National Character Area profile:

53: South West Peak

Supporting documents

NATURAL ENGLAND

www.naturalengland.org.uk

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.

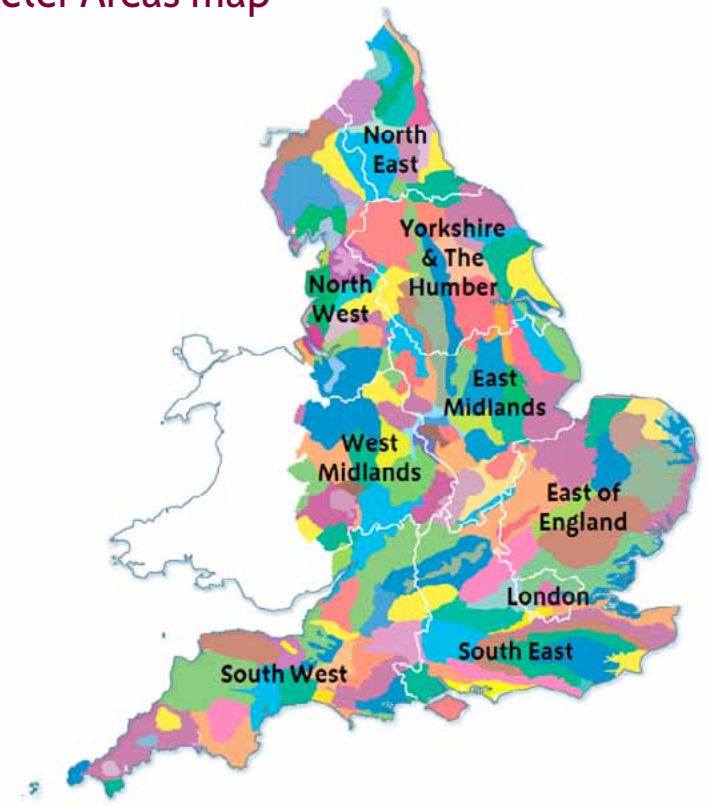
NCA profiles are guidance documents which can help communities to inform theirdecision-making about the places that they live in and care for. The informationthey contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and encourage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

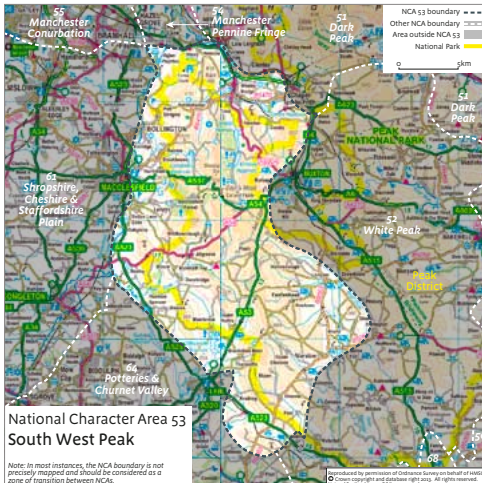
The South West Peak is an area of upland and associated foothills in the south-west region of the Pennines. It lies in the south-west part of the Peak District and 65 per cent of the National Character Area (NCA) falls within the Peak District National Park, which was Britain's first National Park, being designated in 1951. The South West Peak stretches from just south of Stockport in the north to Leek in the south, and is contained by the fringes of Buxton and Macclesfield to the east and west.

It is an upland landscape characterised by Carboniferous age Millstone Grit and Coal Measures and is often scenically and distinctly diverse. The area has an open moorland core. Strong ridges such as Morridge run north to south. The moorland core fringes fall away to gentle slopes, dissected by steep wooded cloughs, and fast-flowing streams are found at lower elevations. These open out to form wider upland river valleys, some of which include reservoirs such as Errwood and Tittesworth, and are also characterised by permanent grassland with rushy pasture, species-rich hay meadows and improved productive farmland. This working landscape is dominated by livestock farming; the fields are medium to small in size and bounded mostly by drystone gritstone walls, with some hedgerows at lower elevations. The settlement pattern is dispersed with small settlements, traditional farmsteads and isolated field barns predominantly built of local stone, reflecting the geology, history and local building traditions.

Key habitats of international importance amount to 12 per cent of the area which is designated as a Special Protection Area (SPA) and Special Area of Conservation (SAC) – Peak District Moors (South Pennine Moor Phase 1) SPA and South Pennine Moors SAC. Some 13 per cent of the NCA has also been designated as Sites of Special Scientific Interest (SSSI) which range from the large-scale Leek Moors to the significantly smaller Colshaw Pastures.

The area supports internationally important mosaics of habitats including moorland with heath and blanket mire, rushy pasture and species-rich hay meadows. These support a number of species including birds such as hen harrier, merlin, golden plover, curlew, short-eared owl, twite, red grouse and dunlin. It also includes nationally important historic landscapes and heritage assets including Registered Parks and Gardens such as Lyme Park, listed buildings and scheduled monuments.

The peaty moorland soils, where they are in good condition, store significant volumes of carbon and water, which bring important environmental benefits for water quality, climate regulation and habitat conservation. With rainfall of over 140 cm a year and impervious geology, it is an important area for water supply, with several reservoirs supplying water within the NCA and to nearby conurbations including the Stockport, Macclesfield, Leek and Stoke-on-Trent areas. The rivers Bollin, Churnet, Dane, Dean, Dove, Goyt, Hamps and Manifold all have their sources in the uplands of this NCA.



Click map to enlarge; click again to reduce.

The South West Peak is important for recreation and tourism because of the extensive open access areas, wide-ranging views, dense network of footpaths, country lanes, and the sense of tranquillity that they offer for quiet enjoyment of the countryside, along with the ease of access from adjacent towns and cities.

Future pressures for the NCA include the management of water for public supplies and maintaining river levels, mitigating and adapting to the effects of climate change, maintaining agricultural businesses, the restoration and continued management of species-rich moorland and grassland, management of woodland especially on steep valley sides, managing biodiversity, geodiversity, cultural and heritage assets, and managing visitor and recreational activities while retaining the sense of tranquillity and remoteness that is valued by so many.

Watersports on Tittesworth Reservoir; an important place for people and recreation.

Moorland at Goldsitch Moss. The South West Peak has an open moorland core, much of it designated as SSSI, SPA and SAC.

Statements of Environmental Opportunity

SEO 1: Protect, manage and enhance the open, expansive moorlands of the South West Peak and internationally important habitats and species that they support, protecting both soil and water resources.

SEO 2: Protect, manage and enhance the moorland fringes and valleys, with their mosaics of habitats including moorland, heathland, woodland, meadows and pastures, strong field boundary patterns defined by drystone walls and hedgerows, and small, dispersed settlements, to safeguard water quality, enhance biodiversity and ecological networks and strengthen the distinctive historic landscape character of the South West Peak.

SEO 3: Protect and manage the South West Peak's Upper Mersey, Weaver and Trent catchments, watercourses and reservoirs to maintain their high water quality and significance to water supply and flood risk mitigation, to enhance their nature conservation interest, and to strengthen their contribution to landscape character, and the recreational opportunities that they provide for public enjoyment.

SEO 4: Protect and manage the geological, cultural and historical features of the South West Peak, including The Roaches, Leek Moors, Errwood and Tittesworth reservoirs, and Lyme Park, to reinforce the strong relationship between the landscape, its history of land use, wildlife, and natural, archaeological and cultural heritage, by encouraging interpretation, understanding, access and recreational opportunities which would increase public enjoyment and understanding of this tranquil upland working landscape.

Mosaics of habitats, drystone walls and a dispersed settlement pattern.

Description

Physical and functional links to other National Character Areas

The South West Peak National Character Area (NCA) forms part of the upland core of the Peak District National Park. It covers parts of the counties of Cheshire, Staffordshire and Derbyshire. It is bounded by the distinctly different limestone landscapes of the White Peak to the east; the extensive lowlands of the Shropshire, Cheshire and Staffordshire Plain to the west; and the Potteries and Churnet Valley to the south; and to the north it blends into the Pennine Millstone Grit geology of the Dark Peak and the Manchester Pennine Fringe.

From the upland areas there are extensive views in all directions, but particularly to the south and west. This creates visual links to surrounding NCAs including the Potteries and Churnet Valley; Shropshire, Cheshire and Staffordshire Plain; White Peak; Dark Peak; Manchester Pennine Fringe; and Manchester Conurbation. There are also views further afield to non-contiguous NCAs including the Cheshire Sandstone Ridge NCA and beyond. The higher land within this NCA including Morridge, The Roaches, Axe Edge, Shining Tor and Cats Tor also provides views out of the South West Peak to and views from, more distant NCAs.

The rivers Bollin, Churnet, Dane, Dean, Dove, Goyt, Manifold and Hamps all have their sources in the South West Peak uplands, and some of them feed into reservoirs for public supply. The Dane flows into the River Weaver and then into the Manchester Ship Canal; the Bollin, Dean and Goyt flow into the River Mersey and out to the Irish Sea at Liverpool; and the Churnet, Dove, Hamps and Manifold flow into the River Trent, then into the Humber and onwards to the North Sea. The

Woodland recreation; a place for outdoor recreation and access.

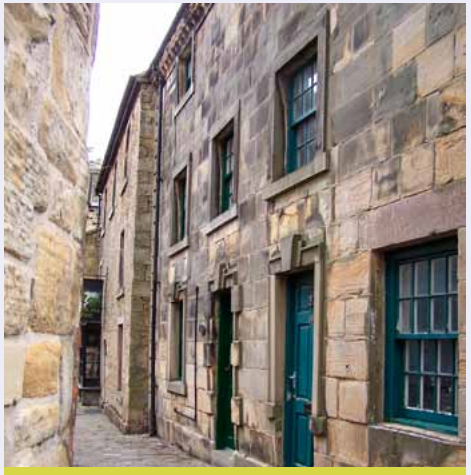
main transport links through the NCA are the A53 from Stoke-on-Trent to Buxton which runs north–south, the A523 from Leek to Macclesfield and the A537 from Knutsford to Buxton which crosses the NCA east–west over the high moorland of the Cat and Fiddle.

This NCA provides many services to its residents, and those of urban areas around the fringe. The importance of the landscape to the nation as a whole is reflected by the National Park designation. These upland areas provide a supply of drinking water, flood mitigation and carbon sequestration, and food from livestock farming. They also provide many opportunities for outdoor recreation and access which in turn provide social and economic benefits to the surrounding local areas.

Key characteristics

- An upland landscape characterised by Carboniferous age Millstone Grit with isolated basins of Coal Measures, deeply dissected by streams and rivers, resulting in a ridge-and-valley landscape of distinctive pattern and character.
- Isolated gritstone ridges and tors provide a dramatic contrast to the upland landscape, such as at Ramshaw Rocks, The Roaches and Windgather Rocks.
- Moorland core with a mosaic of landform, vegetation and wooded cloughs.
- Enclosed farmed landscape with a pastoral character created by semi-improved grassland, hay meadows, rushy pastures which are also marshy with springs and flushes, more productive farmland and small woodlands.
- Rivers Bollin, Churnet, Dane, Dean, Dove, Hamps, Goyt and Manifold, all with their sources in the upland core and some feeding reservoirs as they flow downstream.
- Extensive livestock farming (sheep and beef) and grouse shooting on the moorlands with some dairy farming in the valleys.
- Intricate and distinctive field boundary patterns often with historic associations; gritstone walls at higher elevations and hedgerows at lower elevations.
- Heritage assets from prehistory to the present, with features particularly from the medieval period and later.
- Robust architectural style built predominantly of local stone with stone slate or Staffordshire blue clay tiled roofs, reflecting local geology and history.
- Predominantly dispersed settlement across the NCA.
- Moorland area to the north of Leek used for military training; Ministry of Defence management and restricted access add to the isolated character.
- Tourism industry and outdoor recreation centred on honeypot sites including Tittesworth and Goyt Valley reservoirs, The Roaches, Ramshaw Rocks and the National Trust's Lyme Park.
- Dramatic series of gritstone edges and tors exposed by a combination of glacial and fluvial action provide distinctive landscape features and are a major focus for rock climbing.
- Remote moorlands criss-crossed by historic pack-horse routes.
- Remains of former stone quarries and coal mining activities, particularly around Flash and Goyt's Moss.
- Long, uninterrupted views from margins to upland areas and vice versa, with contained and intimate views around the foothills and within the valleys. Views into Manchester, Wales, Shropshire, Staffordshire and over the Cheshire Plain are possible from the upland core, tors and ridges.

Isolated gritstone ridges and tors provide a dramatic contrast to the upland landscape.



Robust architectural style with use of local stone with stone slate or Staffordshire blue clay tiled roofs, reflecting local geology and history.

The South West Peak today

Over half (65 per cent) of the NCA lies within the Peak District National Park. This is a diverse landscape of open moorland; wooded cloughs; upland rivers, streams and reservoirs; and enclosed farmland, a mosaic of improved pasture, rushy pasture and herb-rich hay meadows. Moorland plateau dominates the highest parts of the upland core. Much of this is covered by deposits of blanket peat, which give a smooth, rounded appearance to the landscape. On the high moorland plateau of Axe Edge, parts of Goyt's Moss and Combs Moss in the north, large areas are covered by blanket bog. There is a fragmented mosaic of vegetation with dwarf shrub heath, heather, bilberry, cotton grass and blanket bog gorse, bracken and other grasses. This habitat supports hen harrier, merlin, golden plover, curlew, short-eared owl, twite, red grouse and dunlin. These species are part of the internationally important assemblage of breeding moorland birds found across the Peak District moors.

The moorland plateau forms a wide ridge running through the centre of the NCA from north to south. The northernmost ridge between Cats Tor and Whetstone Ridge contains the NCA's highest point, Shining Tor, at 559 m, a central, lower ridge lies between Axe Edge and Flash, with the most southerly and longest ridge, Morridge, between Quarnford and Onecote. Either side of the ridges the landscape falls away, with streams draining the moorland into steep-sided cloughs and wide alluvial valleys. Some woodlands support valuable communities of ferns and lichens. They also support pied flycatcher, redstart, wood warbler and tree pipit, as well as a few pairs of raven that have now started to re-colonise the area after a long absence. These fast-flowing streams form the sources of several upland rivers and their tributaries including the Bollin, Churnet, Dane, Dean, Dove, Goyt, Hamps and Manifold. Some feed into upland reservoirs including Errwood, Fernilee, Lamaload, Trentabank,

Macclesfield Forest.

Ridgegate, Bottoms and Tittesworth which provide the NCA and the towns and villages around the perimeter with drinking water. Dipper, grey wagtail and ring ouzel are found on many of the rivers. Botanically rich plant communities have developed on the waterlogged soil of springs, flushes and valley mires with plants such as the bog asphodel, ragged robin and marsh marigold.

Away from the unenclosed upland core the land cover is mostly permanent grassland and semi-improved pasture, with rushy or marshy pasture and some species-rich hay meadows. Unimproved acid grassland, sometimes with medieval ridge-and-furrow field systems still visible, supports diverse communities with plants such as mountain pansy, harebell, moonwort and devil's-bit scabious. Field enclosure patterns vary: at high elevations the fields are large and regular, and many were reclaimed from the moor in the 18th and 19th centuries. This boundary between moorland and much older in-bye tends to fluctuate with farming fortunes and its fluidity is an important characteristic of the area. At lower elevations fields become small to medium sized and irregular to sub-rectangular in shape. The field boundaries are gritstone drystone walls, with hedgerows to the lower valleys, particularly in the south-west where hawthorn is the most common hedgerow species. The landscape is farmed predominantly for beef and sheep with some dairy farming and some grouse shooting on the moors.

The upland core has few buildings and manmade structures. On the lower, more sheltered margins, associated with the moorland edges or in-bye, there is a scattering of isolated field barns and farmsteads which mostly date from the 16th century. At lower elevations in sheltered valleys and hollows and on lower hill slopes, small, tight-knit villages, hamlets and farmsteads, many dating from the medieval period, are scattered across the landscape. These buildings have a robust appearance and are built in the vernacular style, being mostly constructed

A mosaic of habitats including improved grassland and rushy pastures.

from local gritstone with stone slate, Staffordshire blue clay tiles or blue slate roofs, although there is some use of brick in the west where the influence of the Shropshire, Cheshire and Staffordshire Plain is stronger. These buildings along with the field patterns and drystone walls are a major visual contribution to the landscape character of this NCA. It also contains Lyme Park and Mellor's Gardens, both Registered Parks and Gardens, along with 665 listed buildings.

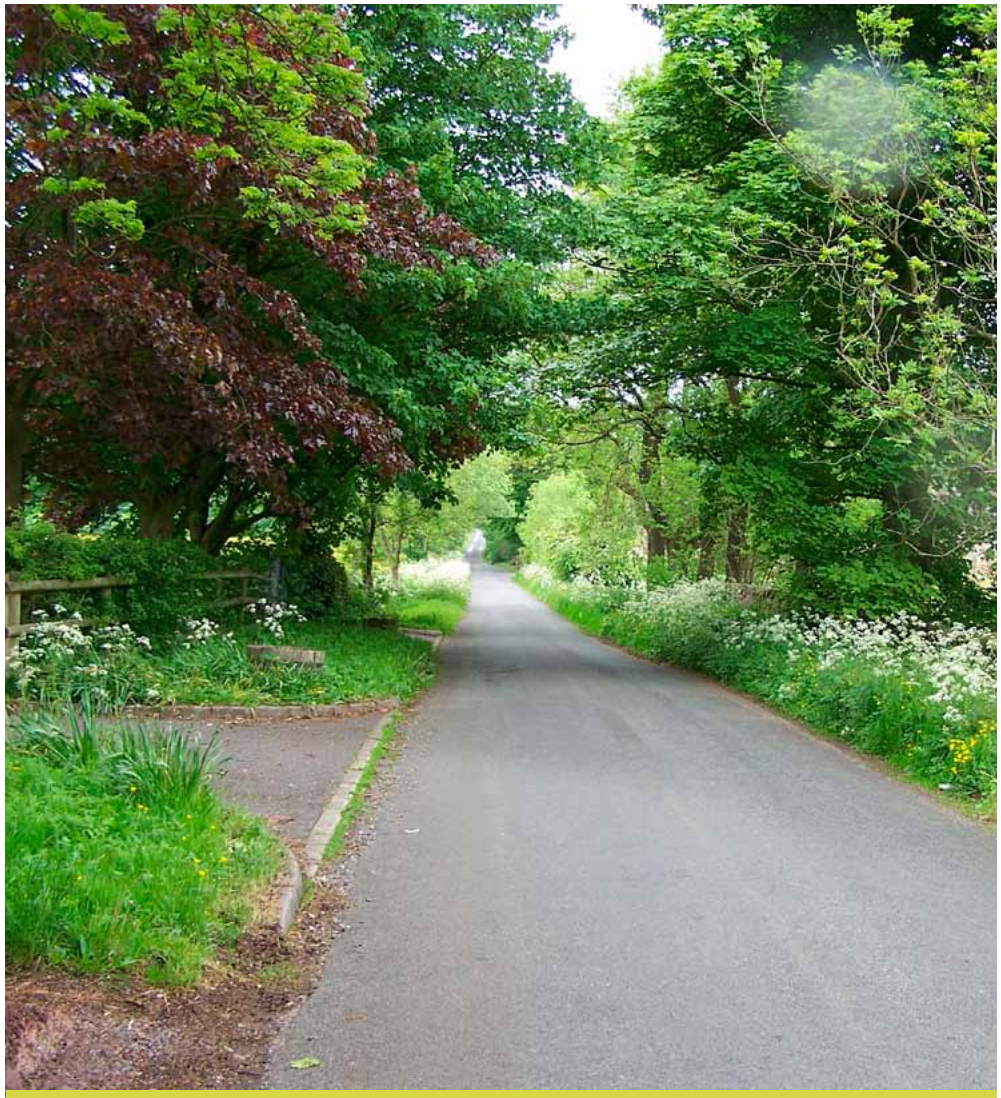
Evidence of past coal mining survives well at Goyt's Moss Colliery near Derbyshire Bridge. The range of surface features includes spoil heaps, adits, simple 18th-century shafts, later shafts with gin circles and an associated transport network of linking causeways. Buried features include shafts and post holes for winding gear. The NCA contains 59 scheduled monuments ranging from part of Goyt's Moss Colliery to numerous prehistoric burial mounds.

The landscape is criss-crossed by roads and tracks and in places they rise to cross the high moorland core. Narrow winding lanes and tracks follow the more rounded form of the foothills, crossing streams by small stone bridges or traditional fords. Some tracks are drover's routes linking upland grazing to lowland settlements, while others are historic pack-horse trading routes. Some old disused tracks are seen as hollow ways cutting across slopes or sunken into the landscape from past heavy usage. Many of these ancient routes are now used by walkers. Key routes today are north–south, the A53 road linking Buxton to Stoke-on-Trent; and east–west, the A537 Cat and Fiddle linking Buxton to Macclesfield. The tall, unmanaged grasslands of lane-side verges can be rich in flowers including meadowsweet, red campion and knapweed.

Large tracts of the farmland and woodland were owned by major estates including the Harpur-Crewe family and the Earls of Derby. However, much of the Harpur-Crewe Estate passed into the hands of the Peak District National Park Authority in the early 1980s. The Ministry of Defence also owns land to the north of Leek, some of which is used for military training and has restricted access.

The NCA is easily accessible for nearby towns and cities and is heavily used for outdoor recreation. Eighteen per cent is publicly accessible. A network of National and Regional Cycle Routes also provides recreational opportunities, connecting the NCA to the surrounding conurbations. The open moors are popular for walking, climbing and shooting, with a number of significant visitor sites including Tittesworth, The Roaches and Ramshaw Rocks, Three Shire Heads, the Gritstone Trail, Tegg's Nose Country Park, Goyt Valley and Lyme Park.

Development pressures within the NCA lie mainly within or on the fringes of settlements; these include Bollington, Whaley Bridge, Chapel-en-le-Frith, Macclesfield, New Mills and Buxton.



Quiet country lanes.

The landscape through time

The South West Peak has been shaped by the structure and erosion of the underlying Millstone Grit. The sediments were laid down in the Carboniferous Period and consist of a cyclic succession of folded shales and sandstones (Millstone Grit), isolated basins of Coal Measures and outcrops of limestone and shales to the south-east. Coal Measures outcrop in the Goyt Valley and in basins such as Goldsitch Moss and softer shales on the upland fringe east of Flash and south-east of Morridge, and there are dramatic gritstone outcrops, Ramshaw Rocks and The Roaches to the north of Leek, and Windgather Rocks to the east of Macclesfield. These large gritstone masses represent river sediments that were deposited and moved around as sea levels rose and currents shifted in large delta complexes. The area is dotted with the remains of former coal mining and stone quarrying activities. Quarries, pits and shafts are particularly common around Flash and Goyt's Moss.

Although the NCA was almost certainly covered by glaciers in the early Quaternary, there is little evidence in the landscape today. During the Devensian glaciations, the area was not covered by ice but was strongly affected by the cold conditions on the edge of the ice sheet. These conditions led to rapid erosion of the landscape giving rise to the steep slopes, rocky tors and edges that we see today such as at Ramshaw Rocks/Gibb Torr and The Roaches, which are still locally distinctive features.

The deep peat, which is between 0.5 m and 2 m deep, developed during the last 10,000 years, with the maximum growth occurring during a warmer period 8,000 to 6,500 years ago.

Archaeological evidence suggests widespread occupation of the area from prehistoric times, for example in the excavations of Neolithic settlement at Lismore Fields near Buxton and the bronze-age burial mounds that survive on hill tops and other high ground. From this period, and especially after the Bronze Age, developed the interdependence of upland grazing and lowland cultivation that has long characterised the area's farming. There is also evidence for the area's small-scale enclosures dating from the medieval period and earlier, with some evidence for oval enclosures pre-dating the Roman period. This has been subject to considerable re-organisation as larger fields. Evidence of open field farming survives in small areas (for example, around Warslow) where later boundaries perpetuate the broad outline of the long cultivation strips associated with valley settlements. Roads and tracks in the upland core – including those linking upland grazing to lowland settlements – visible as hollow ways were superseded in the 18th and 19th centuries by the present road system.

Coal mining took place at Goyt's Moss near Flash from the medieval period through to the 20th century. The coal seams were thin and of poor quality, and the mines shallow. It was not normally economic to install expensive infrastructure in order to remove significant amounts of water to enable mining at greater depth. However, the Duke of Devonshire's mines south-west of Buxton, at Goyt's Moss and Thatch Marsh, were accessed by both deep shafts were sunk, and long drainage and haulage tunnels were driven from Burbage. These provided coal for the lime burning industry at Grin Low, near Buxton.

In the northern half of the NCA, settlement may well have been inhibited until later medieval times because of the existence of three medieval hunting forests: Macclesfield Forest in Cheshire, Malbanc Frith in Staffordshire and part of the Royal Forest of the Peak in Derbyshire. Ancient field patterns exist from medieval times, but it is difficult to date individual farmsteads owing to a lack of historical

records and later rebuilding. Nucleated villages are not common, with only the old market village of Longnor and the small settlement of Sheen to the south and a series of four larger villages further south at the edge of the limestone plateau. Villages tend to be on slightly elevated land above any flood line and located on springs. All but Sheen have medieval field patterns but each of these village areas also has outlying farmsteads of a variety of dates.

Many farmsteads appeared during the 16th and 17th centuries, in tandem with the early development of field barns, and some rebuilding took place in the 17th to 19th centuries using local gritstone and stone slated roofs often replacing earlier thatch. Staffordshire blue clay roofing tiles are an important roofing material in the more lowland landscapes to the south and west. Coal mining continued through this period. The decades of enclosure following the Parliamentary Enclosure Acts in the late 18th and 19th centuries increased the rate of enclosure and resulted in the landscape of fields with walls and hedgerows on the lower slopes. Unfortunately this led to the destruction of many ancient features.

Occasional quarries for building stone and roofing slates can also be found throughout the area, often in remote moorland locations. These industries shaped the patterns of settlement: the additional livelihoods from mining and quarrying allowed much denser settlement of agriculturally poor land, particularly in the area around Flash.

The 18th and 19th centuries saw small mills develop powered by water sourced from the fast-flowing streams and rivers including Longnor Sawmill and at Brund and Upper Hulme.

In the 20th century agriculture remained one of the major land uses, and experienced significant change. After the Second World War there was a demand

Longnor village showing distinctive local gritstone and sandstone building materials.

to produce more food. Farmland in the South West Peak underwent significant drainage and 'improvement', with stock numbers rising to a high in the 1980s and 1990s. These increases in agricultural productivity resulted in the loss and modification of semi-natural habitat, particularly wetlands and unimproved grasslands. Field barns were too small and fell into disuse in favour of larger, modern farm buildings that could house more stock and be managed with machinery. During the 1990s and 2000s public funding moved from production-based subsidies to payments for environmental enhancements through

Environmental Stewardship agreements. Overgrazing became less common and restoration of historic features and habitats increased. Substantial public funding, through nationwide schemes and National Park initiatives, has gone towards restoring the drystone walls and traditional farm buildings that are so distinctive of the South West Peak. Many field barns do, however, remain at risk and in need of maintenance and/or repair. Although a large proportion of the NCA is covered by Environmental Stewardship, there are still habitats in need of restoration, including blanket bogs, and others that are vulnerable to loss owing to financial pressure on farming, such as traditional hay meadows.

There is no longer any mining industry and agriculture remains the predominant land use. However, there is greater use of the South West Peak for recreation including walking, sightseeing, climbing, angling and cycling. The National Park Authority has created opportunities for access including a network of small car parks such as at Hulme End and Wildboarclough. Tittesworth Reservoir has developed into an attraction in its own right with car parking and a visitor centre. Other attractions include Tegg's Nose Country Park, Lyme Park and Macclesfield Forest, while the Macclesfield Canal at the western edge of the NCA provides a range of opportunities for leisure and recreational pursuits, which in turn support the local economy.

Twentieth-century National Park and greenbelt designation restricts development in these areas, pushing demand for housing and other development into larger settlements outside them such as Dove Holes, Chapel-en-le-Frith and Bollington. Countryside locations are favoured for barn conversions for tourist accommodation. Agricultural development includes modern structures and farm buildings for muck storage facilities and over-wintering livestock.

Isolated field barn, Longnor.

Ecosystem Services

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

Provisioning services (food, fibre and water supply)

- **Food provision:** The South West Peak is an important area for upland livestock farming. Many traditional farming practices are still employed. The area's commercial agricultural land is predominantly (97 per cent of the NCA) permanent grass or uncultivated land. None of the land within the NCA is Grade 1 or 2, and only 4 per cent is classified as Grade 3 (good to moderate). Some 93 per cent is Grade 4 or 5, which is classified as poor. The agricultural land found within the NCA is predominantly used for rearing sheep and cattle, although there is some dairy and pig farming in the lower valleys. There has been a significant decline in the number of dairy farms throughout the NCA, and 35 per cent have been lost since 2000, although the NCA has seen a rise in the numbers of beef and sheep farms. All livestock numbers have dropped significantly since 2000 with 16.5 per cent fewer sheep, 15 per cent fewer cattle and a third fewer pigs. Opportunities to increase livestock production sustainably must be seized with support given to local provenance branding linked to environmental initiatives.

- **Timber provision:** Woodland cover is limited to just 8 per cent of the NCA, of which 3 per cent is mixed woodland, 60 per cent broadleaved, 34 per cent coniferous and the remainder shrubs, young trees or felled for planting. Thirteen per cent of the woodland is classed as ancient. There has been an increase in the area of woodland cover since 1999 of 57 ha and it is still increasing. Wooded character is more common on slopes and valley sides. There are large 20th-century plantation woodlands including extensive areas of coniferous woodland in Macclesfield Forest and Goyt Valley. Opportunities should be sought for the production and marketing of small-scale local woodland products, including wood fuel, from better managed woodlands.

Upland livestock farming.

- **Water availability:** High altitude and over 140 cm of rainfall per annum make the South West Peak a valuable water catchment area. The upland core provides the sources and headwaters of several rivers that form tributaries of the Mersey, Trent and Weaver. Within the NCA, the rivers feed into numerous small-scale upland reservoirs which provide drinking water. There is potential to maintain and improve water quality across the catchments by working with water companies, farmers and landowners to restore and maintain semi-natural habitats and reduce sediments and contaminants.

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

- **Climate regulation:** The organic peaty soils of the South West Peak's upland core generally have high carbon content (usually around 20–50 per cent) and are associated with the expanses of blanket bog and wet-heath habitats. This offers opportunities for climate regulation where the habitats are in good condition. Historic damage to blanket bog habitats has reduced carbon sequestration levels, but habitat restoration and conservation offer an opportunity to enhance climate regulation. Peat soils if of poor quality may be releasing previously stored carbon. Soil carbon is also high under areas of woodland and carbon storage may also be provided by well-managed woodland.

- **Regulating soil erosion:** Over a third of the soils covering this NCA are of high peat content and subject to erosion where the covering of semi-natural vegetation has been lost. These soils are also prone to erosion from high winds, especially when the soils are dry. The fast-flowing streams and rivers have potential to erode their banks easily in cloughs and on steep slopes, especially where there is little or no vegetation cover. River bank soils are particularly vulnerable to erosion during storm flood events. Opportunities should be sought to restore and maintain vegetative cover, and maintain and improve the hydrological functionality of blanket bog.

- **Regulating soil quality:** The majority of soils in the NCA are of poor agricultural quality. These soils contain significant volumes of organic matter which is at risk from erosion and climate change (from potential extreme weather events). There are opportunities to restore and maintain soil structure and vegetative cover, reduce compaction, improve water infiltration and reduce run-off.

- **Regulating water quality:** Fast-flowing streams dissect the South West Peak landscape, forming deep valleys or cloughs on the moorland edge. Flow rates vary, especially after heavy rain. In the upper reaches the water quality is very good but this declines slightly as the water reaches the lowland valleys, mainly through agricultural run-off, sewage effluent and, locally, industrial discharges. There is a need to work with farmers and landowners to address point sources of pollution. Overall, river quality is predominantly very good, and across the three catchments ranges (as rated by the Environment Agency) from very good to fair. Manmade reservoirs provide drinking water. There are opportunities to work with farmers and landowners to conserve and maintain moorland and grassland habitats, manage river corridors to prevent erosion, demonstrate good agricultural practices and manage run-off.

- **Regulating water flow:** The topography of the South West Peak means that watercourses respond rapidly to high rainfall events and may cause rapid run-off, sediment loading and localised flooding along the valleys, affecting settlements downstream beyond the South West Peak. There is an opportunity to slow surface water flows locally by increasing water storage in the NCA by intercepting and retaining water for longer in riverside meadows and pastures and allowing watercourses to meander naturally through their flood plains.

Managing vegetation along river banks and reducing erosion through livestock access would reduce instances of sediment loading.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** The NCA forms part of the Peak District National Park. It is a remote upland landscape with a high moorland core, surrounded by lower hills dissected by steep cloughs that open into wider river valleys such as the Dove and Manifold valleys. It is a distinctive ridge-and- valley landscape with small woodlands, mixed farming, isolated farmsteads and small settlements. The use of local gritstone and robust vernacular architecture has created a strong traditional character for its rural buildings and farmsteads. There are contrasting landscapes of open moorland and enclosed uplands, encompassing a mosaic of habitats, with strong field boundary patterns of dry gritstone walls and hedgerows, all creating a distinctive sense of place. There are extensive views out of the NCA to the north, west and south and vice versa, although the views to the east and within the NCA around the foothills are more contained. Opportunities should be sought to restore, maintain and protect the mosaic of habitats, network of fields, walls and hedges and settlement patterns, and to promote tourism and quiet enjoyment of the countryside.

- **Sense of history:** Evidence from Mesolithic and Neolithic periods is reflected in the discovery of stone tools and flint scatters. There is also evidence of prehistoric settlement and field systems south of Buxton. Bronze-age burial mounds are visible around the margins of the valleys and above the range of prehistoric cultivation. Many farmsteads are of medieval origin. There is evidence of a mining industry from the medieval period to the early 19th century from above-ground earthworks and buried remains. Areas of the NCA were known to be parts of royal and private forests. There are historic

Rushy pasture and dilapidated field walls.

parklands at Lyme Park and Swythamley. Ancient roads and tracks in the upland core are visible as hollow ways, superseded in the 18th and 19th centuries by the present road system. Opportunities exist to protect, conserve and enhance the archaeological and historic interests of the area, while improved access and interpretation would increase public understanding and enjoyment of them.

- **Tranquillity:** The area is an important resource for tranquillity and provides an experience of wild, open spaces for many people, including those living in the adjacent urban areas of Leek, Macclesfield, Buxton and Stockport. Some 55 per cent of visitors to the Peak District National Park in 2005 did so for the tranquillity, and 68 per cent of the NCA is classed as undisturbed.[4] Levels of disturbance (noise and light pollution) increase close to road corridors, settlements and the urban fringes. A sense of tranquillity is strongly associated with the upland moorland core, the quieter valleys and farmland with long-distance views, historic villages, a network of country lanes, and a mosaic of woodland, meadows and pastures. Opportunities should be sought to safeguard tranquillity, through appropriate development, and to reduce car-based visitor traffic.

- **Recreation:** The Peak District National Park receives over 10 million day visits a year. Some 61 per cent of visitors come for the beauty and scenery. There are 1,022 km of rights of way, with a density of 2.4 km per km^2. Open access land covers 16.6 per cent of the NCA (7,100 ha), with a total of 18 per cent being publicly accessible. The NCA is a popular destination for climbers and walkers from the surrounding urban areas, with key sites at Lyme Park in the north and The Roaches and Ramshaw Rocks to the south, and reservoir sites such as Tittesworth, Errwood and Fernilee.

To the west, the Macclesfield Canal caters for a range of leisure pursuits, while the woodland area of Macclesfield Forest offers additional recreational resources. The networks of quiet country lanes provide further opportunities for walking and horse riding, and these are complemented by a series of National and Regional Cycle Routes which cross the NCA. Other popular activities include cycling, birdwatching and fishing. The NCA can continue to provide opportunities for quiet enjoyment of the countryside.

- **Biodiversity:** A total of 13 per cent of the area of the NCA is covered by international and national nature conservation designations (SPA, SAC and SSSI) and a further 9 per cent by local sites. These upland habitats include blanket bog and dry heath with species such as cotton grasses, heather, bilberry and crowberry. Much of the grassland is improved and therefore unimproved grasslands and hay meadows are rare. Opportunities should be sought to maintain and enhance the designated habitat for particular bird assemblages.

- **Geodiversity:** Exposed gritstone tors and edges together with their boulder-strewn slopes and manmade reservoirs are particularly distinctive landscape features in the South West Peak. Mixed interest SSSI contain geological features of national importance. The underlying geology has an impact on the soils, vegetation cover, species and habitats found within the NCA and influences the landscape character. The impermeable geology enabled the construction of the reservoirs that provide the NCA and nearby conurbations with drinking water. Opportunities should be sought to conserve and enhance the geodiversity interest and provide public access and interpretation to widen the knowledge and understanding of these elements of the South West Peak's character and distinctiveness.

[4] Campaign to Protect Rural England Intrusion Map, 2007

Statements of Environmental Opportunity

SEO 1: Protect, manage and enhance the open, expansive moorlands of the South West Peak and internationally important habitats and species that they support, protecting both soil and water resources.

For example by:

- Managing and enhancing the extent, diversity and condition of moorland habitats to ensure that they can support the important assemblages of bird species, including merlin, golden plover, curlew, short-eared owl, twite, red grouse and dunlin, allowing population sizes to be maintained and where possible increased.
- Maintaining and restoring vegetation cover on degraded areas of blanket bog to sphagnum-dominated bog, to promote active peat formation and encourage carbon sequestration and to reduce soil erosion.
- Maintaining and restoring degraded heathland communities through sustainable grazing regimes to reduce poaching and aid water infiltration, ensuring that burning and cutting programmes promote structural and biological diversity, and reduce the loss of peaty soils through erosion.
- Seeking opportunities to retain water, slow down run-off by re-wetting, and maintain and re-vegetate peat surfaces to bring blanket bog back into favourable ecological and hydrological condition, reducing water discolouration, sediment loss and peat erosion and improving downstream water quality.
- Seeking opportunities to restore and enhance links between fragmented upland habitats to improve the condition and increase the area of vegetation and achieve a strong, resilient ecological network that can combat climate change and support more species.
- Ensuring that archaeological sites and historic and cultural features including historical tracks, mile posts, boundary markers and roadside drinking troughs are conserved and retained to preserve and enhance the landscape character and distinctiveness.

Keeping upland streams and rivers in good condition is important particularly as the NCA supplies water to urban areas on its fringes.

SEO 2: Protect, manage and enhance the moorland fringes and valleys, with their mosaics of habitats including moorland, heathland, woodland, meadows and pastures, strong field boundary patterns defined by drystone walls and hedgerows, and small, dispersed settlements, to safeguard water quality, enhance biodiversity and ecological networks and strengthen the distinctive historic landscape character of the South West Peak.

For example by:

- Planning for the expansion of various habitats, informed by an understanding of the historic development of the area, to create an interconnected network and mosaic of habitats, for climate change resilience and to enhance landscape character.
- Conserving and enhancing the mosaic and diversity of woodlands, trees, grasslands and semi-natural habitats by working with farmers and landowners to restore and maintain these habitats in a favourable condition in order to enable them to capture and store carbon, and to reduce run-off and sedimentation in rivers.
- Managing woodlands to enable natural regeneration of existing woodlands and planting of new small-scale native woodlands, including the exclusion of livestock and deer. Expanding and re-planting existing woodlands (particularly small areas of ancient semi-natural woodland in the Dane Valley) to strengthen landscape character and improve their role in capturing and storing carbon, while retaining significant archaeological sites within them.
- Expanding and linking fragmented areas of upland deciduous woodland, including thinning conifer woodlands to increase the proportion of native woodland.
- Ensuring that clough woodlands are well managed to reduce run-off, improve water quality and strengthen their role in capturing and storing carbon.
- Promoting the use of trees of local genetic provenance, free from disease, for stocking and re-planting to reduce opportunities for the spread of disease.
- Promoting the management of species-rich hay meadows and pastures, to conserve and enhance their biodiversity interest.
- Maintaining the pastoral character of lower hills and river valleys by encouraging good land, water and soil management practices and sustainable grazing regimes, to maintain a sustainable livestock farming sector and reduce sediment loading and pollution in rivers.
- Conserving and enhancing the local building tradition expressed through vernacular buildings and strong field and settlement patterns defined by drystone walls and hedgerows, by promoting the maintenance and restoration of traditional farmsteads, listed buildings and field boundaries, and respecting the local building tradition, using traditional materials and local stone. Managing development within the built environment to retain the distinctive character of the area's settlements.

SEO 3: Protect and manage the South West Peak's Upper Mersey, Weaver and Trent catchments, watercourses and reservoirs to maintain their high water quality and significance to water supply and flood risk mitigation, to enhance their nature conservation interest, and to strengthen their contribution to landscape character, and the recreational opportunities that they provide for public enjoyment.

For example by:

- Promoting a whole-catchment approach to enhancing the water quality of the South West Peak's reservoirs, rivers and streams to restore and maintain very good water quality and comply with the Water Framework Directive.
- Ensuring that any future local and regional development addresses water use, abstraction and demand, to minimise impacts on water quality, resources, flood risk and associated aquatic habitats, and to improve the ecology and resilience of reservoir and river systems.
- Promoting conservation and sustainable use of water, to ensure a continued supply from the South West Peak's upland reservoirs, rivers and streams.
- Working with the farming community to promote good land, soil and water management on farmland, and ensuring that farm practices maximise grass growth, minimise run-off rates and reduce diffuse pollution.
- Promoting sustainable river management that works with natural processes and allows storage of floodwaters, reducing run-off rates and managing the downstream flood risk.
- Working with the farming community and water companies to manage bogs and mires in order to protect peat soils, increase water holding capacity and encourage active peat formation to mitigate the effects of climate change.
- Promoting sustainable recreational opportunities on lakes, rivers and canals, enabling quiet enjoyment, while continuing to conserve and enhance biodiversity.

Iconic geological features such as The Roaches, Hen Cloud and Ramshaw Rocks.

SEO 4: Protect and manage the geological, cultural and historical features of the South West Peak, including The Roaches, Leek Moors, Errwood and Tittesworth reservoirs, and Lyme Park, to reinforce the strong relationship between the landscape, its history of land use, wildlife, and natural, archaeological and cultural heritage, by encouraging interpretation, understanding, access and recreational opportunities which would increase public enjoyment and understanding of this tranquil upland working landscape.

For example by:

- Promoting the conservation and enhancement of historic and designed landscapes, such as parkland and gardens, and industrial heritage assets, including providing improved interpretation and educational opportunities to increase people's understanding and enjoyment.
- Conserving and enhancing geological interests, where appropriate, keeping important geological exposures such as gritstone edges, boulder slopes, quarry faces, tors and cloughs visible and accessible, while managing the challenges of recreational activities at locations such as The Roaches.
- Conserving and enhancing archaeological interests and providing opportunities to increase people's understanding and enjoyment of archaeological heritage through improved interpretation and education. Improving the condition of heritage assets across the moorlands through appropriate measures and seeking to reduce conflicting or unsympathetic management regimes, while recognising the high potential in this landscape for undiscovered remains.
- Ensuring that any expansion of settlements is sustainable and does not negatively impact on the settlement character and distinctive landscape; any development should consider community needs, while protecting the nationally important natural, cultural and historic features, and the contribution they make to local distinctiveness and sense of place.
- Promoting sustainable tourism and quiet enjoyment of the countryside that integrates the management of visitors with the enhancement of the area's cultural, natural, geological, archaeological and historic features to increase visitors' knowledge and experience of the distinctive qualities of this South West Peak landscape.
- Encouraging the delivery of a sustainable transport network with improved public transport, including transport to and from key tourist areas to reduce traffic and parking pressures, for example at The Roaches, and car-borne tourism.
- Maintaining the high level of public access with extensive areas of open access land and the dense network of rights of way, with clear but discreet signposting where necessary to conserve and enhance this predominantly rural landscape.
- Managing visitor activities and ensuring that paths are maintained to prevent undue erosion which would harm visitors' and residents' experiences of this tranquil landscape.
- Encouraging more people to visit this scenic, distinctive landscape for quiet enjoyment of the countryside, helping visitors to understand their surroundings and valuing the contribution it makes to their own health and wellbeing.

Continued over...

SEO 4 continued...

- Encouraging visitor access to the countryside by sustainable transport modes to reduce the pressures on the roads, damage to highway verges and congestion at popular sites, and ensuring that such infrastructure is designed sensitively to respect natural and cultural assets.
- Providing interpretation of the many historical, cultural and geological features of South West Peak, highlighting the influence that these have had on the development and land uses of the area. Facilitating public access to places of interest.
- Minimising light pollution from industry, settlements and traffic to retain the sense of remoteness and tranquillity, including sites outside South West Peak.
- Raising awareness of, and encouraging community involvement in, planning and management decisions within the NCA.
- Appropriately managing the impact of visitor- and tourism-based business within the area, while understanding the importance of the cultural heritage to this industry, and its importance for the local economy.

Keeping upland streams and rivers in good condition is important particularly as the NCA supplies water to urban areas on its fringes.

Supporting document 1: Key facts and data

Total area: 42,568 ha

1. Landscape and nature conservation designations

27,888 ha of the Peak District National Park fall within the South West Peak NCA.

Management plans for the protected landscape(s) can be found at:
http://www.peakdistrict.gov.uk/

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	% of NCA
International	n/a	n/a	0	0
European	Special Protection Area (SPA)	Peak District Moors (South Pennine Moor Phase 1) SPA	5,294	12
	Special Area of Conservation (SAC)	South Pennine Moors SAC	4,451	10
National	National Nature Reserve (NNR)	None	0	0
National	Site of Special Scientific Interest (SSSI)	A total of 12 sites wholly or partly within the NCA	5,553	13

Source: Natural England (2011)

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

There are 137 local sites in the South West Peak NCA covering 3,715 ha which is 9 per cent of the NCA.

Source: Natural England (2011)

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

1.1.1 Condition of designated sites

A breakdown of SSSI condition as of March 2011 is as follows:

SSSI condition category	Area (ha)	% of SSSI land in category condition
Unfavourable declining	258	5
Favourable	840	15
Unfavourable no change	264	5
Unfavourable recovering	4,157	75

Source: Natural England (March 2011)

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

2. Landform, geology and soils

2.1 Elevation

The lowest elevation in this NCA is 110 m. The highest point is at Shining Tor, 559 m on the ridge between Cats Tor and Whetstone Ridge. The mean elevation across the NCA is 312 m.

Source: Natural England 2010

2.2 Landform and process

The area is one of upland flanked by lower hills and indented by valleys. The hills and ridges have a north-south alignment with the highest land to the north and with lower discontinuous ridges in the south and east. The fringes are dissected by river valleys which make deep and irregular indentations into the upland edge. To the west the valleys broaden into gentler undulating lowlands towards the Cheshire Plain.

Source: South West Peak Countryside Character Area Description, South West Peak Natural Area Profile

2.3 Bedrock geology

The geology of the area comprises an interbedded and folded succession of Carboniferous age shales and sandstones ('gritstones') with isolated areas of Coal Measures and outcrops of limestone and shale to the south-east. The NCA is dominated by scenery produced through the erosion of the Millstone Grit Series, which was deposited as a series of large river deltas, during the Carboniferous.

Source: South West Peak Countryside Character Area Description; Natural England 2010

2.4 Superficial deposits

Although the NCA was almost certainly covered by glaciations in the early Quaternary, there is little landform evidence of this episode. The area was not glaciated during the last (Devensian) glaciation but shows evidence of intense periglacial conditions in the form of ice wedge casts, sediment wedge polygons, and solifluction and slope deposits. Tors formed on some summits as a result of deep chemical weathering in pre-glacial and interglacial times. Peat deposits occur across large parts of the area.

Source: South West Peak Countryside Character Area Description

2.5 Designated geological sites

Designation	Number of Sites
Geological Site of Special Scientific Interest (SSSI)	0
Mixed interest SSSI	2

There are 30 Local Geological Sites within the NCA

Source: Natural England (2011)

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

2.6 Soils and Agricultural Land Classification

The high altitude and heavy rainfall has created acidic soils dominated by moorland vegetation. In the north, large areas are covered by blanket peat deposits.

Source: South West Peak Countryside Character Area Description

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

Agricultural Land Classification	Area (ha)	% of NCA
Grade 1	0	0
Grade 2	0	0
Grade 3	1,761	4
Grade 4	23,316	55
Grade 5	16,237	38
Non-agricultural	991	2
Urban	262	1

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 Dane	19
River Goyt	11
River Manifold	11
River Dove	9
River Wye	1
River Dean	<1

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.

Watercourses throughout the South West Peak dissect the landscape, with fast flowing streams cutting deep valleys or 'cloughs'. The upland streams which rise on the moorland edge are fast flowing with stony beds and can show considerable variation in flow rates after heavy rain. In the upper reaches they are of very good water quality, but this declines as they reach the lowland valleys mainly as a result of agricultural runoff, sewage effluent and, locally, industrial discharges. Reservoirs occur in some valleys, both in the far north and south of the NCA, as well as more isolated areas on the moorland edges around Buxton. Ponds are a scarce feature; a few can be found on the moorland, or in some valleys in the form of old oxbows and millponds. In some locations, flooded bell-pits and sections of canal add to the variety of wetland features.

Source: Natural England (2010)

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 39,611 ha or 93 per cent of the NCA.

Source: Natural England (2010)

3.3 Water Framework Directive

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

4. Trees and woodlands

4.1 Total woodland cover

The NCA contains 3,247 ha of woodland or 8 per cent of the total area, of which 438 ha is ancient woodland.

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

4.2 Distribution and size of woodland and trees in the landscape

Broadleaved woodlands are generally limited to the steep sheltered valley heads. Small windswept groups of sycamore, beech or oak are associated with isolated farmsteads and are commonly enclosed by the dry stone walls.

Source: South West Peak Countryside Character Area Description

4.3 Woodland types

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

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

Woodland type	Area (ha)	% of NCA
Broadleaved	1,944	5
Coniferous	1,096	3
Mixed	92	<1
Other	115	<1

Source: Forestry Commission (2011)

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

Woodland type	Area (ha)	% of NCA
Ancient semi-natural woodland	355	1
Ancient re-planted woodland (PAWS)	83	<1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Gritstone walls enclose the higher fields while hedgerows are more common on lower ground and the foothills, with a prevalence of holly in valley bottoms in the south-west.

Source: South West Peak Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

Grazing land in the upland areas includes both large enclosures on lower, better drained and flatter margins to the moor and small, clean, in-bye enclosures around isolated farmsteads. Many of the large enclosures are areas of land that have been reclaimed from the moor in the past.

Source: South West Peak Countryside Character Area description; Countryside Quality Counts (2003)

6. Agriculture

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

6.1 Farm type

More than half of holdings are upland livestock, 447 holdings in 2009, and 13 per cent of holdings, 109, are dairy farms. The number of dairy farms decreased in number by 58 between 2000 and 2009.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Half of farm holdings are smaller than 20 ha, although they account for less than 10 per cent of the agricultural area (these figures do not include the access that many farms have to common grazing on the moors). Twenty-seven per cent of holdings are greater than 50 ha in size and cover almost 75 per cent of the agricultural area.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

2009: Total farm area = 35,211 ha; owned land = 24,412 ha
2000: Total farm area = 34,321 ha; owned land = 25,279 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

The area's commercial agricultural land is predominantly, 97 per cent, permanent grass or uncultivated land.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

In 2009 there were 138,200 sheep, a decrease in number from 165,600 in 2000, there were 30,400 cattle, again a decrease from 35,800 animals in 2000, and there were 6,500 pigs, down from 9,900 in 2000.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The total agricultural workforce was 1,427 in 2009, of which a significant majority, 1,124 or 79 per cent, are principal farmers, followed by part time workers numbering 149 or 10 per cent, casual/gang workers, 79 or 6 per cent, full time workers, 50 or 4 per cent, and salaried managers numbered just 16 or 1 per cent of the workforce. The total workforce declined by 5 per cent 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.

7. Key habitats and species

7.1 Habitat distribution/coverage

Blanket bog covers extensive areas of the highest parts of the northern moors. The thick peat, at least half a metre deep, lies as a mantle over the gentle slopes.

The breeding bird community associated with blanket mire is of international importance, holding significant breeding populations of a number of birds listed on Annex 1 of the EU Birds Directive.

Roughly 4 per cent of the British breeding population of merlin and 2 per cent of golden plover can be found across the Peak District Moors (including the South West Peak). Other important species include dunlin and teal. Dry heath occupies the lower moor, where the peat is thin, or on the more peaty mineral soils.

The majority of the semi-natural woodland remaining in the South West Peak comes into the category of upland oakwood. Woodland cover is restricted and is now largely confined to the cloughs and moorland fringes and the steeper valley sides in the south-west, such as those along the River Dane. A large number of epiphytic lichens have been recorded in these woodlands, although none are nationally scarce, the grouping is significant.

Recent plantations of conifers are found in the north of the NCA, some, such as Macclesfield Forest and the plantations of the Goyt Valley, cover extensive areas. Nightjar is partly associated with recent clear fell and young stands of conifers. Goshawks often breed in conifer plantations and black grouse also use this habitat.

Purple moor grass grasslands are principally restricted to the higher moorland blocks in areas of impeded drainage where they form mosaics with other moorland habitats.

Flushes characteristically occur in the cloughs and along the river valleys of the main moorland areas of the South West Peak.

Mires usually occur as more extensive features on gently sloping ground on the moorland fringes and higher enclosed land.

The wetlands of the South West Peak support a number of important animals, many of the lower reaches of streams and rivers have populations of water vole and one or two ponds have great crested newt colonies.

Farmland is the principal habitat in the lower-lying southern and western parts of the NCA, complementing the high moors to the north and east.

Gritstone tors and edges together with their boulder strewn slopes and screes are locally important landscape features in the South West Peak, providing important habitats for some specialist wildlife.

The exposed rock is colonised by a lichen community which includes species of regional interest as well as those which are nationally scarce.

Nesting birds are important too, with ravens re-colonising in small numbers in the South West Peak.

Source: South West Peak Natural Area Profile

7.2 UK 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
Blanket bog	2,958	7
Lowland dry acid grassland	2,186	5
Upland heathland	2,179	5
Purple moor grass and rush pasture	1,998	5
Broadleaved mixed and yew woodland (broad habitat)	988	2
Fens	674	2
Reedbeds	294	1
Lowland heathland	215	1
Upland calcareous grassland	136	<1
Lowland meadows	58	<1
Coastal and flood plain grazing marsh	12	<1
Lowland calcareous grassland	5	<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/ – select 'Habitat Inventories'
- Maps showing locations of S41 species are available at: http://data.nbn.org.uk/

8. Settlement and development patterns

8.1 Settlement pattern

The settlement pattern is characterised by a very high degree of dispersal. Many of the farmsteads are of medieval origins often in former royal and private forests. There are nucleated villages to the south-west.

Source: South West Peak Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

The main settlements in the NCA are Bollington and Whaley Bridge.

Source: South West Peak Countryside Character Area description; Countryside Quality Counts (2003)

8.3 Local vernacular and building materials

Gritstone is the predominant traditional building material with brick more commonly used towards the west. Sandstone flag and later Welsh slate were used for roofs. Some buildings contain remnants of 16th century or earlier timber frames, the latter often surviving as cruck-framed buildings with later stone infill.

Source: South West Peak Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

Mesolithic and Neolithic activity is widely reflected by the discovery of stone tools and flint scatters and the settlement and field systems at Lismore Fields to the south-west of Buxton. There is evidence of occupation of the lower hills from prehistoric times. Many barrows from the Bronze Age are visible around the margins of the valleys, above the range of prehistoric cultivation. Many farmsteads are of medieval origin. Coal mining took place from the medieval period up to the early 19th century with numerous deep shafts. Evidence of this mining industry can be found in the form of large spoil heaps and associated buildings, which mark the sites of the deeper mines. Roads and tracks in the upland core – including those linked with upland grazing to lowland settlements – are visible as hollow ways, superseded in the 18th and 19th centuries by the present road system.

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

9.2 Designated historic assets

This NCA has the following historic designations:

- 2 Registered Parks and Gardens covering 673 ha
- No Registered Battlefields
- 59 Scheduled Monuments
- 665 Listed Buildings

Source: Natural England (2010)

More information is available at the following address:

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

10. Recreation and access

10.1 Public access

- Eighteen per cent of the NCA is classified as being publically accessible.
- There are 1,023 km of public rights of way at a density of 2.4 km per km^2.
- There are no national trails within the NCA.

Sources: Natural England (2010)

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

Access designation	Area (ha)	% of NCA
National Trust (Accessible all year)	23	<1
Common Land	29	<1
Country Parks	608	1
CROW Access Land (Section 4 and 16)	7,234	17
CROW Section 15	0	0
Village Greens	<1	<1
Doorstep Greens	1	<1
Forestry Commission Walkers Welcome Grants	147	<1
Local Nature Reserves (LNR)	13	<1
Millennium Greens	0	0
Accessible National Nature Reserves (NNR)	0	0
Agri-environment Scheme Access	3	<1
Woods for People	406	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 on the remote high ground, away from centres of population and road corridors. The lowest scores for tranquillity are generally found along the boundary of the NCA where the main population centres are. When compared to adjoining NCAs the tranquillity score remains relatively high.

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

Tranquillity	Tranquillity Score
Highest value within NCA	38
Lowest value within NCA	-91
Mean value within NCA	-8

Sources: CPRE (2006)

More information is available at the following address:
http://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 that it is mainly the upland areas that remain relatively undisturbed, though there is a significant level of disturbance around the urban areas to the north of the NCA and along the road routes that cut across the NCA in an east/west direction.

A breakdown of intrusion values for this NCA is detailed in the table overleaf.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	21	20	30	9
Undisturbed	78	79	68	-10
Urban	1	1	2	2

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are a slight increase in the area of disturbed land by 9 per cent, matched by a similar decrease in the areas of undisturbed land by 10 per cent. Urban areas only increased by 2 per cent.

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

12 Data sources

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

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 and trends

Trees and woodlands

- The total area of woodland is 3,247 ha which amounts to less than 8 per cent of the NCA; 3 per cent is coniferous, 5 per cent broadleaved; and under 1 per cent is mixed. 438 ha of this is ancient woodland.

- Woodlands are not a common feature in the NCA. The moorland areas are typically un-wooded and open, apart from occasional large coniferous plantations. However there are opportunities to enhance the structure and diversity of both semi-natural and plantation woodlands where it will not adversely affect priority habitats, cultural heritage features and key viewpoints.

- Woodland diversity has been reduced by the isolation of woodland blocks, grazing, lack of management and invasion by rhododendrons. Coniferous plantations have, in places, replaced more diverse semi-natural landscapes.

- Woodland cover in 1999 was 2,478 ha. From 1999 to 2003 the area of woodlands receiving annual management grants under the WGS increased from 50 ha to 130 ha which indicates an increase in scheme uptake for the management of mature woodlands. By 2010 woodland cover was 3,247 ha.

- Upland deciduous woodlands are known to support priority bird species of pied flycatcher, redstart, wood warbler and tree pipit.

- There are opportunities for planting native woodland and improved woodland management to prevent fragmentation linking to small scale local wood fuel usage and renewable energy schemes. This may also enhance existing access provision and improve recreational opportunities.

Boundary features

- In parts, most notably in the Upper Manifold Valley area, the historic field pattern has been quite heavily modified, resulting in both a loss of drystone walls and hedgerows and through lack of maintenance, dilapidated field walls and gappy/ overgrown hedges. Although field walls closer to the upland core tend to be more intact, many of the hedgerows are in poor condition. Associated features such as gateposts, sheep folds, stone troughs and parish boundary markers are also at risk. This is leading to a loss of in the historic field pattern throughout the NCA. With smaller field sizes in this NCA there is a high proportion of gritstone drystone walls and still scope for continued management and restoration of boundary features including drystone walls and hedgerows.

- The past Environmentally Sensitive Area (ESA) scheme was popular with farmers seeking walling grants towards the cost of renovation and rebuilding of drystone walls. The condition of boundary features has improved with considerable restoration and maintenance of drystone walls under the Environmentally Sensitive Area and Countryside Stewardship schemes, continuing under Environmental Stewardship. In 2011 there were 231 environmental stewardship agreements restoring, protecting or maintaining 299,797 m of drystone wall; and 147 agreements for the restoration or management of 120,751 m of hedgerows.

Agriculture

- Agriculture is dominated by upland livestock farming. 97 per cent of the NCA is grassland or uncultivated land and this has remained stable since 1990. Survey data from 2000 to 2009 shows a significant decline in the numbers of livestock. Livestock numbers have dropped significantly since 2000 with 16 per cent fewer sheep, 15 per cent fewer cattle and a third fewer pigs. There has been a noticeable trend in the loss of dairy farms throughout the NCA, 35 per cent have been lost since 2000, with a rise in the numbers of beef and sheep farms.

- Census data shows that there has been an increase in the number of farms, particularly those less than 5 hectares in area, since 2000, but it is considered that this is may be the opposite to what is probably the true trend. This increase is due to registration improvements for animal health requirements since the foot and mouth disease outbreak in 2001, with inactive farms staying on the register and a requirement for smaller farms to register. Since 1990 the number of holdings greater than 50 ha has increased by 30 per cent, and holdings greater than or equal to 100 ha by over 200 per cent which indicates farms taking on additional land from those between 20 and 50 ha which have reduced in number by a third. The number of farm workers has decreased by 5 per cent between 2000 and 2009.

- Uptake of agreements for Environmental Stewardship schemes is below the national average. Grassland management options are the most common for agreement holders.

The South West Peak is characterised by permanent grassland with rushy pasture, species-rich hay meadows and improved productive farmland.

Settlement and development

- Green Belt status applies to 11 per cent and National Park status to a further 65 per cent of the NCA and to a degree this protection limits the demands for new build development pressure in those areas. However it does increase the development pressures on the edges and beyond those designated areas. For example, high increases in housing stock, measured in units per hectare between 1998 and 2003, are recorded at Bollington, Whaley Bridge, Chapel-en-le-Frith and Dove Holes which lie outside the National Park or Green Belt.

- In the National Park the pressure for residential development is somewhat less intense in the South West Peak than elsewhere in the Park. However, there is still a need to provide affordable housing for key workers and to ensure that development is sensitive and appropriate to landscape character and the historic settlement pattern. In some areas, changes in the agricultural sector have led to farms being bought as large domestic properties rather than as working entities. Such ownership changes can be associated with separation of farmstead and land holding, resulting in increasing trends for isolated, modern farm buildings, located away from farmsteads.

- Urban areas in the South West Peak, such as Whaley Bridge and Bollington with greater demands for development are noticeably less tranquil than the rural parts away from main roads. This has a corresponding effect on light pollution where it is greatest at urban centres.

- There is an increasing demand for renewable energy schemes, in particular wind power. There may be opportunities for micro small-scale renewable, for example, wind and solar where it could be accommodated avoiding adverse impact on biodiversity, landscape character, the setting of historic features and landscapes, amenity value and tranquillity.

- There is demand for infrastructure including road signage, communications and power supply, such as, telecommunications masts and overhead electricity cables. In recent years there has been an increase in visual intrusion of communications infrastructure, particularly telecommunication masts, which can impact on landscape character and the setting of cultural heritage features, buildings and historic landscapes.

Semi-natural habitat

- There are 5,553 ha of SSSI within the NCA with approximately 90 per cent in either favourable or unfavourable recovering condition. Positive changes to management have increased this figure from 39 per cent in 2003, demonstrating the value of Environmental Stewardship schemes and other landscape scale conservation initiatives, in delivering environmental benefits.

- In the uplands, drainage schemes, and agricultural improvement have reduced the extent and diversity of blanket bog and heath locally, while on the lower land grassland diversity has been reduced by changes in farming methods such as the change from hay to silage production. Coniferous plantations have, in places, replaced more diverse semi-natural grasslands such as at Goldsitch Moss near Quarnford.

Historic features

- Historic, archaeological and cultural assets (above and below ground) including scheduled monuments, listed buildings, vernacular buildings and boundary features (drystone walls and hedgerows) are all at risk where the local farming economy becomes more marginal. For example, a lack of short-term maintenance tasks such as replacing dislodged coping stones to a drystone wall over a period of years can cause wholesale instability and then ruin over a few years.

- Historic quarries (other than one small quarry) are closed and this shortage of active quarries in the NCA may result in scarceness of traditional building materials for repairs to the historic fabric of buildings and drystone walls, leading builders and developers to seek alternative sources for matching materials outside the NCA.

Coast and rivers

- The steep topography, narrow valleys and limited floodplains combine with high rainfall to produce watercourses that respond rapidly to rainfall. The resultant increase in volumes of water increase fluvial flood risk occurring in downstream NCAs in the Trent, Mersey and Weaver catchments.

- The South West Peak is a major water catchment area and many of these rivers feed into upland reservoirs Errwood, Fernilee, Lamaload, Trentabank, Ridgegate, Bottoms and Tittesworth; which provide water and recreational resources to the NCA and urban areas on the fringes.

- In the upper reaches the rivers and streams are of very good water quality but this declines as they reach the lowland valleys outside the NCA mainly through agricultural runoff, sewage effluent and, locally, industrial discharges. The England Catchment Sensitive Farming Delivery Initiative has helped farmers and land managers to undertake measures to reduce diffuse water pollution from agriculture to protect water bodies and the environment.

Minerals

- There is only one small-scale active quarry within the South West Peak which provides local building stone. This is helping to conserve the local character of the historic built environment. There are the remains of former quarries throughout the area and there is pressure to open up some of these quarries to meet the needs of local building repairs and new developments.

Drivers of change

Climate change

- Evidence from UK Climate Impacts Programme (UKCP09) shows that over the coming century the Peak District climate is expected, on average to become warmer and wetter in winter and hotter and drier in summer.

- Extreme weather events are likely to occur more frequently, resulting in increased or more energetic rainfall that may cause soil/peat erosion and sedimentation and discolouration of watercourses (and flooding) downstream. In addition, increased flows could cause rivers to change course.

- Peatlands may dry out during prolonged droughts, increasing the risks of soil erosion and wildfires, resulting in loss of habitat and stored carbon. Changing soil conditions are likely to lead to changing habitats and species migration as species move and adapt accordingly.

- Climate change may play a role in the spread of plant pathogens such as Phytophthora, with potentially very significant consequences for moorland dwarf-shrubs in particular. It may also play a role in the spread of other pests and diseases which may affect woodland and livestock.

- Increasing pressure to accommodate renewable energy installations, for example. wind turbines, including small scale for individual settlements, communities or large scale schemes in the upland core; small scale hydro power schemes in watercourses; or solar PV for domestic, agricultural or commercial buildings.

- Freshwater habitats and water supplies may be affected by drought, reduced flows and draw-down from reservoirs and increasing summer water surface temperatures.

- There may be changes to agricultural practices as a result of changing climate conditions, such as a longer growing season or wetter ground surfaces at times of high rainfall. Opportunities exist to drive good agricultural practices that can deal with change and yet still manage, conserve and enhance the mosaic of habitats.

Other key drivers

- Changing economic factors may lead to a decline in livestock numbers, an increase in marginal farming and abandonment of some upland hill farms which will have a detrimental impact on the character of the South West Peak Uplands and its component parts.

- Agricultural specialisation, intensification, and farm amalgamation with attendant impact on landscape character and its component parts.

- Environmental Stewardship schemes are under review as part the reform of the Common Agricultural Policy. There will be a need for continuing support to ensure flexible land management for upland landscapes, especially to address climate change, soil erosion, water quality, the conservation of valuable habitats, the movement of species, and the protection and enhancement of the historic environment and landscape character.

- The trends towards separation of farmstead from land, hobby farming and diversification are likely to continue.

- Ongoing need for of appropriate moorland management regimes, to secure good condition of the vegetation and water quality, including the enhancement and conservation of peatland habitats.

- The need for management of woodlands including clough woodland where appropriate, to enrich diversity, build resilience and enhance habitat value.

- Development, traffic and light pollution both inside and on the fringes of the NCA.

- Managing increased pressure for new development and barn conversions in open exposed landscapes to ensure that landscape character is protected and enhanced.

- Managing increased access and challenges of recreational activities at key visitor sites.

Supporting document 3: Analysis supporting Statements of Environmental Opportunity

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

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

Trentabank Reservoir is one of several that supplies Macclesfield with drinking water. With high rainfall and impervious geology, the South West Peak is an important area for water supply.

Statement of Environmental Opportunity	Ecosystem service: Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place / Inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Protect, manage and enhance the open, expansive moorlands of the South West Peak and internationally important habitats and species that they support, protecting both soil and water resources.	↔ **	↔ *	↔ **	↗ *	↔ *	↗ ***	↗ ***	↗ ***	↗ **	↗ **	↔ *	○ *	○ *	↗ **	↔ **	↗ **	↗ **	↗ **	↗ **
SEO 2: Protect, manage and enhance the moorland fringes and valleys, with their mosaics of habitats including moorland, heathland, woodland, meadows and pastures, strong field boundary patterns defined by drystone walls and hedgerows, and small dispersed settlements, to safeguard water quality, enhance biodiversity and ecological networks and strengthen the distinctive landscape character of the South West Peak.	↔ ***	↔ ***	↔ ***	↗ **	↔ **	↔ **	↗ ***	↗ ***	↗ ***	↗ ***	↗ *	○ *	○ *	↗ ***	↗ ***	↔ ***	↗ ***	↑ ***	↔ **
SEO 3: Protect and manage the South West Peak's Upper Mersey, Weaver and Trent catchments, watercourses and reservoirs to maintain their high water quality and significance to water supply and flood risk mitigation, to enhance their nature conservation interest, and to strengthen their contribution to landscape character, and the recreational opportunities that they provide for public enjoyment.	↔ **	↔ **	↑ **	↔ **	↔ **	↗ ***	↑ ***	↑ ***	↗ ***	↗ ***	↔ ***	○ *	○ *	↗ **	↔ **	↔ **	↗ **	↗ ***	↔ **
SEO 4: Protect and manage the geological and historical features of the South West Peak, including The Roaches, Leek Moors, Errwood and Tittesworth reservoirs, and Lyme Park to reinforce the strong relationship between the landscape, its history of land use, wildlife, and natural, archaeological and cultural heritage, by encouraging interpretation, understanding, access and recreational opportunities which would increase public enjoyment and understanding of this tranquil upland working landscape.	↔ ***	↔ ***	↘ *	↗ **	↔ *	↔ *	↔ **	↔ **	↔ **	↘ ***	↔ **	○ *	○	↗ ***	↔ **	↘ ***	↗ ***	↘ **	↔ **

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 .

Dark plum =National Importance; Mid plum =Regional Importance; Light plum =Local Importance

Landscape attributes

Landscape attribute	Justification for selection
An area of upland and associated foothills. The upland core runs through the central area from north to south, and is dissected by wooded cloughs and upland river valleys that drain the area in all directions.	■ 65 per cent lies within the Peak District National Park. ■ Elevation ranges from 110m to 559m at Shining Tor. ■ Extensive views out of the NCA to the north, west and south. Views to the east are limited to the White Peak. ■ Major watershed and provides the sources of several rivers. ■ Internationally and Nationally designated habitats form 13 per cent of the NCA. ■ The three counties of Cheshire, Derbyshire and Staffordshire meet on the moorland above Axe Edge at the point now known as Three Shire Heads.
An upland landscape characterised by Millstone Grits and Coal Measures from the Carboniferous period, with a ridge-and-valley landscape of distinctive pattern and character, with some exposed rocky tors and boulder strewn slopes.	■ A landscape formed by erosion at the edge of the ice sheet of the underlying Millstone Grit. Shales, siltstones, and sandstones were deposited as river sediments laid down in the Carboniferous era deposited in a large delta complex. ■ The folded Millstone Grit creates variation in the landform and defines rocky tors and slopes such as The Roaches, Ramshaw Rocks and Gibb Torr. ■ Folds in the rocks have exposed Coal Measures in some areas, notably at Goyt's Mossand basins such as Goldsitch Moss. Although these were thin and poor quality they were mined up to the early 20th century. ■ Local stone is used extensively for the construction of buildings and drystone walls. ■ Rocky tors are characteristic locally important features of the landscape.

Landscape attribute	Justification for selection
Upland fast flowing streams and rivers with stony beds rise on the moorland edge and drain and dissect the landscape.	■ Valuable watershed provides the sources of the rivers Bollin, Churnet, Dane, Dean, Dove, Goyt, Hamps and Manifold. Rivers feed into the Trent, Mersey and Weaver. ■ High variation in river flow rates after heavy rain. ■ In the north, west and south some rivers have been dammed to form reservoirs that provide drinking water inside and outside the South West Peak. Key reservoirs include Errwood, Fernilee, Lamaload, Tittesworth and Trentabank. They provide drinking water to Stockport, Macclesfield, Leek and Stoke-on-Trent areas. ■ Part of the drinking water catchment for Buxton Mineral Water. ■ Upper reaches are very good water quality, but this declines as they reach the lower valleys affected by agricultural runoff, sewage effluent and local industrial discharges. ■ 93 per cent (39,611 ha) lies in a Nitrate Vulnerable Zone (NVZ). This figure will reduce in May 2013 when the boundary is redrawn. ■ Lower reaches of streams and rivers support water vole. ■ Ponds are limited, but provide habitat for great crested newts, smooth newts, frogs and toads as well as various invertebrates.
Woodland cover is limited to broadleaved and mixed woodlands in the valleys and lower slopes with conifer plantations introduced in the uplands and reservoir valleys.	■ Woodland cover 3,247 ha (8 per cent of total area), including 1,944 ha broadleaved, 1,096 ha coniferous, 92 mixed, 355 ha of ancient semi-natural woodland, and 83 ha of ancient replanted woodland. ■ Broadleaved woodlands are generally limited to the steep sheltered valley heads. ■ Small groups of sycamore, beech or oak are associated with isolated farmsteads and are often enclosed by drystone walls. ■ Conifer plantations, mainly associated with Goyt Valley and Macclesfield Forest, provide habitat for nightjar and goshawk because this is the closest habitat that remains locally to resemble a heathland, moorland and woodland mosaic. ■ Upland deciduous woodlands are known to support priority bird species of pied flycatcher, redstart, wood warbler and tree pipit. ■ Dead wood is an important biodiversity resource in semi-natural woodlands. It provides habitat for fungi, lichen and invertebrates, and is valuable for nutrient cycling and soil formation.

Landscape attribute	Justification for selection
Historic field patterns bounded by drystone walls and in the lower valleys by hedgerows.	■ Some field boundaries date from medieval times through to Parliamentary enclosure. ■ Drystone walls reflect the local geology and are constructed from local gritstone. ■ Field sizes in the uplands are large, with small to medium sized in the lower valleys. ■ Hedgerows are common boundaries on the lower land with a prevalence of hawthorn in the valley bottoms of the south-west.
Agricultural land cover is predominantly permanent grass or uncultivated land for grazing livestock.	■ A mosaic of unimproved and improved pastures and meadows, managed for hay or silage production. ■ Moorland and upland rough pasture is predominantly used for sheep grazing, lower valleys for sheep or cattle. ■ 97 per cent is commercial agricultural land (41,314 ha). ■ 4 per cent is classed as Grade 3: good to moderate (1,761 ha). ■ 93 per cent is classified as Grades 4 and 5: poor. ■ Upland area with broad expanses of unenclosed moor within which is a fragmented mosaic of moorland vegetation, rough grazing isolated in-bye and permanent grassland. Predominantly used for livestock, mainly sheep and cattle, 13 per cent of which are dairy farms. ■ Significant decline in dairy farms from 2000 to 2009 (58). ■ Significant fall in livestock numbers between 2000 and 2009.
A landscape mosaic of upland habitats including blanket bog and dry heath, flushes, mires, rocky outcrops, rushy pastures, species-rich hay meadows and improved grassland.	■ BAP habitats cover 28 per cent of the NCA. ■ Blanket bog covers extensive areas of the highest parts of the northern moors. Peat, at least 50 cm thick covers the gentle slopes. ■ The Peak District Moors, an area of internationally and nationally important habitat hosts significant numbers of breeding merlin and golden plover, other species include snipe, dunlin and teal. ■ Part of the South Pennine Moors, an area of internationally and nationally important habitat designated for its dry heath, blanket bog and oak woodland habitats. ■ Purple moor-grass is restricted to the higher moorland blocks where drainage is impeded, forming a mosaic with other moorland habitat. ■ Flushes occur in the cloughs and along moorland river valleys. ■ Mires on more extensive areas of gentle sloping moorland fringes and higher enclosed land. ■ Farmland provides habitat for curlew and lapwing.

Landscape attribute	Justification for selection
Historic environment including evidence of occupation since Mesolithic and Neolithic period.	■ Activity is reflected through the discovery of flint scatters and stone tools. ■ 59 scheduled monuments, including prehistoric burial mounds and remains of former industrial sites.
The development of a dispersed settlement pattern of medieval origins linked by an extensive network of tracks and lanes.	■ Unenclosed and unoccupied upland core. ■ Historic field patterns from the medieval period and evidence of royal and private forests; and deer parks such as at Lyme Park indicate the areas importance as productive pasture. ■ Two registered parks and gardens covering 673 ha and 665 listed buildings. ■ Evidence of historic tracks and routes between settlements and grazing areas, and for the salt trade from Cheshire and silk to Nottinghamshire. Some exist as hollow ways in the landscape by heavy use. ■ Isolated historic tracks crossing the moorland, networks of minor roads and lanes on lower slopes often following valley sides. ■ Tall, unmanaged grasslands of roadside verges can be rich in flowers including meadowsweet, red campion and knapweed. ■ Enclosed farmland, drystone walls, isolated farmsteads, hamlets and small settlements. ■ Robust architectural style. Predominantly using local gritstone walling, gritstone quoins, heads and cills, stone slate, blue slate or Staffordshire blue clay tiles for roofs. Dressed gritstone or brick chimneys. ■ Rendered and whitewashed buildings found around Flash indicating weatherproofing to poorer stonework. ■ Brick in the far west indicating an influence from the Cheshire Plain.

Landscape attribute	Justification for selection
Major recreational and access opportunities in the tranquil upland landscape, for example reservoirs, National Park, National Trust property, Forestry Commission land, rights of way.	■ 65 per cent of South West Peak lies within the Peak District National Park. ■ Peak District National Park receives over 10 million day visits per year. ■ Tourism industry is mostly centred on quiet outdoor recreation. ■ Grouse shooting on the moorland. ■ National Trust's Lyme Park (672 ha). ■ 1,022 km of rights of way with a density of 2.4 km per km^2. Open access land covers 16.6 per cent of the NCA (7,100 hectares). 18 per cent of the NCA is publicly accessible. ■ The networks of hiking routes such as the Gritstone Trail, and a network of quiet country lanes provide further opportunities for walking and horse riding. ■ Valuable assets of semi-natural habitats, historic features, reservoirs and cultural heritage. ■ Attractions for climbers include the Roaches, Ramshaw Rocks and Windgather Rocks. ■ Water sports on reservoirs, angling on rivers and other water bodies such as Combs Reservoir. ■ Other popular activities include cycling, and bird watching. ■ Extensive views to the north, west and south from the upland areas; with views to the east mostly limited to the White Peak. ■ Internal views within the NCA are extensive from hilltops and enclosed within the valleys.

Landscape opportunities

- Protect and conserve the open moorland plateau with its extensive views and its sense of tranquillity and remoteness, manage access, to allow people to enjoy the remoteness, tranquillity and general accessibility of the NCA while also ensuring the most sensitive sites and habitats improve their condition.
- Protect, conserve and enhance moorland habitats including blanket bog and heathland to ensure good condition and enhance their value for biodiversity; to protect peat and other soils, to maintain water resources and water quality, to accommodate climate change adaptation to reduce flood risk downstream and maximise carbon sequestration.
- Conserve, manage and enhance the mosaic of moorland and grassland habitats, including open moorland, woodland, species rich pastures and hay meadows, improved grassland and flower-rich road verges.
- Conserve, maintain and enhance riverside pastures and meadows under low intensity or extensive management to protect against erosion of soils and improve opportunities to reduce flood risk downstream, to enhance breeding habitat for wading birds and to restore traditional hay meadows and other species-rich grassland.
- Conserve the diversity and integrity of geological and geomorphological features including edges, tors and boulder strewn slopes; enhance their value for interpretation, education and visual amenity.
- Protect and conserve archaeological and historic features including prehistoric burial mounds and other heritage assets, enable public access, understanding and enjoyment.
- Plan for the restoration of traditional or historic buildings, barns and farmsteads.
- Plan for the restoration of field patterns, drystone walls and hedgerows, and ensure the unity of materials and styles and traditional building techniques, maintaining a sense of place, including areas of new development.
- Encourage the maintenance of traditional crafts and land management practices, particularly where of benefit to the environment, such as hay-making, shepherding, drystone walling, hedge-laying and coppicing.
- Conserve, manage and enhance the extensive rights of way and open access network, ensure that they are maintained and signposted and available for users of all abilities as appropriate, link them with key sites and the provision of interpretational material to enable more people to visit and increase their understanding and enjoyment of the area.
- Plan and manage new development including highway schemes, industry and housing, overhead lines, renewable energy technologies, telecommunications apparatus to ensure that the area's tranquillity, sense of remoteness, landscape character and viewpoints are maintained and enhanced.

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 analysis and opportunities may change upon publication of further evidence and better understanding of the inter-relationship between services at a local level.

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Soils Livestock farming (meat and dairy) Semi-natural habitats	In 2009 there were 30,400 cattle (beef and dairy), 138,200 sheep and 6,500 pigs.[5] 93 per cent of the land is Agricultural Grade 4 or 5.[6] Between 2000 and 2009 there has been a decline in the number of dairy farms by 58.	Regional	This is an important area for livestock farming, contributing to employment, economy and maintenance of important habitats. 97 per cent of the commercial agricultural land is permanent grass or uncultivated land.[7] 93 per cent of farmland is grades 4 and 5 (poor), and there is little opportunity for arable crops due to, climate, topography, altitude and steep slopes. Livestock farming is the dominant agricultural system and with good animal husbandry, appropriate stocking levels, grazing regimes and sustainable increases in livestock there is the potential to increase the overall food provision of this NCA while safeguarding biodiversity, soil erosion, water quality, water storage, carbon sequestration and climate regulation. Between 2000 and 2009 livestock numbers have declined: Sheep by 16 per cent, cattle by 15 per cent and pigs by a third. **Continued over...**	Work with land managers and the farming community to support and increase the production of livestock while maintaining biodiversity, historic environment and the landscape to increase the resilience of heritage assets, habitats and species to climate change, and to minimise carbon emissions. Develop stronger branding for locally produced food, thus maintaining and strengthening farming and its associated cultural landscapes and wildlife it supports. Promote links between the iconic landscape, sensitive land and soil management practices and high quality food production through initiatives such as the Peak District Environmental Quality Mark, to enhance the marketability of products through high environmental standards.	**Food provision** **Biodiversity** **Climate Regulation** **Sense of place / inspiration**

[5] Agricultural Census, Defra (2009)

[6] Agricultural Land Classification, Defra (2002)

[7] Natural England (2010)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision continued				**...continued from previoous.** Ongoing economic pressures have caused a 42 per cent decrease in the number of dairy farms between 1990 and 2003, particularly smaller farms ceasing milk production. Climate change may mean a further move away from hay meadows towards improved and intensively managed grassland. There may be scope for developing local and specialist markets which benefit from the links with the distinctive landscape.		
Timber provision	Existing woodland Soils	3,247 ha of woodland cover in the NCA (8 per cent of area); 1,096 ha of conifers (3 per cent) and 1,944 ha of broadleaves (5 per cent). Very little woodland on higher ground. Many broadleaved woodlands are small and limited to cloughs and steep sheltered valley heads. Small groups of sycamore, beech or oak are associated with farmsteads.	Local	Historically the area was part of medieval Royal and private hunting forests. Topography inhibits management of some woodland. With much of the land used for livestock rearing and sporting interests, places for woodland creation are limited to lower hillsides and cloughs. Clearance of timber from some conifer plantations may provide opportunities to restore to more valuable semi-natural habitats. For example, clearance of conifer woodlands at Black Brook Quarnford. Sound woodland management will help to minimise soil erosion and regulate water availability and flow. Climate change may provide new opportunities to establish more woodland in the future.	Seek opportunities to increase timber production from existing woodlands while maintaining their biodiversity and landscape value, and regulation of soils and water. Protect and enhance the mosaic and diversity of existing woodlands and improve their connectivity. Seek opportunities to create new woodlands where they will fit into the local pattern of woodland cover on the lower hillsides, valley heads and cloughs and on areas of low biodiversity interest. There may be opportunities for small-scale local woodland products, including biomass and wood fuel, from well-managed conifer and broadleaved woodlands. New or improved opportunities for recreation may result from an increase in planting schemes and improved woodland management.	**Timber Provision** **Biomass energy** **Climate regulation** **Regulating soil erosion** **Regulating water flow** **Regulating water quality** **Recreation** **Biodiversity** **Sense of place / inspiration**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	High levels of precipitation Geology Soils Rivers and streams Reservoirs	This upland catchment provides the source of several major rivers (Bollin, Churnet, Dane, Dean, Dove, Goyt, Hamps and Manifold) which feed into the Mersey, Trent and Weaver catchments beyond the NCA to the north-west, south and east. Some rivers in the north and south have been dammed to form several reservoirs that provide drinking water to Stockport (north), Macclesfield and Leek (west) beyond the NCA. The moorland above Buxton provides part of the catchment for drinking water for Buxton Mineral Water.[8] Overall river quality is predominantly very good but across the 3 catchments ranges from very good to fair.[9] The water quality is fair or better in the Mersey and Bollin catchment,[10] and very good in the Trent catchment.[11] The main rivers in the NCA include the River Goyt, the River Dane, the River Dove, and the River Manifold. The River Dove rises near Buxton and flows south east through the NCA to its confluence with the River Trent at Newton Solney. The River Manifold also rises near Buxton and is a tributary of the River Dove (joining the Dove near Thorpe), while the River Dane rises high in the Peak District in the centre of the NCA. **Continued over...**	Regional	The NCA (Axe Edge) receives 140 cm of rainfall per annum, due to its location. It forms the headwaters for many major rivers. The presence of extensive semi-natural habitats allows for good overall water retention and increases opportunity for groundwater recharge. Although there are no major aquifers, the geology of the uplands makes the area suitable for reservoir construction to hold water from upland streams and rivers. This resource provides a public water supply. The Errwood and Fernilee reservoirs fed by the River Goyt provide drinking water for Stockport and its surrounding area. Lamaload reservoir, located in the west supplies Macclesfield, and Tittesworth reservoir located in the south provides for an increase in water demand in Leek, Stoke-on-Trent and the surrounding area. The River Dove and the River Manifold are 'over abstracted';[16] the upper River Dane has 'no water available',[17] while the River Goyt currently has a 'water available' CAMS status.[18] Land management practices are important to improving soil structure, water infiltration, and storage of surface water run-off. It is important to minimise compaction and/or risk of capping on wet soils in the uplands from over-grazing, trafficking and other mechanised activities.	Seek opportunities to improve water conservation and efficient water use. Ensure moorland habitats especially blanket bog are under good environmental management, to maintain good vegetative cover and encourage active peat formation. Seek opportunities to store, hold and retain water for slower release by managing and restoring upland habitats such as wet woodland, wet grassland and mires. This will also help to mitigate flood risk, reduce soil erosion and improve water quality, climate regulation, habitat networks and ecosystem resilience to climate change. Promote good farming practices to improve the structure of soils, thereby improving infiltration of rainwater and reducing surface flow.	**Water availability** **Biodiversity** **Regulating water flow** **Regulating water quality** **Regulating soil erosion** **Climate regulation**

[8] High Peak Borough Council Local Plan Proposals Map (2005)

[9] *State of the Park Report*, Peak District National Park Authority (2004; URL: www.peakdistrict.gov.uk/publications)

[10] *Mersey and Bollin Catchment Abstraction Management Strategy*, Environment Agency (2005)

[11] *The Trent Corridor Catchment Abstraction Management Strategy*, Environment Agency (2005)

[16] *The Dove Catchment Abstraction Management Strategy*. Environment Agency.

[17] *The Weaver and Dane Catchment Abstraction Management Strategy*. June 2006.

[18] The Tame, Goyt and Etherow Catchment Abstraction Management Strategy. March 2004.

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability continued		**...continued from previoous.** The River Goyt rises on Whetstone Ridge, to the south west of Buxton, and flows north through Errwood and Fernilee reservoirs, before flowing through the town of Whaley Bridge in the far north of the NCA. The Rive Goyt and the River Tame join at Stockport to form the River Mersey which then flows through heavily engineered channels, embankments and washlands into the Manchester Ship canal.[12] The River Dove and the River Manifold are 'over abstracted'[13]; the upper River Dane has 'no water available',[14] while the River Goyt currently has a 'water available' CAMS status.[15]		[12] *Upper Mersey Catchment Flood Management Plan. Summary Report*, Environment Agency (December 2009) [13] *The Dove Catchment Abstraction Management Strategy*. Environment Agency (2013) [14] *The Weaver and Dane Catchment Abstraction Management Strategy*, Environment Agency (June 2006) [15] *The Tame, Goyt and Etherow Catchment Abstraction Management Strategy*, Environment Agency (March 2004)		
Genetic diversity	Rare and minority native breed livestock including sheep, cattle and pigs	There are a number of breeders of pedigree or pure bred cattle such as Belted Galloway, dairy and beef Shorthorn who farm in the NCA.	Local	Native breeds of sheep and cattle are best suited to graze and thrive on the moorland and poorer quality grassland habitats while maintaining the mosaic of semi-natural habitats.	Promote the use of native breeds to conserve not only the native genetic resource but to also provide conservation grazing to restore and maintain semi-natural habitats. Support genetic diversity and distinct populations of priority species. Encourage the development of market and supply chains for local meat and dairy produce from native breeds.	**Genetic diversity** **Food provision** **Biodiversity** **Sense of place / inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biomass energy	Existing woodland Soils	The existing woodland cover of 3,247 ha (8 per cent) consists of coniferous plantations such as Macclesfield Forest, with smaller deciduous woodland confined to the lower hillsides, edges of settlements, cloughs along the lower watercourses.	Local	The existing woodland cover offers limited potential for the provision of biomass, through bringing unmanaged woodland into management and as a by-product of commercial timber production. Dead wood is an important biodiversity resource in semi-natural woodlands. It provides habitat for fungi, lichen and invertebrates, and is valuable for nutrient cycling and soil formation. The potential yield for short rotation coppice (SRC) varies throughout the NCA, being poor in the east to the west and south west of Buxton, high in the south around Ipstones, and medium in the west to the south of Rainow. The potential miscanthus yield across the NCA is generally medium.[19] Any increase in biomass production may help to address climate regulation but could adversely impact on semi-natural habitats, sense of place and food provision if grown on farmland. The NCA is suitable for limited expansion of energy crops in small areas on shallow slopes or in sheltered valleys sensitively located to protect biodiversity and landscape interests.	Encourage the management of existing woodlands to produce surplus timber for local sources of biomass, wood fuel and charcoal. Create and establish new small scale woodlands to provide wood fuel, enhance sense of place and biodiversity interests. Promote sustainable soil management when harvesting and replanting occurs. Seek opportunities for new Short Rotation Coppice and Miscanthus planting in suitable locations.	**Biomass energy** **Biodiversity** **Climate regulation**

[19] www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/areas/default.aspx

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Soils Blanket bog and heath Woodland cover Semi-natural grassland	Existing woodland cover amounts to 8 per cent of the NCA. The mineral soils covering the central moorland block have a high carbon content of up to a half. The soils with an organic-rich and peaty surface cover just under half of the NCA. These soils include the peaty soils of the slowly permeable wet very acid upland soils with a peaty surface (just under a fifth of the NCA), very acid loamy upland soils with a wet peaty surface (just under a fifth); and blanket bog peat soils (just under a tenth). Soils with lower carbon content are found outside of the moorland area, in the lower farmland and valleys. Carbon storage is also provided by woodland (3,247 ha) and its underlying humus-rich soils.	International	Peaty and humus-rich soils afford a significant carbon storage function and are a priority for conservation. These soils are associated with the area's extensive blanket bog, heathland and purple moor grass habitats, and woodlands. Blanket bogs sequester carbon where there is a good active sphagnum moss layer, while damaged bogs release significant amounts of stored carbon. In some instances poor management such as high grazing levels or inappropriate burning regimes and wildfires, have affected these soils. Blanket bog peat helps regulate water quality. Blanket bog vegetation helps prevent oxidation of bare peat which in turn causes the peat to be liable to erosion affecting water quality in rivers and causing discolouration of water. Climate change that results in warmer drier summers could cause peat soils to dry out and thus be vulnerable to oxidation and subsequent loss of carbon, as well as affecting the vegetation. Ensure wetland habitats, grassland and watercourses are under good environmental land management so that they sustain carbon-rich soils and their role in sequestering and storing carbon is enhanced. It is important to ensure that existing woodlands are under good sustainable management so that their role in sequestering and storing carbon is enhanced. Small-scale woodland cover could be expanded in appropriate areas.	Seek opportunities to conserve and enhance peatland habitat, through sustainable land management practices. Ensure appropriate hydrology and vegetation cover, to prevent the loss of carbon into the atmosphere, to improve the ability of habitats to sequester increased volumes of carbon, and to make upland habitats more resilient to climate change effects. Encourage sound management of existing woodlands and plantations to improve their role in capturing carbon. Create new small-scale woodland in cloughs and valleys where it would benefit water quality and flood alleviation, contribute to biodiversity, local landscape character, historic environment and recreation opportunities. Seek opportunities to protect, manage and enhance and extend areas of existing semi-natural and wet grassland along valley bottoms, alongside reservoirs and watercourses to that they sustain carbon-rich soils and their role in sequestering and storing carbon is enhanced.	**Climate regulation** **Biodiversity** **Regulating water quality** **Regulating water flow** **Regulating soil quality** **Regulating soil erosion** **Sense of place / inspiration**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Rainfall Fast flowing rivers and streams Soils Low input farming Semi-natural vegetation	39,611 ha (93 per cent) of the NCA is classified as a Nitrate Vulnerable Zone (NVZ).[20] Water quality for the majority of the NCA is classed as very good to fair.[21] The eastern part of the NCA is within the Peak District Dales Priority Catchment under the ECFSDI (the River Manifold and the River Dove are located within this Priority Catchment). According to Environment Agency data, the potential ecological status of the Macclesfield Canal and the Rivers Goyt, Dane, Dove and Manifold is 'good'. The surface water chemical status of the River Dove is 'good', while the Macclesfield canal and the Rivers Goyt, Dane and Manifold have not been assessed.[22] Although there are no major aquifers in the NCA, the groundwater chemical status in the majority of the NCA is assessed as 'poor'. As mentioned previously, there are a number of reservoirs in the NCA; the Errwood, Fernilee and Lamaload reservoirs currently have 'moderate' ecological potential while the Tittesworth Reservoir currently has 'poor' ecological potential. These reservoirs do not currently require surface water chemical testing.[23]	Regional	The boundary of the NVZ will be amended in 2013 and a smaller part of NCA will be within the NVZ. South West Peak is upland in nature, relatively extensively managed and with low population density; this together with 140cm of rainfall (per annum) and steep watercourses result in rapid run-off, with consequent erosion and increased sediment load impacting on rivers downstream especially after heavy rainfall events. Changes to rainfall patterns, especially more storm events arising from climate change may increase sediment run-off and hydraulic scour of rivers. On farmed land, water quality can be affected by diffuse pollution from applications of slurry, manure, artificial fertilisers and other chemicals. Soil erosion leading to sedimentation of water courses can occur through over-grazing, or allowing livestock to poach or erode river banks. Maintenance of permanent grassland, or introducing scrub or woodland along watercourses, can aid infiltration and reduce soil erosion, especially on steep slopes. **Continued over...**	Work with farmers and landowners to adopt good agricultural, land, water and soil management practices to reduce surface water run-off and prevent water pollution. Encourage farmer uptake of the England Catchment Sensitive Farming project. Work with farmers and landowners to seek opportunities to manage heather moorland and blanket bog, and restore peat to ensure good vegetative cover to reduce water discolouration. Manage grazing levels and restrict access by livestock to watercourses to avoid poaching of river banks. Seek opportunities to manage, restore and expand riparian habitats through permanent grassland, scrub and woodland along cloughs and adjacent to watercourses and water bodies. **Continued over...**	**Regulating water quality** **Regulating water flow** **Regulating soil erosion** **Biodiversity**

[20] Natural England (2010)

[21] *State of the Park Report*, Peak District National Park Authority (2004)

[22] *River Basin Management Plan, Humber River Basin District*, Environment Agency (2009)

[23] http://maps.environment-agency.gov.uk/wiyby/dataSearchController?lang=_eandtextonly=offandtopic=wfd_lakes

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality continued				**...continued from previous.** River Dove and its tributaries, and River Manifold where low fish stocks are associated with sedimentation and high nutrient levels in watercourses due to agricultural activities. Pollution incidents from sheep dipping and from sheep shared grazing have also been identified. Within the Peak District Dales Priority Catchment particularly associated with the River Manifold (and Dove), soil erosion and sedimentation of surface waters has been identified as a problem from livestock accessing river banks, watercourses and river crossings.	**...continued from previous.** Restore riparian/ wetland habitats and plant trees along watercourses to help stabilise bank sides, reduce erosion and filter pollutants, while benefitting riparian and riverine wildlife. Seek ways of reducing pollution from industrial activities such as sewage treatment plants. Seek opportunities to work with land managers and farming community to ensure water quality is safeguarded for the benefit of biodiversity and availability of quality drinking water.	
Regulating water flow	Rivers and streams Reservoirs Canal Soils Semi-natural vegetation (including blanket bog, wet woodland and wetlands)	Steep topography and high levels of rainfall means that the headwaters of the Churnet, Dane, Dean, Dove, Goyt, Hamps and Manifold drain quickly forming fast flowing rivers which can cause flash flood events and local erosion issues. Flood risk is not a major issue within this NCA; however peak flows have been known to cause significant damage in Wildboarclough.	Regional	The area has some of the fastest rising rivers in the country, with rapid run-off which has implications for erosion and downstream flooding which could be exacerbated by an increase in storm events arising from climate change. Improvement of soil structure and management of good vegetation cover would enhance rainwater infiltration, reduce run-off rates and increase rates of groundwater recharge through permeable soils. Availability of larger inundation washlands in lower valleys and expansion of wetlands may help to increase water storage and regulate flows.	Seek opportunities to manage heather moorland and blanket bog, and restore peat to ensure good vegetative cover. Encourage expansion of washlands, wet woodlands and wetland habitats, and seek opportunities to create new flood storage areas in particular wet pastures along the valley bottoms. Promote and encourage good soil and land management practices on farms to reduce run-off and improve infiltration.	**Regulating water flow** **Regulating water quality** **Regulating soil erosion** **Biodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Geology Soils Semi-natural vegetation Soil flora and fauna	There are 9 main soilscape types in this NCA: Slowly permeable seasonally wet acid loamy and clayey soils, covering just under a third of the NCA; Freely draining slightly acid loamy soils (just under a fifth); Slowly permeable wet very acid upland soils with a peaty surface (just under a fifth); very acid loamy upland soils with a wet peaty surface (just above a tenth; Blanket bog peat soils (under a tenth); Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (less than a tenth); Slightly acid loamy and clayey soils with impeded drainage (less than a tenth); Freely draining very acid sandy and loamy soils (less than a tenth); and freely draining acid loamy soils over rock (less than a tenth).	Regional	The slowly permeable seasonally wet acid loamy and clayey soils (a third), pose a risk of diffuse pollution and flooding as a result of poor water infiltration. These soils are easily damaged when wet, therefore it is important to minimise compaction and/or capping risk which will tend to exacerbate run-off problems. These soils may have limited potential for increasing organic matter levels by management interventions. Maintenance of good soil structure can be improved through enhanced organic matter content to enable the permeable freely draining slightly acid loamy soils (under a fifth) to recharge underlying groundwater. The slowly permeable wet very acid upland soils with a peaty surface (under a fifth) are at risk of loss of organic matter through climate change and soil erosion. With the very acid loamy upland soils with a wet peaty surface (just over a tenth), peat has low strength when wet and is easily damaged by grazing and trafficking for much of the year, with poaching common. Beneficial measures include those that retain water in situ, ensure good vegetative cover, and avoid over grazing/ trampling or damage by mechanised activities.	Seek opportunities to promote sound grassland management to improve the organic matter content and structure of soils and reduce poaching through extensive grazing regimes and restoration of grassland. Manage moorland habitats to ensure vegetation cover and peat-formation by sustainable grazing and maintaining hydrological function to improve and conserve the condition and structure of carbon rich soils.	**Regulating soil quality** **Regulating water quality** **Regulating water flow** **Regulating soil erosion** **Biodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Semi-natural Soils Woodlands Grasslands	The majority of soils found in this NCA are at risk of erosion. These include the freely draining slightly acid loamy soils (just under a fifth), freely draining very acid sandy and loamy soils (under a tenth) and freely draining acid loamy soils over rock (under a tenth), are at risk of erosion especially on steeply sloping land where bare soil is exposed or vegetation has been removed. The slowly permeable wet very acid upland soils with a peaty surface (just under a fifth), the blanket bog peat soils (a tenth), the very acid loamy upland soils with a wet peaty surface (just over a tenth), and a small area of slightly acid loamy and clayey soils with impeded drainage (less than a tenth). Approximately a third of the soils in the NCA are at low risk of erosion. The soils at low risk of erosion include the slowly permeable seasonally wet acid loamy and clayey soils and the slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. The eastern part of the NCA lies within the Peak District Dales Priority Catchment (England Catchment Sensitive Farming Delivery Initiative[24]) includes the Rivers Manifold and Dove).	Regional	Erosion of the freely draining soils is exacerbated on steeply sloping ground where surface vegetation cover has been removed or damaged, organic matter levels are low or where soils are compacted. The peaty soils are at risk of gullying, hagging and a loss of organic matter where surface vegetation is damaged or lost and through moorland gripping. Bare soils are also at risk of erosion from high winds. The other peaty soils in the NCA, the very acid loamy upland soils with a wet peaty surface (13%), are at risk of erosion from a combination of rapid runoff, easily damaged peat layers and steep slopes. The small area of slightly acid loamy and clayey soils with impeded drainage especially on steeper slopes and when wet, are prone to capping/slaking through compaction by machinery or livestock. In the Peak District Dales Priority Catchment soil erosion and sedimentation of surface waters has been identified as a problem with livestock accessing river banks, watercourses and river crossings especially in the River Manifold sub-catchment. Beneficial measures include those that retain water in situ, ensure good vegetative cover, and avoid over grazing/trampling or damage by mechanised activities.	Restore and manage moorland habitats to ensure good vegetation cover and reduce sediment run-off by restoring hydrological function and ecology of peat land and grassland habitats. Prioritise the restoration of blanket bog, bare and eroded peat. Manage and restore riparian habitats, woodland and wetlands to help reduce peak flows and stabilise eroding river banks. Seek opportunities to secure good grazing practices on the moorland. Seek opportunities to secure good grazing management of in-bye land (pastures and meadows) and restore permanent grassland to maintain good soil structure, improve infiltration and prevent channelling, run-off and flooding. Encourage new planting of trees and woodland on steep slopes within cloughs and valleys and alongside watercourses to stabilise ground. Manage visitor access and recreational activities to ensure demand can be accommodated without conflict between different users, local communities and without causing erosion. Work with farmers and landowners to control illegal vehicular access to moorland and tracks.	**Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Regulating water flow** **Biodiversity**

[24] www.naturalengland.org.uk/ourwork/farming/csf/default.aspx

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Not applicable to this NCA					
Pest regulation	Not applicable to this NCA					
Sense of place/ inspiration	Open expansive moorland River valleys and cloughs Reservoirs Semi-natural grasslands Meadows and pastures Woodlands Parklands Rocky tors and boulder-strewn slopes Local building tradition Archaeological features Historic features Coal mining remains	Distinctive and often scenically dramatic landscape of European and national interest, of which 65 per cent lies within the Peak District National Park (27,888 ha), 13 per cent designated SSSI, 12 per cent SPA and 10 per cent SAC, 2 registered parks and gardens, 59 scheduled monuments and 665 listed buildings and hundreds of undesignated heritage assets. Iconic geology, habitats and landscapes such as The Roaches and Ramshaw Rocks, Shining Tor, Three Shire Heads, South Pennine Moors (part), Peak District Moors. Dispersed settlements with intricate field pattern bounded by drystone walls on higher land, hedges on lower land, with isolated field barns and farmsteads. Robust vernacular architecture built of gritstone with stone slate, blue slate and Staffordshire blue clay tiled roofs giving a strong sense of cultural identity. Remains of coal mining and industrial activities particularly around Flash and Goyt's Moss. Evidence of archaeological features, ancient track ways and historic enclosure patterns on the moorlands and moorland fringes. Reservoirs provide a water and recreation resource.	International	Feelings of inspiration tranquillity are associated with the wild and expansive moorland and the isolated gritstone edges, as well as the popular romantic associations with the parklands of Lyme Park near Disley. South West Peak has a strong and distinctive character of contrasting landscapes between extensive tracts of wild, open moorland (heathland and grassland) with isolated blocks of conifer plantations that form the upland core and the more intimate character of the valleys and low-lying fringes, all found within a relatively compact area. Potential to increase tourism. Development pressure and change has been relatively low in the South West Peak. However, the landscape can be affected by small and cumulative changes, for example to roads, new buildings and restorations, demand for improved social and recreational facilities, pressure to adopt renewable energy technologies, and increased levels of visitor pressure which may result in incremental suburbanisation of this distinctive upland landscape.	Protect and manage the contrasts and distinctive character of and between open moorland and different valley landscapes. Protect and conserve sites designated for their natural, geological and historic interest, and their setting. Encourage adoption of National Park Management Plan policies and objectives and uptake of environmental incentives. Protect, maintain and restore characteristic undesignated heritage features including traditional patterns of drystone walls, field barns, and vernacular buildings using materials appropriate to location. Plan and manage new development to ensure that the area's tranquillity, sense of remoteness, landscape character, heritage assets and viewpoints are maintained. **Continued over...**	**Sense of place / inspiration** **Sense of history** **Recreation** **Biodiversity** **Geodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place/ inspirationn continued					**...continued from previous.** Protect, manage and enhance key habitats including moorland and grassland mosaics, meadows, pastures and woodlands through adoption of sound land, water and soil management practices. Explore opportunities to increase sustainable tourism initiatives that will improve visitors' enjoyment, understanding and environmental awareness, support the local economy while protecting the special qualities of the area.	
Sense of history	Archaeological remains Historic pack horse routes and ancient tracks Scheduled monuments Geological features Coal mining remains **Continued over...**	Peak District National Park (27,888 ha), is Britain's first National Park. 12 per cent SPA and/or SAC, 13 per cent designated SSSI, 2 registered parks and gardens, 59 scheduled monuments and 665 listed buildings, 30 Local Geological Sites. Iconic sites, and landscapes such as The Roaches and Ramshaw Rocks, Shining Tor, Three Shire Heads, isolated field barns and farmsteads. A network of historic routes including ancient track ways and former packhorse routes particularly over the moorlands. **Continued over...**	National	A sense of history associated with the remains of Mesolithic and Neolithic settlements, field systems at Lismore Fields (south west of Buxton) and the many Bronze Age barrows visible around the margins of the valleys. The medieval dispersed settlement pattern is still distinctive in the uplands. While the remnants of coal mining, including spoil heaps and buildings (particularly around Flash and Goyt's Moss), and surviving mill buildings along the rivers provide links with the area's industrial past. **Continued over...**	Protect, conserve and enhance features of historic and archaeological interest (above and below ground) and their setting, for example the area's coal mining heritage and communication routes, retaining the evidence of inter-relationships between features to improve understanding and interpretation and enjoyment of past activities and cultural heritage. Conserve soil resources to protect buried features of archaeological or historic interest. **Continued over...**	**Sense of history** **Sense of place / inspiration** **Biodiversity** **Geodiversity** **Recreation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history continued	**... continued from previous** Soils Historic field systems and patterns Characteristic buildings and architecture Listed Buildings Parklands	**... continued from previous** A range of designated and undesignated heritage assets that reflect human use of the NCA from the end of the last glaciation to the present.		**... continued from previous** The history of upland farming can be seen in the distinctive intricate medieval field patterns and the later stone wall enclosures of the 18th and 19th centuries, mainly in the lower lying areas. Aspects of social history that are important to residents and tourists include the large estates of Lyme Park near Disley and Swythamley Hall. Other historic features also reveal the inter-relationships between geology, climate, ecology and the subsequent development of land uses and activities. They include the pack horse routes crisscrossing remote parts of the moorland, the small stone-built bridges and traditional fords crossing streams, and the use of local gritstone as the main traditional building material. The South West Peak has the potential for more people to enjoy and understand its historic features and distinctive landscapes through improved interpretation and access.	**... continued from previous** Protect, conserve and enhance historic parkland landscapes. Conserve and enhance historic field patterns including field boundaries (drystone walls and hedgerows). Promote use of the local traditional building materials and vernacular architecture in new and restored developments. Provide sustainable access and clear interpretation of historic and geological sites, and landscapes to enable greater public understanding and enjoyment.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Wild expansive open and remote moorlands Isolated gritstone edges and tors Upland streams, rivers and isolated reservoirs Few settlements or roads across upland core National Park designation	High levels of tranquillity throughout the central upland moorland core away from settlements and road corridors, with 68 per cent classed as 'undisturbed', although this has declined (by 10 per cent) since the 1960s.[25] 55 per cent of visitors to the Peak District National Park in 2005 did so for the tranquillity.[26]	National	This NCA is extremely important in providing experience of wild open spaces (with few structures or man-made roads) for the many people living in the adjacent urban areas. The NCA's relative accessibility and road links from major urban populations in the West Midlands and Greater Manchester suggests the high visitor pressure will continue, particularly in 'honey pot' locations such as The Roaches and Goyt Valley. Careful environmental management may be required to safeguard some of the NCA's special qualities and sense of tranquillity. A sense of tranquillity is still strongly associated with the smaller, quieter river valleys (such as the River Goyt and Fernilee Reservoir) and the core of high open moorland. This NCA has experienced a small reduction in tranquillity in the past fifty years, with the total 'undisturbed' area having decreased from 78 per cent in the 1960s to 68 per cent in 2007.[27] The main source of disturbance is associated with the urban developments at Disley, Whaley Bridge and Chapel-en-le-Firth and the urban fringes of Macclesfield, Buxton (in the north) and Leek (in the south).	Seek opportunities to safeguard tranquillity. Protect the sense of remoteness and tranquillity of the area, by avoiding the introduction of inappropriate development, artefacts and infrastructure especially on the moorlands. Plan and seek to accommodate development so as not to increase disturbance through traffic or light pollution. Promote quiet enjoyment of the National Park landscape. Manage visitor access and recreational activities to ensure no erosion of the tranquillity for visitors and local communities. Seek opportunities to change the pattern of visitor and resident travel away from car travel to more sustainable modes including public transport, park and rides from urban areas, safe cycling and walking routes.	**Tranquillity** **Biodiversity** **Recreation** **Sense of place / inspiration** **Sense of history**

[25] Campaign to Protect Rural England Intrusion Map, 2007

[26] *Peak District Visitor Survey*, Peak District National Park Authority (2005)

[27] Campaign to Protect Rural England Intrusion Map, 2007

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation	Public rights of way Open access land Rivers, canal and reservoirs Geodiversity Edges and tors Historic and archaeological features and landscapes Country parks Peak District National Park Registered Parks and Gardens	The NCA offers a network of rights of way totalling 1,023 km at a density of 2.4 km per km^2, as well as a significant amount of open access land covering 7,164 ha or 17 per cent of the NCA. This is supported by Peak District National Park (27,888 ha) designation, 13 per cent SSSI land, 12 per cent SPA and 10 per cent SAC, 2 registered parks and gardens, 59 scheduled monuments and 665 listed buildings. Macclesfield Canal runs along the western fringe from Bosley, south of Macclesfield to Poynton on the northern edge. Other recreation opportunities include CROW access land (7,234 ha), Country Parks (608 ha), Woods for People (406 ha), Common Land (29 ha), Local Nature Reserves (13 ha), National Trust, Forestry Commission and National Park owned sites; reservoir sites for example Tittesworth, Macclesfield Canal. Distinctive geology of ridges and tors such as The Roaches, Ramshaw Rocks and Shining Tor, as well as Three Shire Heads, South Pennine Moors (part), Peak District Moors.	National	Over half of the area falls within the Peak District National Park where there is a statutory purpose to promote the enjoyment and understanding of its special qualities. The area offers some of the most accessible upland outdoor recreation opportunities in England including hill walking, rock climbing on the distinctive Roaches and Ramshaw Rocks and mountain biking in and around Macclesfield Forest. Recreational walking, cycling, angling and horse riding are also popular on the lower lying land and around the area's reservoirs. Macclesfield Canal is used solely for recreation. In 2005 over 80 per cent of visitors came to the Peak District for the scenery. Walking (3-15 km), then sightseeing, strolling, visiting an attraction, place of interest or an event were the most popular activities by visitors to the National Park. 85 per cent came by car.[28]	Continue to manage and improve (visitor and resident) access, ensuring that paths are well maintained and signposted and that some surfaced paths are provided for use by all levels of ability and interest at key popular locations. Provide opportunities for active recreation, promoting the health and wellbeing benefits of outdoor recreation to visitors and residents alike. Provide imaginative interpretation of the landscape and its features (geological, historical, species and habitats) to enable enjoyment and understanding of the area without eroding its special qualities for other visitors and local communities. Seek opportunities to increase access and connectivity of routes. Seek opportunities to introduce alternative and sustainable modes of travel to and around the South West Peak including public transport, park and rides from urban areas, safe cycling and walking routes. Maintain the high quality and manage the recreational use of rivers, canals and reservoirs to ensure no adverse impacts on the landscape, biodiversity or water quality.	**Recreation** **Biodiversity** **Geodiversity** **Tranquillity** **Sense of place / inspiration** **Sense of history**

[28] Peak District Visitor Survey, Peak District National Park Authority (2005)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	SAC SPA SSSI and Local Wildlife Sites BAP Soils Geology Semi-natural vegetation/ habitats Woodlands Wetlands Rivers and reservoirs	There is over 11,703 ha (41 per cent of the NCA area) of BAP priority habitats within the NCA, including key ones of 2,958 ha of blanket bog, 2,186 ha of lowland dry acid grassland, 2,179 ha of upland heathland, 1,998 ha of purple moor grass and rush pasture, 988 ha of broadleaved mixed and yew woodland, and a number of other habitats. The NCA contains one SPA and one SAC, and 5,553 ha (just over 13 per cent of the NCA) is nationally designated as SSSI and a further 9 per cent Local Sites. These upland habitats include blanket bog and dry heath with species including cotton grasses, heather, bilberry, and crowberry. 15 per cent of SSSI are in favourable condition, 75 per cent unfavourable recovering, 5 per cent unfavourable no change and 5 per cent unfavourable declining. The habitats support significant communities of golden plover, red grouse, curlew, merlin and short eared owl. Rocky outcrops support important species of mosses, lichens and ferns; raven, small numbers of ring ouzel, with wheatear and whinchat on the slopes below. On the in-bye land where it is heavily grazed the acid grasslands support curlew, snipe and skylark. Woodlands support breeding redstart, tree pipit, wood warbler, lesser spotted woodpecker and pied flycatcher.	International / National	The NCAs high value for biodiversity is reflected in the large proportion of the area that is protected through national and European nature conservation designations. Iconic bird species include merlin, golden plover, dunlin and teal, on the moorlands and on the grasslands curlew, snipe and lapwing. The enclosed farmland on lower slopes is important for ground nesting waders including curlew, snipe and lapwing. Much of the grassland is improved therefore unimproved grasslands and hay meadows are rare. Many of these species and habitats can be seen and enjoyed by the public from the open access land and public rights of way network. The area has a long history of nature conservation undertaken by landowners and land managers, the National Park Authority and government agencies. These organisations (and their members/ volunteers) help to support and monitor upland biodiversity and the impacts of climate change. Many semi-natural habitats are fragmented, but improved management, connectivity, restoration of hydrological systems and promotion of sustainable grazing regimes and uptake of environmental incentives would enhance the biodiversity value as well as improve regulating services and contribute to enhanced sense of place.	Protect and restore priority habitats and designated sites, through appropriate management to increase the area in favourable or recovering condition. For example, restore blanket bog, manage purple moor grass and rushy pastures through cutting and grazing. Create and restore habitats, particularly grassland and woodland, to enhance sense of place, to increase connectivity and link existing fragmented habitats, allowing species to move more freely through the landscape to more favourable conditions to combat climate change. Maintain and enhance connectivity of habitats for priority species, for example golden plover, red grouse, merlin, and short eared owl. Seek and explore opportunities to improve the interpretation of the area's rich biodiversity, encourage eco-tourism and engage with voluntary groups and local people to promote sustainable recreation and education opportunities linked to biodiversity and the monitoring of climate change.	**Biodiversity** **Climate regulation** **Sense of place** **Tranquillity** **Regulating water quality** **Regulating soil quality**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Gritstone Edges and tors of Carboniferous Millstone Grit Coal Measures Limestone outcrops Soils	2 mixed interest SSSI designated for associations with historic mineral extraction. 30 Local Geological Sites Exposed rocky tors and boulder slopes. Local building tradition demonstrated through use of local materials including gritstone for walls and stone slates.	National	The distinctive Roaches, Ramshaw Rocks and Windgather Rocks are popular sites for climbing and walking. Geological sites and distinctive topography provide accessible exposures allowing for interpretation, understanding and continued research into the geodiversity of the area. They also contribute to sense of place and history. Disused quarries previously supplying a source of local building materials demonstrate the robust architecture and visual cohesion in the landscape. Edges, tors, quarries provide important habitats for wildlife. Coal mining area – now abandoned but remains evident – past exploitation links geology and history of land use.	Protect and maintain views and access to exposed geological features to provide further interpretation, research and understanding of the area's geology. Conserve and enhance soil resources and geomorphology to safeguard the relationship between landform, landscape, history of land use, wildlife, natural, archaeological and cultural heritage. Promote respect and understanding for the local building traditions and architectural styles and facilitate the use of appropriate local materials. Manage landscapes including those associated with historic mineral extraction in particular coal mining and stone slate quarries. Where appropriate provide public access, interpretation of their history and develop their educational, recreational and habitat potential.	**Geodiversity** **Biodiversity** **Recreation** **Sense of place / inspiration** **Sense of history**

Photo credits

Front cover: The South West Peak presents a mixed landscape of moorland and enclosed pasture. © Janet Belfield

Page 4 (right), 5, 7, 10, 13, 14 16, & 18: © Janet Belfield

Page 4 (left), 6, 8, 9, 12, 20, 33 & 37: © John K Gilman

Natural England is here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.

Catalogue Code: NE453
ISBN: 978-1-78367-010-9

Should an alternative format of this publication be required, please contact our enquiries line for more information: 0845 600 3078 or email enquiries@naturalengland.org.uk

www.naturalengland.org.uk