of the total National Forest area is within this NCA. Planting programmes associated with The National Forest are significantly increasing the area of broadleaf and mixed woodland within the Needwood Forest area. The total figures for woodland in the NCA are probably an underestimate because of recent planting within The National Forest area.

Source: Natural England (2010) & Forestry Commission (2011)

4.2 Distribution and size of woodland and trees in the landscape

Woodland is a distinctive feature of the NCA, particularly in the former Needwood Forest, which is the only one of seven original medieval forests and chases in Staffordshire to have retained a substantial component of its original woodland. Here is extensive mixed broadleaf woodland with oak predominating; and regular blocks of conifer planting. Woods are few on the South Derbyshire Claylands, but there are woods on the scarp slopes above the River Dove. Small stands of wet woodland occur on low lying ground and in valley bottoms throughout the area. Historic parks such as Sudbury, Sandon, Kedleston and Osmaston and other smaller examples contain significant areas of woodland, and parkland trees, including important ancient and veteran trees. Hedgerow trees are a significant feature throughout the NCA.

Source: Needwood and South Derbyshire Claylands Countryside Character 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).

Type	Area (ha)	% of NCA
Broadleaved	3,086	4
Coniferous	882	1
Mixed	232	<1
Other	351	<1

Source: Forestry Commission (2011)

Area and proportion of Ancient Woodland and Planted Ancient Woodland within the NCA:

Type	Area (ha)	% of NCA
Ancient semi-natural woodland	651	<1
Ancient re-planted woodland (PAWS)	964	<1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

There is a largely intact and well-maintained framework of hedgerows throughout the NCA, with numerous mature ash and oak trees. There is some use of traditional management and maintenance methods in the Needwood Forest area.

Source: Needwood and South Derbyshire Claylands Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

The field pattern varies with small- to medium-sized fields to the north of the Dove, mostly large-scale and rectangular fields on the broad river floodplains, strongly rectilinear fields in Needwood Forest, reflecting the planned nature of the enclosure, and smaller and more irregular fields to the west, in pockets along the river valleys and to the east of Burton-upon-Trent.

Source: Needwood and South Derbyshire Claylands Countryside Character Area description; Countryside Quality Counts (2003)

The area features a well maintained network of hedgerows

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: 448 grazing livestock holdings (35 per cent); 248 dairy farms (20 per cent); 126 cereal farms (10 per cent). Farms classified as 'other', which includes smallholdings, number 290 (23 per cent). Trends between 2000 and 2009 show a decrease in the total number of holdings from 1,362 (a 7 per cent decrease). Trends also show a significant decrease in dairy farms (down from 403 – a decrease of 38 per cent) and a small increase in cereal farms (up from 101 – an increase of 25 per cent). The number of grazing units remained similar.

Source: Agricultural Census, DEFRA (2010)

6.2 Farm size

Farms of size 5 – 20 hectares are the most common, accounting for 27 per cent of holdings; followed by farms of size 20 – 50 ha, accounting for 25 per cent of holdings. Trends between 2000 and 2009 show a decrease in the numbers of all farm sizes except for holdings over 100 ha. This category totals 186, and made up 15 per cent of the total – up from 11 per cent in 2000.

Source: Agricultural Census, DEFRA (2010)

6.3 Farm ownership

2009: Total farm area = 63,373ha; owned land = 40,927ha
2000: Total farm area = 60,635ha; owned land = 42,835ha

Source: Agricultural Census, DEFRA (2010)

6.4 Land use

The dominant land use is grassland, accounting for 44,688 ha, or 70 per cent of farmed area. This is followed by cereals at 10,818 ha, or 17 per cent of the area. Oilseed and other arable crops account for much of the remainder, approximately 4 per cent each. Between 2000 and 2009 there was an increase in the area of grassland by 2,884 ha, and a decrease in the area of cereals by 2,342 ha.

Source: Agricultural Census, DEFRA (2010)

6.5 Livestock numbers

Sheep are the most numerous livestock type, a total of 96,800 animals, followed by cattle, 92,400 animals, and pigs, 14,300 animals. 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 71 per cent of the total work force. The total workforce has decreased by 12 per cent between 2000 (3,012) and 2009 (2,660). There has been a decrease of 41 per cent in the number of full time employees, and an increase of 31 per cent in the number of part time employees, between 2000 and 2009.

Source: Agricultural Census, DEFRA (2010)

Please Note: (i) Some of the Census data is estimated by Defra so will not be accurate for every holding (ii) Data refers to Commercial Holdings only (iii) Data includes land outside of the NCA belonging to holdings whose centre point is within the NCA listed.

Source: Needwood and South Derbyshire Claylands Natural Area Profile

7. Key habitats and species

7.1 Habitat distribution/coverage

Pastoral agriculture is the main land use in the NCA, and a range of grassland habitats are found, varying from damp lowland grassland and marshland to drier neutral grassland. Hedgerows and trees within hedgerows and along watercourses are important elements of this landscape. There is an unusual example of calcareous grassland at Fauld Crater, near Hanbury. Mercaston Marsh and Mugginton Bottoms, on the north-west boundary, are exceptional habitats of marshy grassland and lowland mire.

Woodland is a significant feature of the NCA and the associated invertebrate fauna is of regional importance. The Needwood area is particularly notable for its Lepidoptera, which includes over 20 nationally scarce species of moths.

Wood pasture and parkland is distributed throughout the NCA, with important associated habitats such as species-rich grassland. The ancient and veteran trees are of particular value for a range of deadwood invertebrates, fungi and epiphytic lichens.

Areas of open water including Blithfield reservoir and the major rivers, with associated floodplains, are dominant landscape features and provide important habitats for wildfowl and wading birds.
Chartley Moss is an outlying site of the West Midlands meres and mosses, comprising a partially wooded basin mire. It supports a typical range of bog plants and invertebrates, including six species of Sphagnum moss.

The small Pasturefields salt marsh is a rare example of an inland location of a coastal habitat, and is one of only two known brine spring marshes in the country. Sea plantain is known from only one other comparable inland site in Britain.

7.2 Biodiversity Action Plan (BAP) 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.

UK BAP priority habitat	Area (ha)	% of NCA
Coastal & floodplain grazing marsh	2,431	3
Broadleaved mixed & yew woodland (Broad Habitat)	1,872	2
Fens	44	<1
Lowland raised bog	43	<1
Lowland meadow	40	<1
Purple moor grass & rush pasture	22	<1
Reedbeds	2	<1
Lowland dry acid grassland	1	<1

Source: Natural England (2011)

7.3 Key species and assemblages of species

- Maps showing locations of UK BAP priority habitats are available at: **http://magic.defra.gov.uk/website/magic/**
- Maps showing locations of S41 species are available at: **http://data.nbn.org.uk/**

8. Settlement and development patterns

8.1 Settlement pattern

It is likely that some clearance had taken place by the later prehistoric period, and there is evidence of continuity of settlement from prehistory onwards, particularly within the Dove Valley.

The Peak fringe to the north of the NCA is mostly characterised by dispersed medieval and later settlement set in landscapes of small-medium scale irregular and semi-regular fields. Across the rest of the area are medium-low densities of dispersed settlement that mostly relate to the enclosure of common land and open fields. There is a broad range of very small to large-scale farmsteads, but with the smaller scale farmsteads concentrated in the northern part.

Generally, the older villages are sited along the valleys or valley sides, and on the higher ground there are scattered farms and recent crossroads settlements like Needwood - the former Forest area was transformed through regular enclosure with planted woodland and planned farmsteads off straight roads.

Ashbourne, Stone, Tutbury and Uttoxeter developed as market centres from early medieval times; all have charters from the 12th or early 13th centuries. Derby has Roman, Saxon and Viking origins, and its cathedral dates in part from the 14th century.

Urban expansion continues around the periphery of Derby, the main towns and the larger villages, and due to the impact of the A50 is also concentrated along the road corridor.

The Derby to Stoke railway line runs from east to west across the NCA, and the west coast main line skirts the southern boundary in the Trent Valley.

Source: Needwood and South Derbyshire Claylands Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

The main settlements in the Needwood & South Derbyshire NCA are: Derby, Stone, Uttoxeter, Ashbourne, Tutbury and Hatton. The total estimated population for this NCA (derived from ONS 2001 census data) is: 223,500.

Source: Needwood and South Derbyshire Claylands Countryside Character Area description; Countryside Quality Counts (2003), Natural England (2012)

8.3 Local vernacular and building materials

Red brick and plain clay tiles, notably Staffordshire blues, are the predominant building materials. Half-timbered buildings are rare; examples include Somersal Hall and the village of Abbots Bromley. Locally-quarried sandstone was used for many local churches, and for some farm buildings in the north-west of the area.

Source: Needwood and South Derbyshire Claylands Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

There is evidence for human activity by the later prehistoric period, particularly within the river Dove and Trent valleys. The Roman fort and associated settlement at Rocester, on the western boundary of the NCA, was linked by road to Little Chester in the east, which lay to the immediate north of Derby.

Needwood Chase, an area of unenclosed land, became a hunting preserve following the Norman Conquest, and in 1399 passed to the Crown as the Royal Forest of Needwood. Tutbury Castle dates from the late 11th century; the remains are extensive. A priory was founded at a similar time, and St Mary's church was a part, though it does not survive in its entirety. There are some remains of a 12th century Augustinian priory in Stone. Chartley Castle existed by the mid 12th century.

Ridge and furrow is quite extensive in the Derbyshire part of the NCA, and also survives south of the Dove, particularly around Marchington and Draycott in the Clay.

Landscape parks and their associated country houses are a feature. Sudbury Hall is a Jacobean mansion, and neo-classical Kedleston dates from the 1760s.

Darley Abbey, near Derby, is an example of the early industrial revolution found in the Derwent Valley Mills World Heritage Site. The Trent and Mersey canal, which runs through the Trent Valley, passing through Stone and Rugeley, and Staffordshire and Worcestershire canal, which joins the Trent and Mersey at Great Haywood, were amongst the earliest, being completed in the 1770s.

Source: Countryside Quality Counts Draft Historic Profile, Countryside Character Area description

9.2 Designated historic assets

This NCA has the following historic designations:

- 7 Registered Parks and Gardens covering 862 ha
- 1 Registered Battlefield/s covering n/a ha
- 75 Scheduled Monuments
- 1,7512 Listed Buildings

Source: Natural England (2010)

- More information is available at the following address: **www.english-heritage.org.uk/caring/heritage-at-risk/**
- **www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/**

10. Recreation and access

10.1 Public access

- 1 per cent of the NCA, 958 ha, is classified as being publically accessible.
- There are 1,422 km of Public Rights of Way at a density of 1.7 km per km2.
- There are 0 National Trails within the NCA.

Sources: Natural England (2010)

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

Access Designation	Area (ha)	% of NCA
National Trust (Accessible all year)	20	<1
Common Land	46	<1
Country Parks	2	<1
CROW Access Land (Section 4 and 16)	96	<1
CROW Section 15	37	<1
Village Greens	3	<1
Doorstep Greens	<1	<1
Forestry Commission Walkers Welcome Grants	51	<1
Local Nature Reserves (LNR)	15	<1
Millennium Greens	1	<1
Accessible National Nature Reserves (NNR)	0	0
Agri-environment Scheme Access	9	<1
Woods for People	861	1

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 CPRE map of Tranquillity (2006) the highest scores for tranquillity are found in the rural areas south and west of Uttoxeter, and south of Ashbourne. The lowest scores are found in and around Derby and Burton-upon-Trent. The majority of this NCA falls within areas considered to be the most tranquil or of intermediate tranquillity.

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

Category of tranquillity	Score
Highest	48
Lowest	-81
Mean	-3

Sources: CPRE (2006)

More information is available at the following address: **www.cpre.org.uk/what-we-do/countryside/tranquil-places/in-depth/item/1688-how-we-mapped-tranquillity**

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 a similar pattern to the Tranquillity Map. The impact of the major road corridors (A50, A52, A515, A518) is very apparent. A breakdown of intrusion values for this NCA are detailed in the table below.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	17	42	45	28
Undisturbed	80	56	50	-29
Urban	3	3	4	2

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are that there has been a significant decrease in the proportion of undisturbed or intruded land during the 1960s to 2007 period, 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 Forest Inventory, Forestry Commission (2011)
- 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%. The convention <1 has been used to denote values less than a whole unit.

Supporting document 2: Landscape change

Recent changes

Trees and woodlands

- Woodland character has been strengthened overall, primarily due to planting through The National Forest in the Needwood Forest area.
- Between 1999 and 2003 an area equivalent to 9 per cent per cent of the 1999 total stock was approved for new planting under a Woodland Grant Scheme agreement (277 ha), much of it associated with The National Forest which covers the eastern end of the NCA.
- Many of the woodlands are in active management, while others, particularly the smaller more remote ones, are not. This applies in the plateau farmlands especially, also in Needwood Forest and the sandstone hills and heaths.
- Wood pasture and parkland makes a significant contribution to woodland character and a number of sites have been brought into management through parkland plans.

Boundary features

- There is a mixed picture. There is a well-maintained framework of hedgerows with numerous hedgerow trees, but in some areas there has been removal. Neglect and over-cutting are leading to deterioration.
- The total length of Countryside Stewardship agreements between 1999 and 2003 covered the equivalent of 4 per cent of the total resource.

Agriculture

- The rural and farming character has generally been maintained.
- Overall between 2000 and 2009 there was an increase of 2,884 ha in the area of grassland and a decrease of 2,342 ha in the area of cereals.
- Many agricultural holdings continue to employ mixed farming systems but between 2000 and 2009 there was a decrease in the total number of holdings and a significant decrease in overall livestock numbers with a shift from dairy to lowland cattle and sheep.

Settlement and development

- Evidence suggests a divergence in traditional settlement character. On the edge of the area, the villages have increased in size in the post-war period. Although this is not a major force for change at present there is growing evidence of infill development within the small villages and hamlets which is affecting the overall character of these settlements, if not the wider landscape.

- There has been significant development on the peripheries of Ashbourne, Uttoxeter, Derby and Burton-upon-Trent, and within the larger villages. The A50 road is a focus for development pressure.

- Development pressure was in part identified for the 'marked changes inconsistent with the character of the NCA' judged to have occurred over the period 1990 to 1998 as part of the 'The Countryside Counts' assessment. Moreover in the second assessment period (1998 to 2003), development pressure continued to be significant locally.

Semi-natural habitat

- Semi-natural habitats have generally been maintained in extent. The condition of Sites of Special Scientific Interest (SSSI) is also generally favourable.

Historic features

- There is evidence of neglect in some aspects of the historic landscape such as the parklands and historic deer parks. Long Mill and West Mill which form part of the Derwent Valley Mills World Heritage Site, feature on the 2012 Buildings at Risk Register.

- There is a trend to convert historic farm buildings. The Countryside Quality Counts survey refers to about a quarter of this type of building having already been converted.

- It is estimated that 47 per cent of the 1918 area of historic parkland had been lost by 1995.

Rivers

- The ecological status of the River Dove (considered 'heavily modified') is classed as 'bad'.

- Creation of small ponds has been significant both before 1999 and subsequently.

Minerals

- Despite pressures for existing mineral resources the landscape character remains intact along the Dove due to the absence of sand and gravel extraction.

- The historic mining of gypsum continues today at the Fauld Mine, with the 6 m thick Tutbury Gypsum seam is being worked mainly for cement.

Drivers of change

Climate change

- There is likely to be species migration and loss of small or isolated habitats. New species are likely to colonise including examples of invasive non-native ones.
- There is a potential increased demand for renewable energy installations and biomass cropping.
- Summer droughts are likely to lead to increased soil erosion as result of drier soils and continued over-abstraction from local rivers, and issues associated with low flow rates in the River Blithe downstream of Blithfield Reservoir. There is an increased risk of localised flooding
- Agricultural change is likely with the potential for new crops.
- Potential for rivers changing course may occur due to excessive flooding.
- There is potential for increased land instability on steep slopes, with an increased risk of landslides.

The peat forming the rare basin mire habitat at Chartley Moss SAC also acts as a carbon store.

Other key drivers

- Continuing development pressure on the A50 corridor and in and around Derby, Burton-upon-Trent, Uttoxeter and Ashbourne is likely. South Derby and Burton-upon-Trent are areas previously identified for growth and offer associated potential for local communities to enjoy their local greenspace and take action to improve it. Due to the environmental sensitivity (historic, ecological and landscape) and the setting of Keddleston Hall, it is likely that landscape conservation will be a significant consideration on the west side of Derby.

- The trend of new development in and around villages may cumulatively bring about a change in and impact on intrinsic local character and distinctiveness.

- There is likely to be further agricultural change with the possibility of increased areas under arable production to meet food production needs. This may have implications for underground archaeological resource both visible such as ridge and furrow, and deserted villages, and buried. In addition areas of permanent pasture may be lost with possible implications for water regulation and soil carbon storage.

- The National Forest will continue to promote habitat management, new woodland planting and public access within the Needwood Forest area. Opportunities for the restoration of ancient woodland and linking of existing and new woodland through a stronger connection of mixed habitats may arise.

- The management of localised flooding in some river valleys may offer scope to combine flood management with wetland creation. Sections of river disconnected from their floodplains, offer opportunities for re-connection and the strengthening of biodiversity networks, flood management, landscape character, historic features and ecological function.

Farmland is predominately managed as grassland for livestock though arable use also features.

Supporting document 3: Analysis supporting Statements of Environmental Opportunity

The following analysis shows the projected impact of Statement of Environmental Opportunity on ecosystem service provision:

Statement of Environmental Opportunity	Ecosystem service																	
	Food Provision	Timber Provision	Biomass Energy	Water Availability	Genetic Diversity	Regulating Climate Change	Regulating Soil Erosion	Regulating Soil Quality	Regulating Water Quality	Regulating Water Flow	Pollination	Pest Regulation	Regulating Coastal Erosion	Sense Of Place / Inspiration	Sense Of History	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Conserve and enhance the essential character of this mainly pastoral mixed farm landscape with its distinctive field and settlement patterns, hedgerow trees, varied hedgerow types and heritage assets, enhancing and expanding the network of farmland habitats and improving access opportunities while sustaining food provision.	↗ *	↔ **	↔ ***	↗ *	↔ *	↗ *	↗ **	↗ **	↗ *	↗ **	↑ *	↑ **		↗ **	↗ **	↗ **	↔ ***	↑ ***	↔ **
SEO 2: Manage the area's diverse range of woodlands, veteran trees, wood pasture and parklands to enhance landscape character and safeguard their biodiversity value, while seeking opportunities to enhance access. Plan, with emphasis on The National Forest, for new opportunities to plant woods and new areas of wood pasture to expand existing sites; and create short-rotation coppice to enhance timber and biomass provision, increase carbon storage, regulate water flow and quality, and reduce habitat fragmentation.	↘ **	↑ ***	↑ ***	↗ **	↔ *	↑ **	↗ **	↗ **	↗ **	↗ **	↗ *	↗ **		↑ **	↗ *	↗ *	↗ **	↑ ***	↔ **
SEO 3: Protect the historic and cultural features of Needwood and the South Derbyshire Claylands, in particular the traditional settlement patterns of remaining villages, traditional farmsteads and the country estates that provide a strong sense of place.	↔ *	↔ ***	↔ *	↔ **	↔ **	↔ **	↔ **	↔ **	↔ **	↔ **	↔ *	↔ *		↑ ***	↑ **	↗ **	↗ **	↑ ***	↔ **
SEO 4: Manage and enhance the network of rivers, flood plains and wetlands, increasing the landscape's ability to naturally and sustainably manage flood and drought risk and provide other ecosystem services such as water supply and food provision, while recognising the needs of individual species and habitats.	↗ *	↗ *	↗ *	↗ **	↔ *	↑ **	↑ **	↑ **	↑ **	↑ **	↗ **	↔ **		↗ **	↗ **	↔ **	↔ **	↑ ***	↔ **

Note: Arrows shown in the table above indicate anticipated impact 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 impact is available.

National Importance; Regional Importance; Local Importance

Landscape attributes

Landscape attribute	Justification for selection
The river valleys and associated floodplains of the Blithe, Dove, Trent and Derwent together with Blithfield Reservoir and other wetlands support a diverse range of habitats including floodplain grazing marsh, wet woodland, an unusual basin mire and inland salt marsh.	■ The valley of the Dove divides the area into two parts, and the Trent defines its southern boundary. ■ Characteristic floodplain landscapes, with well-preserved evidence of historic water meadows in the form of earthworks and structures. Individual trees prominent and black poplars present locally. ■ Localised flooding and need for alleviation provides opportunities for habitat creation and landscape enhancement. ■ Open water at Blithfield Reservoir and the major rivers, and river floodplains provide habitats for wildfowl and wading birds. ■ As well as areas of wet woodland, damp lowland grassland and marshland that feature in the river valleys, elsewhere Chartley Moss Special Area for Conservation (SAC) and Pasturefields Salt Marsh SAC provide internationally important examples of 'schwingmoor' basin mire and inland coastal salt marsh habitat, respectively. ■ Extensive ridge and furrow survives particularly around the Dove.
Diverse woodlands and plantations throughout the area that vary in size and type including large commercial plantations in Needwood Forest, ancient woodland, wet woodland and many small woods and young plantations.	■ Overall woodland cover of 6 per cent with significant new plantations within The National Forest (covering 8 per cent per cent of the NCA). ■ Semi-natural woods are found throughout. There are significant areas of woodland on larger estates and wet woodland is found in valley bottoms. ■ The associated invertebrate fauna is of regional importance, and the Needwood area is notable for lepidoptera. ■ The former Needwood Forest is one of seven medieval forests and chases in Staffordshire and retains some of its original woodland.
Wood pasture and parkland distributed throughout the area, often in historic parks, with associated habitats such as species-rich grassland, and important veteran and ancient trees.	■ Wood pasture and parkland is a BAP priority habitat, whose importance is recognised in the Derbyshire and Staffordshire BAPs and The National Forest BAP. It is an important component of the wider woodland network. ■ Historic landscape parks are a feature of the area - examples include Sudbury, Sandon, Kedleston and Osmaston. ■ Veteran and ancient trees are prominent in the designed parklands and within older hedgerows and support deadwood invertebrates, fungi, and epiphytic lichens.

Landscape attribute	Justification for selection
A dispersed settlement pattern and distinctive villages of red brick and clay tiles, with sandstone churches; and a distribution of farmsteads that reflect different periods of enclosure.	■ Older villages are generally sited along valley bottoms or valley sides; whereas more recent settlements tend to be found on higher ground at crossroads. ■ Historic market towns of Ashbourne, Stone, Tutbury and Uttoxeter. ■ High rate of survival of historic farmsteads; and a high proportion remaining in agricultural use (40 per cent per cent) with a very small proportion converted to non-residential uses other than agriculture. ■ Local sandstone used for churches, for some farm buildings in the north west of the area. ■ Half-timbered buildings and straggling villages on former commons and wastes
A rich historic landscape, including a Roman settlement, medieval ridge and furrow, castles and moated manors, industrial archaeology, and historic parklands and wood pasture.	■ Rocester is the site of a Roman fort and associated settlement, linked by road to Little Chester, mid-way between Derby and Newcastle under Lyme. ■ Extensive ridge and furrow in the southern Derbyshire part of the area, and around Marchington and Draycott in the Clay. ■ Tutbury Castle dates from the late 11th century, there are extensive remains, and historic links to the Royal Forest of Needwood. ■ Landscape parks and the associated country houses are a feature; such as Kedleston and Sudbury. ■ Darley Abbey, near Derby is an example of the early industrial revolution that occurred in the Derwent Valley; as recognised by the World Heritage Site designation and the associated Trent and Mersey and Staffordshire and Worcestershire canals were important early part of the canal. ■ The gypsum and alabaster industry has a long history, dating back at least to the 15th century with locally derived alabaster being used in a carving industry based at Burton-on-Trent. Alabaster carvings can be seen in local churches

Landscape opportunities

- Protect and manage the mixed farm landscape of fields, hedgerow with hedgerow trees and woodlands to reinforce the distinctive field boundary patterns, retain visible heritage assets, such as ridge and furrow and deserted village sites, and retain a sense of history and relative tranquillity. Manage and re-plant hedgerows in traditional style to enhance landscape character and improve biodiversity.

- Protect and manage the wood pasture, parkland and historic parks and associated country houses to maintain important historic features, landscape character and biodiversity value. Restore existing wood pasture and extend where appropriate to contribute to the overall network of woodland habitats; and protect veteran trees in parklands and the wider landscape and plan for succession

- 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 and seeks to engage communities.

- Manage and enhance the landscape around the Blithe, Dove and Trent rivers and their tributaries to maintain the distinctive riverine characteristic of the river corridor and associated floodplains. Protect heritage assets and particularly buried archaeology in floodplains, while accommodating flood management requirements and re-connecting rivers to their floodplains.

- Appropriately manage the diverse woodlands and plantations of the area and expand woodland cover to establish links between existing blocks so as to create an interlinking and resilient network of woodland habitats, within The National Forest in accordance with The National Forest Management Plans and across the area.

- Manage the existing access network of rights of way, cycle routes and towpaths and plan new links, particularly between Burton-on-Trent and The National Forest and between Derby and the wider countryside to the west.

- By seeking opportunities to engage communities, plan for significant new green infrastructure provision in and around the towns, in association with areas previously identified for growth to the west of Burton-upon-Trent, and other planned new development, to expand the network.

- Plan for the significant expansion of wetland habitats such as floodplain grazing marsh, wet woodland and ponds through management, restoration and creation, in floodplains and river valleys, to improve habitat connectivity and sustain populations of wildfowl and wading birds and other key species whilst ensuring sensitive historic assets are maintained.

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	Livestock grazing Arable crops Fertile Soils	This area is significant for the production of a range of food commodities including cereals, livestock and milk. 78 per cent per cent of the NCA is farmed. Grade 2 soils occupy 6.5 per cent per cent and Grade 3 soils 70 per cent per cent. The 2009 agricultural census recorded some 44,700 ha of grassland and some 10,800 ha of cereals. Sheep (96,800) are the most common form of domestic livestock, followed by cattle (92,500) and pigs (14,300). Permanent pasture is decreasing.	Regional	This landscape supports a range of different farming practices with a high number of mixed agricultural holdings. Dairy and livestock are prevalent in some areas, particularly north of the River Dove and to the west of Uttoxeter. Arable farming systems prevail on the most productive soil types to the north and south of the Dove with an increased concentration in the eastern part of the NCA. Future ability to increase food production will be shaped by this soil quality and by the availability of inputs including water availability. Poor soil and nutrient management is associated with diffuse pollution and sedimentation which undermines other ecosystem services. Unsustainable increases in food provision could damage key natural and historic features of the area; would be detrimental to the provision of other environmental services and ultimately undermine the provision of services critical to future food production.	Work with local farming community to ensure good soil and nutrient management thereby securing a sustainable future for farming. Support consideration of how and where to increase arable and livestock production while avoiding adverse impacts on the natural environment. Develop opportunities for added value and local/niche products which strengthen the sense of place within Need wood and the Derbyshire Claylands.	**Food provision** **Regulating water** **Regulating water quality** **Regulating soil erosion** **Regulating soil quality** **Sense of place** **Biodiversity** **Climate regulation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Existing woodland High density of new woodland plantations	There is only 4 per cent per cent woodland cover and much of it is fragmented and under managed so timber production other than for local use is limited. New plantings have been established as part of The National Forest. There is 1,615 hectares classified as ancient woodland.	Local	Overall there is only a limited forestry industry in the area. There are commercial plantations in the Needwood and Bagot Forest areas. In addition the many small woods have some timber and biomass potential with appropriate management and can provide useful products such as fence posts, logs and woodchips for use locally. The National Forest's planting programmes are significantly increasing the area of broadleaf and mixed woodland within the Barton under Needwood area.	Improve the management of existing broadleaved woods to provide timber, and supply local markets without detriment to their biodiversity value. Increase woodland cover by establishing new woodland including areas of wet woodland in areas where it will enhance the landscape character and benefit biodiversity and a range of other key services. Encourage better management of ancient woodlands and veteran trees especially where they are associated with parklands and wood pasture habitat.	**Timber provision** **Biodiversity** **Climate regulation** **Water availability** **Water quality** **Sense of place** **Biomass**
Water availability	Reservoir Canals River network Groundwater Soils	The principal river draining the area is the River Dove. The Blithfield Reservoir, north of Rugeley, covers an area of 320 ha and provides drinking water for Staffordshire and parts of the West Midlands The flow downstream of the reservoir is reliant on compensation water from the reservoir, which in times of drought is re-circulated back to the reservoir from Nethertown pumping station. The Rivers Trent and Blithe have 'no water available' for further abstractions. The River Tean (which flows through Uttoxeter into the River Dove) and the River Dove are over abstracted. The Dove provides an important supply for spray irrigation and public water supply taken at Egginton and used to fill the Foremark and Staunton Harold Reservoirs in the Melbourne Parklands NCA. There is 'no water available' in surface water sources in the east of the NCA, around Derby. The NCA does not overlie a major aquifer except in the west, (near Stone and Milwich) where a small part of a larger aquifer underlies it - this has 'water available'.	Regional	Blithfield Reservoir and the River Dove provide important public water supplies to parts of Staffordshire, Walsall and Leicestershire. Agriculture is also an important user of water resources. Overall the main rivers in the NCA have little scope for further abstractions so it is imperative that water is used sustainably and that land and soil management practices are employed which will increase water infiltration.	Maintain ecological flow levels in rivers and other water courses by managing abstraction so as to avoid over-abstraction resulting in low flow levels. Improve management of soil. Increase areas of semi-natural habitats to increase infiltration such as grassland strips along water courses and recreation of floodplain grazing marsh. Work at the catchment scale with surrounding NCAs to improve water availability within the NCA.	**Water availability** **Regulating water flow** **Regulating water quality** **Biodiversity** **Climate regulation** **Food provision**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Genetic diversity	None	None	None	None	None	**Genetic diversity**
Biomass provision	Existing and newly planted woodlands	The existing woodland cover (4,551 ha or 6 per cent per cent of the NCA area) offers limited potential for the provision of biomass by bringing unmanaged woodland under management. There is generally a medium potential yield for both miscanthus and short rotation coppice, with a high potential yield for miscanthus in the south and east of the NCA around Burton-upon-Trent and Derby.	Local	More could be done to improve the biomass outputs from existing woodlands. The National Forest woodland plantations could make a positive contribution to future biomass resources woodlands are well managed.	Work with landowners and farmers to identify suitable opportunities to increase the net yield of wood biomass, miscanthus and short rotation coppice seeking to locate these where they may be accommodated within local landscape character and realise multiple objectives for the environment.	**Biomass provision** **Biodiversity** **Climate regulation** **Sense of place** **Regulating water flow**
Climate regulation	Existing woodland Soils Wetlands Permanent pasture	The area's woodland and fen habitat along with the active bog at Chartley Moss perform a role in the carbon sequestration and storage of carbon dioxide. The significance however this is limited due to the low woodland cover at 6 per cent per cent.	Local	The dominant mineral soils generally have a low carbon content of between 0-5 per cent, especially under continuous arable cultivation. In these cases carbon sequestration and storage can be increased by increasing organic matter inputs and by reducing the frequency / area of cultivation. Higher levels of carbon are stored in the organic soils of wet woodland, semi-natural grassland, and fen (totalling approximately 2 per cent of the NCA area). Trees and woodland make a significant contribution to climate change mitigation through carbon dioxide absorption and delivering local benefits such as shelter and shading. The active bog at Chartley Moss contains an 8 m deep store of peat.	Increase sequestration of carbon dioxide through increased area of woodland and short rotation coppice, and management of woodland through reintroduction of coppicing. Expand the area of these habitats and ensure they are well managed. Retain areas of wet peatland, semi-natural grassland and permanent pasture to maintain soil carbon storage capacity.	**Climate regulation** **Regulating water quality** **Water regulation** **Regulating soil quality** **Biodiversity** **Sense of Place**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Several major and secondary rivers Significant expanse of floodplain Ponds and wetlands Major reservoir Soils	The Water Framework Directive classification shows water quality across the area to be mixed. Groundwater chemical quality is assessed as Good throughout. The Trent and Mersey Canal and River Blithe above Blithfield Reservoir have 'good' ecological status. The stretch below has 'moderate' status as does the River Tean. On the other hand, the River Trent has' poor' status and the section of the River Dove in the NCA is in 'bad' ecological status.	Regional	Several major and secondary rivers run through this NCA. The principal river draining the area is the Dove. The Rivers Trent, Blithe, Tean and Derwent also run through this area. The Trent and Mersey Canal runs alongside the River Trent in the west of the NCA. The Blithfield Reservoir, north of Rugeley, covers an area of 320 ha and provides drinking water throughout Staffordshire. Diffuse pollution particularly from agriculture and point sources like medium-sized sewage treatment works are the main cause of unfavourable water quality in surface waters which flow through the area and into NCAs downstream.	Strengthen the hedgerow network and increase the population of hedgerow trees across the floodplain of the rivers Trent, Dove and Blithe to intercept increased volumes of sediment in time of flood. Expansion of semi-natural wetland habitats adjacent to watercourses and in floodplains, including floodplain grazing marsh, wet woodland, fens and reedbeds to assist in filtering out sediment in run off, and at times of flood. Create buffer zones around waterways to reduce sediment run off into rivers and reduce sources of pollution. Promote improvements in farm infrastructure and waste and soil management.	**Regulating water quality** **Biodiversity** **Regulating soil erosion** **Sense of place** **Regulating soil quality** **Climate regulation** **Food provision**
Regulating water flow	Flood plains and associated wetland habitats Meadows and wet woodland Reservoir Semi natural habitats Permanent grasslands Woodland Soils	Within the river valleys of this NCA there is a 'high risk' of flooding, particularly associated with the lower part of River Dove which runs through the middle of this NCA. The settlements of Hatton, Scropton, and Rolleston-on-Dove (north of Burton-upon-Trent) are recognised as flood risk 'problem areas' Flood risk in Derby is significant in the north and east of the city, associated with flooding of the River Derwent. In Uttoxeter, properties are at risk of flooding adjacent to the confluence of the rivers Dove and Tean, while through the centre of Ashbourne there is a risk to properties from flooding of Henmore Brook. The Blithfield Reservoir, north of Rugeley, covers an area of 320 ha and provides drinking water throughout Staffordshire. The flow downstream of the reservoir is reliant on compensation water from the reservoir, which in times of drought is re-circulated back to the reservoir from Nethertown pumping station.	Regional	With 5 tributaries feeding it, the slow draining lower reaches of the River Dove and associated settlements experience flooding during heavy rainfall events. Although there are many embankments and private flood defences along this section of the river, there is a need to review and update these in the face of climate change. Re-naturalisation of the flood plain can dissipate energy from the water flow and increase the ability of areas to retain floodwaters upstream of flood risk areas. Changes to water regime could lead to changes in land viability and food production or adaptive management techniques could ensure food production continues alongside a more natural flood regime. Land and soil management measures upstream in the River Dove catchment may have beneficial effects to reducing flood risk in the lower section. Additional planting of woodland on higher ground surrounding the NCA linked with other habitat creation opportunities in neighbouring NCAs may help mitigate flooding downstream within the Needwood and Derbyshire Claylands. Seek appropriate opportunities for flood storage in locations where people and property are not at risk.	Implement flood management measures in accordance with the River Trent Catchment Flood Management Plan integrating this with the provision of other ecosystem services including biodiversity, regulating water quality and sense of place. Investigate and implement sustainable urban drainage schemes in conurbations and other towns that could help local flood alleviation. Plan flood alleviation measures in conjunction with expansion and management of semi-natural wetland habitats to maximise benefits and minimise the impact of artificial structures on the character of the floodplain landscape, for example, wet woodland. Seek opportunities which allow rivers to follow natural courses and re-engage with their flood plains to provide more flood storage capacity where appropriate.	**Regulating water flow** **Regulating soil erosion** **Regulating water quality** **Biodiversity** **Sense of place**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Soils Pasture Woodlands Hedgerows	The slightly acid loamy and clayey soils with impeded drainage (36 per cent) are easily poached by livestock and compacted by machinery when the soil is wet. Weak topsoil structures can easily be damaged. Careful timing of activities is required to reduce the likelihood of soil compaction. Equally, the slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (31 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. The loamy soils with naturally high groundwater (10 per cent) have a low bearing strength and are therefore also at increased risk of soil compaction from mechanised operations, stock grazing or recreational use in wetter conditions. Diffuse pollution for example from applied manures and very fine sediments) is possible as a result of run-off due to persistently high groundwater levels or from local flooding. Soil compaction may be reduced through increased organic matter levels.	Local	Under wet conditions the slow draining soils are vulnerable to damage via compaction and capping. Improving soil quality through increasing soil organic matter will have potential benefits by lessening this problem. Where sections of rivers and streams are dredged and canalised, silts are not deposited in the flood plain as often, reducing one of the natural processes to maintain soil quality.	Employ minimal tillage and incorporate organic matter to increase levels of soil organic matter and relieve soil compaction. Increase grazing and sward diversity to increase the laying down of organic matter. Encourage the use of green manure crops such as nitrogen- fixing legumes within arable systems to replace nutrients and bind soil. Promote infield nutrient application.	**Regulating soil quality** **Regulating water quality** **Climate regulation** **Water regulation** **Regulating soil erosion**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Hedgerows Woodlands Grasslands Soil type	The slightly acid loamy and clayey soils with impeded drainage (36 per cent) are easily compacted when wet and prone to capping/slaking, increasing the risks of soil erosion by surface water run-off, especially on steeper slopes. In turn, the freely draining slightly acid loamy soils and the freely draining slightly acid sandy soils (together covering some 10 per cent of the NCA), have enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, exacerbated where organic matter levels are low after continuous arable cultivation or where soils are compacted. There is also the potential for wind erosion on some coarse textured cultivated variants and where soils are cultivated or left bare, especially in spring.	Local	Around half of the soil cover in this NCA is not subject to high rates of soil erosion, including the slowly permeable clayey soils and clayey floodplain soils (covering 43 per cent of the NCA). This is also the case for the loamy soils with naturally high groundwater (10 per cent) except where coarser textured variants occur on sloping ground. Some more loamy soils especially those upon sloping ground or with low organic matter contents are vulnerable to the risks of soil erosion by run-off and in some cases wind erosion. These risks need to be addressed by sustainable soil management practices and this should extend to include excess poaching and compaction. Careful timing of activities is required to reduce the likelihood of soil compaction where drainage is impeded and weak topsoil structure is easily damaged. Poaching by stock of stream and river banks is a local source of soil erosion.	Working with the farming community, promote good soil management through catchment sensitive farming and other initiatives so that the soils are not depleted and water quality within the River Dove and other rivers. Take steps to reinstate and strengthen hedgerows and create grass buffer strips running at right angles to the slope across steeper slopes under arable cultivation to reduce soil and wind erosion. Strengthen the hedgerow network and increase the population of hedgerow trees across the floodplain of the rivers Trent, Dove and Blithe to intercept increased volumes of sediment in times of flood. Manage access of livestock to watercourses to minimise damage to banks and lessen erosion. Encourage the use of green manure crops such as nitrogen- fixing legumes within arable systems to replace nutrients and bind soil.	**Regulating soil erosion** **Regulating water quality** **Regulating water** **Regulating soil quality** **Climate regulation** **Biodiversity** **Sense of place** **Sense of history**
Pollination	A network of semi-natural habitats Hedgerow network	The existing network of hedgerows, grassland field margins, meadows, floodplain grazing marsh provide a fragmented nectar source for pollinating insects.	Local	Poor networks of pollinator habitat limit the ability for pollinators to supply this service. Increases in habitat for pollinators such as the creation of areas of semi-natural habitat, hedgerow improvement and increases in field margins will increase the delivery of this service. These measures would create important corridors and habitats mosaics for pollinator species. Healthy pollinator populations support the production of a wider variety of food products and supports food production in the future.	Ensure that permanent pasture is maintained and seek opportunities to improve the network of semi-natural habitats, especially unimproved grassland, floodplain grazing marsh, woodland with a diverse ground flora. Encourage the planting and management of flowering hedgerows and nectar and forage mix areas (particularly in arable areas), to increase the diversity of flowering plants.	**Pollination** **Biodiversity** **Food production** **Climate regulation** **Regulating soil erosion**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pest regulation	Existing semi-natural habitats Field margins and hedgerows	Although there are areas of semi-natural habitat within the NCA these are often fragmented.	Local	Increasing diversity of species and structure of field margins will increase the ability for these areas to support populations of pest regulating species such as invertebrates, birds and mammals. There are opportunities to improve the network of semi-natural habitats across the NCA through appropriate management of existing habitats and creation of new areas of habitat.	Take opportunities to increase and manage appropriately semi-natural habitats. Seek opportunities to increase diversity of structure and composition within areas of semi-natural habitat to support a variety of pest regulating species. Seek opportunities to increase field margins, species-rich hedgerows and beetle banks to encourage a network of habitats to support a variety of pest regulating species.	**Pest regulation** **Pollination** **Biodiversity** **Food production**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place/ inspiration	Pastoral fields complimented by a strong hedgerow network Ancient and semi-natural woodland Riverine corridors and associated floodplains Semi-natural habitats Redbrick villages and half-timbered villages with sandstone churches Historic parklands, veteran trees and country houses	Countryside Quality Counts data suggests that the character of the resource has largely been maintained. However development pressure is significant in and around a number of settlements and particularly around Uttoxeter, Derby Abbots Bromley and along the A52 corridor. Much of the area is undisturbed pastoral landscape, where an important force for change is the reduction in hedge maintenance. Hedgerow management is generally good to average, but in some plateau areas especially it is becoming neglected as pastoral systems convert to arable farming.	Local	Pressure for change in this landscape is associated with development such as housing and transport infrastructure. In some rural areas the condition of the hedgerow network may be changing. This could erode the essential 'sense' of this landscape and erode the experience of connection to past cultures.	There is scope to maintain the contrast between rolling landscape north of the River Dove and the woodland 'estate' character of the Forest of Needwood. Opportunities exist to retain and restore the strong framework of hedgerows and vernacular architecture of red brick villages and sandstone churches. There are also opportunities to ensure that development respects local settlement patterns and building materials and to avoid the loss of historic evidence through insensitive development. Maintain views, incorporate green infrastructure through development opportunities in the urban fringe.	**Sense of place/ inspiration** **Recreation** **Tranquillity** **Sense of history**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Rocester Roman fort 11th and 12th century castles and priories Former royal hunting forest of Needwood Extensive ridge and furrow Landscape designed parklands and country houses Industrial heritage revealed thru mills and canals Ancient woodland veteran trees, deep high hedgerows Tranquil lanes Canals World Heritage Site Designation for its industrial heritage. Alabaster mined locally since the 16th century and supplied to Burton-upon-Trent for carving	1 per cent of the NCA comprises of Registered Parks and Gardens. There are 75 scheduled monuments and 1,752 listed buildings. Countryside Quality Counts data indicates that some of the parklands and historic deer parks (in Needwood Forest and in the plateau farmlands) are in a state of neglect. Between 1918 and 1995 it is estimated that 47 per cent of historic parkland resource was lost.	National	The NCA features many layers of visible history and these make an important contribution to its character. Parklands and associated country houses give a sense of wealth that the agricultural value of the area brought. These remain important historical assets. The main emphasis will be on protecting features but also interpreting them to a wider public audience. This could in turn lead to increased recreational opportunities and sense of place by reinforcing the historic character of the landscape.	Seek opportunities which allow upstanding archaeological earthworks such as those associated with water meadows and ridge and furrow, and below ground archaeology, throughout the NCA to be retained and protected. Retain and enhance the legacy of historic parks and the associated country houses and monuments. Seek opportunities to maintain the legacy of historic farmsteads that reflect the area's settlement and enclosure history and where appropriate promote new uses for buildings that secure their long-term future. Minimise disturbance and damage to archaeological sites resulting from cultivation. Protect areas of ridge and furrow. Conserve the Derwent Valley Mills World Heritage Site.	**Sense of history** **Recreation** **Sense of place** **Tranquillity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Quiet areas of undulating pastoral landscape despite proximity to major centres Secluded woodlands and parklands Riverine landscapes Quiet lanes	Tranquillity is a feature of much of the area away from the major urban areas, with 50 per cent of the NCA classified as 'undisturbed' according to the CPRE Intrusion Map 2007 (a decline from 80 per cent in the 1960s). .	Regional	The NCA has experienced a significant decline in tranquillity with undisturbed areas having decreased from 80 per cent in the 1960s to the current 50 per cent level. Despite this the NCA provides a significant 'tranquil' resource' close to the large populations of Derby and Burton-upon-Trent, and is particularly associated with the gently undulating pastoral landscapes north of the River Dove and the areas of woodland and parkland that define Needwood.	There are opportunities to preserve the sense of tranquillity by reducing inappropriate development outside of existing settlements and resisting urban sprawl in relatively undisturbed areas. Retain the relative tranquillity of the NCA, particularly the area north of the River Dove and the Needwood Forest area by protecting them from inappropriate development.	**Tranquillity** **Sense of place** **Sense of history** **Biodiversity**
Recreation	Network of footpaths Blithfield Reservoir Trent and Mersey Canal Historic parklands Woodlands and The National Forest Local trails	Recreation is supported by over 1,400 km of public rights of way (at a density of 1.74 km per km2), 30 ha of open access land, and a number of dedicated cycle routes. The Staffordshire Way passes through the area as does the Trent and Mersey Canal.	Regional	In this predominantly rural area quiet enjoyment of the rights of way network and country lanes are an important feature especially in the vicinities of towns and villages. The National Forest in the south provides significant new recreational opportunities, as does the Blithfield Reservoir, with provision for walkers and anglers, along with the area's historic parklands and woodlands in the Needwood area.	Maintain and enhance the opportunities for access throughout the area on public rights of way, on the long-distance routes (Staffordshire Way) on canal towpaths and cycle routes, and to areas of open access land and recreational sites; and as proposed in the Staffordshire and Derbyshire Rights of Way Improvement Plans. New developments around Derby, Burton-upon-Trent and other large settlements provide opportunities to increase recreation and link urban greenspace to the surrounding countryside.	**Recreation** **Sense of history** **Sense of place**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	Rare inland salt marsh Rare basin mire Ancient woodland Floodplain grazing marsh Lowland meadow	BAP priority habitats total 5 per cent of the NCA area (3,828 ha), primarily comprised of flood plain grazing marsh and wet woodland, as well as lowland mixed deciduous woodland. International designations apply to only a small percentage of the NCA (0.14 per cent). In total there are 11 SSSI in the NCA (totalling 1 per cent of the NCA area). In March 2011 the majority of SSSI (83 per cent) were in a 'favourable' condition; 16 per cent were in 'unfavourable recovering' condition, and 1 per cent were in 'unfavourable declining' condition	National	The area has undergone major changes in the last century. There were large scale clearances of woodlands and an abandonment of traditional woodland management. More recently, the intensification of farming practices has resulted in a more uniform landscape of larger fields, with the loss of many traditional field boundaries, flower-rich meadows, pastures, and ponds. Drainage of low-lying meadows and the modification of river channels have greatly reduced the area of available habitat to wading birds such as curlew, snipe and redshank and mammals such as the otter and water vole. However patches of semi-natural habitat do remain, often hidden away in valley bottoms or on steep slopes that have not undergone cultivation and agricultural improvement. The network of these across the landscape makes it more permeable for species movement. The remaining areas of woodland, parkland, copses, hedgerows, meadows and wetlands that characterise this area must be retained and safeguarded in order to reduce further declines in the areas wildlife.	Seek opportunities to restore degraded habitats and where possible increase areas of wood pasture and parkland, floodplain grazing marsh, wet woodland and lowland meadow, creating extensive and connected areas of semi-natural habitat which are managed in favourable condition, to increase resilience of these habitats to climate change.	**Biodiversity** **Regulating water quality** **Sense of place** **Food supply** **Timber supply** **Regulating soil erosion and quality**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Exposures of Triassic rock formations Carboniferous Stratigraphy Quaternary deposits of Anglian and Devensian Landform evolution of the central Pennines and surrounding areas Soils	There is currently 1 national and 13 local designated geological site.	Regional/ or national	Overall there are limited opportunities to study the main exposure types which characterise the area. There is a lack of exposures in the Triassic sandstones and Quaternary deposits making it difficult to interpret their geological history. With the gravel beds of the Quaternary there has been limited extraction for aggregate; opportunities should be looked at if new quarries open up for preserving faces for geodiversity. Extensive lengths of river systems have been artificially manipulated. Re-naturalising these sections would have benefits for other ecosystem services and would provide more opportunities to witness natural geomorphological processes. Near Hixon is Pasturefields an example of an extremely rare inland salt marsh. It originates from the percolation of saline surface water derived from solution of the subterranean salt-bearing rocks of the Keuper series.	Encourage more survey and identification of important geodiversity features as Local Geological Sites. Seek greater education and interpretation of geodiversity features for the wider public, with the objective of raising awareness of the value of preserving geological sites. Seek routine survey and assessment of temporary exposures to go some way towards compensating for the lack of exposures. Seek opportunities for the creation of new permanent exposures of features not currently exposed.	**Geodiversity** **Biodiversity**

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