National Character Area profile:

# 35. Lancashire Valleys

Supporting documents



NATURAL ENGLAND

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# Introduction

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

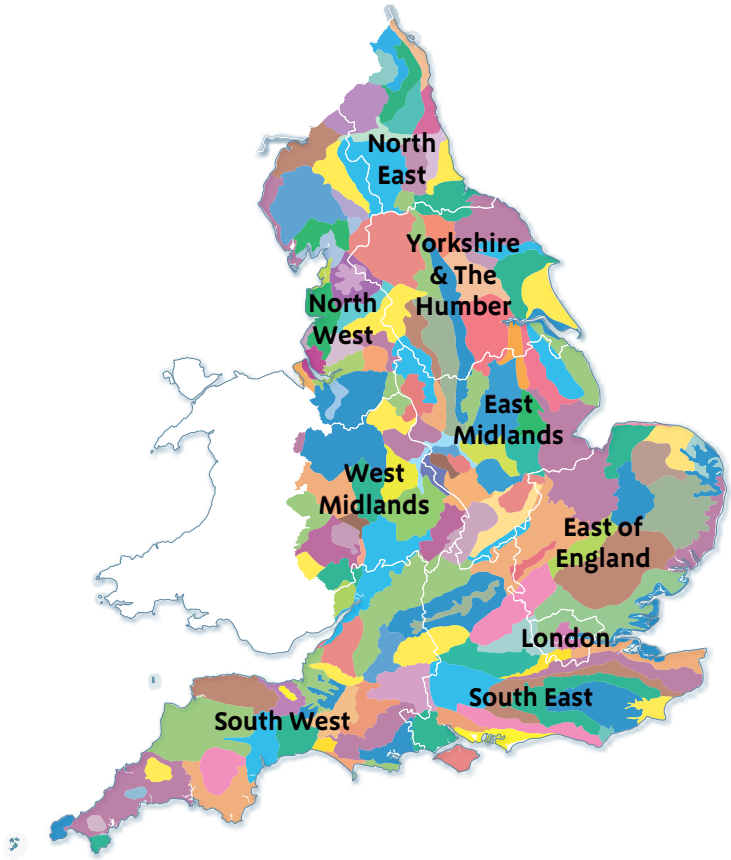
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

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

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

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

## National Character Areas map




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

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

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

# Summary

The Lancashire Valleys run north-east from Chorley through Blackburn and Burnley to Colne. The National Character Area (NCA) lies mainly in east Lancashire and is bounded to the north-west by the Bowland Fells fringe and the Millstone Grit outcrop of Pendle Hill, and to the south by the Southern Pennines. A small proportion of the area (5 per cent) lies in the Forest of Bowland Area of Outstanding Natural Beauty.

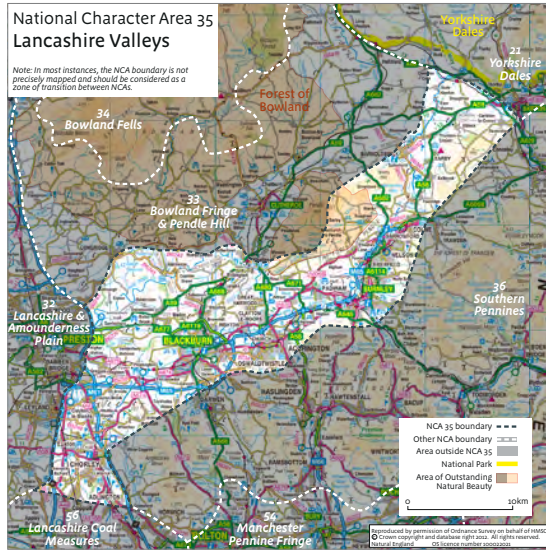
The Lancashire Valleys broadly consist of the wide vale of the rivers Ribble and Calder and their tributaries, running north-east to south-west between the natural backdrops of Pendle Hill and the Southern Pennines. This visually contained landscape has a strong urban character.

The Lancashire Valleys are underlain by Carboniferous rocks including limestone, Millstone Grit, shales and Coal Measures. The bedrock is largely covered by glacial and post-glacial deposits of sands, gravels, clays and alluvium. Localised surface exposures of bedrock have given rise to extractive industries, including stone quarrying and coal mining.

The Industrial Revolution saw the development and expansion of the major settlements, which include Blackburn, Accrington, Burnley, Nelson and Colne. A small 'cottage' cotton and textile industry developed, first drawn to the area for its available water power. It developed rapidly but has been in steady decline since the1920s.The towns are dominated by mills and Victorian-stone terraced housing. Numerous examples of the area's industrial heritage remain, and are matched today by substantial areas of contemporary industrial development.

Agriculture, once the major source of income before industrialisation, is now fragmented by the built environment, industry and housing. The remaining pockets of farmed land, used for extensive livestock rearing, are concentrated along the Ribble Valley, the fringes of Pendle Hill, the area to the west of Blackburn, and in the north around Skipton.

Opportunities for recreation activities are provided by a network of public rights of way, including key routes along the Pennine Bridleway and Pennine Way National Trails, while a series of country parks and local nature reserves also provide quality green space to encourage visitors to engage with and enjoy the local environment.




Click map to enlarge; click again to reduce.

A former mill lodge - Big Lodge, Yarrow Valley Country Park.

## Statements of Environmental Opportunity

- **SEO 1**: Conserve and manage the Lancashire Valleys' industrial heritage to safeguard the strong cultural identity and heritage of the textile industry with its distinctive sense of place and history.
- **SEO 2**: Increase the resilience and significance of woodland and trees, and manage and expand existing tree cover to provide a range of benefits, including helping to assimilate new infrastructure; reconnecting fragmented habitats and landscape features; storing carbon; and providing fuel, wood products, shelter and recreational opportunities.
- **SEO 3**: Manage and support the agricultural landscape through conserving, enhancing, linking and expanding the habitat network, and manage and plan for the associated potential impact of urban fringe development, intensive agriculture and climate change mitigation.
- **SEO 4**: Conserve and manage the distinction between small rural settlements and the densely urban areas and ensure that new development is sensitively designed to contribute to settlement character, reduce the impact of the urban fringe and provide well-designed green infrastructure to enhance recreation, biodiversity and water flow regulation.

# Description

## Physical and functional links to other National Character Areas

The Lancashire Valleys National Character Area (NCA) broadly consists of the wide vale of the rivers Calder and Ribble and their tributaries, running north-east to south-west between Pendle Hill, the Bowland Fells and the Southern Pennines. Although similar in nature conservation terms to the Lancashire and Amounderness Plain and the Morecambe Coast and Lune Estuary NCAs, the landscape here has a contrasting, intensely urban character.

The Millstone Grit outcrop of Pendle Hill, which forms part of the northern boundary to this area, and the fells of the Southern Pennines to the south create enclosure and serve as a backdrop to the settlements in the valley bottom. Similarly, there are views out from the higher land to the north and south over the NCA.

The north-west of the NCA contains part of the middle section of the River Ribble, which has its source in the adjacent Yorkshire Dales NCA, as well as the Ribble's confluence with the River Hodder, which drains the southern slopes of the Bowland Fells NCA. In the south, the River Yarrow rises on Rivington Moor in the Southern Pennines NCA before joining the River Douglas in the Lancashire and Amounderness Plain NCA to the west. A number of reservoirs lie on or close to the boundary with adjacent NCAs.

Many important communication routes pass through the NCA, including the Leeds and Liverpool Canal, the Preston–Colne rail link and the M6, M61 and M65 motorways.

**River Ribble at Salmsbury Bottoms.**

## Key characteristics

- Broad valleys of the rivers Calder and Ribble and their tributaries run north-east to south-west between the uplands of Pendle Hill and the Southern Pennines.
- A Millstone Grit ridge extends between the Ribble and Calder catchments (including the Mellor Ridge and part of Pendle Hill).
- A broad trough underlain by Carboniferous Coal Measures provided the basis for early industrialisation.
- Field boundaries are regular to the west and more irregular to the east. They are formed by hedges with few hedgerow trees and by stone walls and post-and-wire fences at higher elevations.
- Agricultural land is fragmented by towns, villages and hamlets, industry and scattered development, with pockets of farmed land limited to along the Ribble Valley, the fringes of Pendle Hill, the area to the west of Blackburn, and in the north around Skipton.
- Farmed land is predominantly pasture for grazing livestock, with areas of acid and neutral grassland, flushes and mires. There is some upland heath and rough pasture on Pendle Hill and the higher land to the south.
- Small, often ancient, broadleaved woodlands of oak, alder and sycamore extend along narrow, steep-sided cloughs on the valley sides – for example, at Priestley Clough, Spurn Clough and south of Blackburn.
- There are numerous large country houses with associated parklands, particularly on the northern valley sides away from major urban areas.
- There are many examples of proto-industrial heritage, including lime hushings, important turnpike and pack-horse routes involved in the early textile trade, and rural settlements with handloom weavers' cottages.

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**Traditional stone-built weavers' cottages.**

## Key characteristics continued

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- There is evidence of a strong industrial heritage associated with the cotton weaving and textile industries, with many common artefacts such as mill buildings, mill lodges and ponds, and links to the Leeds and Liverpool Canal.
- The many towns, including Blackburn, Accrington and Burnley, which developed as a result of the Industrial Revolution give the area a strong urban character.
- Robust Victorian architecture of municipal buildings contrasts with the vernacular sandstone grit buildings of the quiet rural settlements on the valley sides.
- Numerous communication routes run along the valley bottoms, including the Leeds and Liverpool Canal, the Preston–Colne railway and the M65 motorway.

## Lancashire Valleys today

The Lancashire Valleys are concentrated in a broad trough that runs north-eastwards from Chorley to Skipton.

**Leeds to Liverpool Canal, passing through agricultural land near the M61, Chorley.**

This is a visually contained landscape that would have once shared many characteristics with the rural valley of the River Ribble in the north. However, the development of industry and settlements has created a landscape with a strongly urban character. Agricultural land is now heavily fragmented by towns, associated housing, industry and scattered development.

Major settlements occur within the Lancashire Valleys. There is a high proportion of built-up land which includes the towns of Blackburn, Accrington, Burnley, Nelson and Colne. The rapid expansion of these towns following the Industrial Revolution has also been aided by the development of dense transport and communications networks following the valley bottoms. These include the Leeds and Liverpool Canal, the Preston–Colne rail link, the M65 and the M6/M61 motorways running north–south at the western end. The towns are dominated by a robust Victorian architecture with stone terraces and municipal buildings generally in good condition. Numerous artefacts and buildings associated with the area's development and industrial heritage remain and are reminders of the historical importance of local industrial development to the character of the landscape. There are substantial areas of contemporary industrial development which have replaced the traditional textile industries.

Scattered villages and hamlets on valley sides are comprised of older sandstone grit buildings, often of the longhouse type, and isolated rows of stone terraced houses are perched at precarious angles on the steep slopes. There are several large country houses with associated parkland built for wealthy mill owners of the textile industry. These are mainly located on south-facing slopes in the Calder Valley away from major urban areas, including those at Read Park Huntroyde Demesne, Gawthorpe, Dunkenhalgh and Towneley Halls.

The remaining fragmented farmland is a mix of pasture with scattered areas of acid and neutral grassland and areas of semi-natural woodland/scrub. Wet grasslands are common on the flood plains and river banks of the Ribble and Calder, and provide valuable habitat for populations of butterflies and birds, including snipe, curlew, redshank and lapwing. Species-rich hay meadows are becoming less common throughout the area with the application of modern agricultural techniques. Lowland field boundaries are marked by hedgerows with few hedgerow trees, which give way to stone walls and fencing on higher ground. The higher land along the southern slopes of the NCA and Pendle Hill in the north includes small but valuable areas of upland heath and acid grassland.

Small broadleaved woodlands, often ancient, are scattered throughout the remaining farmland associated with rivers, field boundaries and cloughs. The wooded, steep-sided and narrow cloughs are a characteristic feature of the Lancashire Valleys – for example; Priestly Clough, Accrington; Spurn Clough, Burnley; and lower Darwen Valley which comprises of oak, alder and sycamore with areas of grassland flushes and wetland. Wood anemone, herb Paris and small-leaved lime are all typical species in these areas. Wet woodlands dominated by alder occur on the flood plains and river banks. There are also small areas of woodland/scrub associated with abandoned or reclaimed industrial land and several small conifer plantations, the largest being Standrise Plantation associated with Elslack Reservoir to the north-east of Colne.

The rivers Calder and Ribble and their tributaries, along with the Leeds and Liverpool Canal, support valuable plant communities as well as populations of birds. The goosander, coot, grebe and warbler are all common; and rare, great crested newt and otter can also be found. The Ribble catchment, including the Calder, is a major salmonid river, one of a top handful in England and Wales. River quality and associated biodiversity have improved over recent years, but parts of the Calder and lower Darwen, in particular, are still affected as a result of sewage and pollution incidents.

Localised surface exposures of bedrock gave rise to many mineral extractive industries in the area, including stone quarrying and coal mining, although many have now declined in importance or ceased. These abandoned mining areas are now generally well vegetated, and grazed by sheep. Most of the more conspicuous dereliction has undergone land reclamation, with some reclaimed by domestic waste landfill such as at Rowley, Brandwood, Whinney Hill and Accrington. Remaining quarry faces, Carboniferous Millstone Grit outcrops and clough exposures of bedrock create distinctive features in the landscape and provide valuable access for further geological study.

Pendle Hill and the Southern Pennines provide a natural backdrop to this visually contained NCA and offer extensive views across the lower valleys from their higher points. There is a lack of tranquillity within the lower valleys linked to towns, development and transport corridors, but in the undisturbed areas on higher land there is less light and noise pollution.

In recent years there has been an increase in the demand for recreational activities such as walking, cycling and horse riding. The majority of land within this NCA is not publicly accessible, but there is a very high density of footpaths, two National Trails, a number of national and regional cycle routes, and many country parks, local nature reserves and woodlands open to the public through the 'Woods for People' initiative.

## The landscape through time

The Lancashire Valleys occupy a broad trough lying between the higher land of the Yorkshire Dales to the north, the Southern Pennines to the east and south, and the Forest of Bowland on the west and north. The higher land is underlain by Carboniferous Millstone Grit, formed by large river deltas building out into shallow, tropical marine waters. Millstone grit also forms a sandstone ridge between the Ribble and Calder catchments, which includes the Mellor Ridge and part of Pendle Hill.

The trough is underlain by Carboniferous Coal Measures, which represent the compressed remains of lush swamp vegetation and were formed by the periodic flooding of the extensive low-lying swamps that formed on top of deltas. It is the presence of coal that accounts for the early industrialisation of the area and it has been worked at depth and by open casting at the surface, although this has now declined in importance.

The bottom of the trough is covered in till, deposited beneath glaciers during the last ice age. In the Feniscowles/Pleasington area, west of Blackburn, extensive sand deposits impart a special landscape character. Bedrock resources have been quarried where the drift cover is thin. The main materials extracted were sandstone, worked on a small scale for local building, and mudstone worked for brick making in large pits at Accrington.

The character of the area is strongly dominated by a long history of access and movement along the valleys (for example, Roman roads and forts exist at Burwen Castle to the north-east near Elslack and at Ribchester in the Ribble Valley to the west), and by increasing industrial development of the valleys from the 16th century onwards.

This development began as a cottage industry during the 16th century with weaving rather than spinning. Traditionally, wool came from the Southern Pennine hillsides and flax from the low-lying country of the Lancashire and Amounderness Plain around Rufford and Croston. By 1700 each district was specialising in the production of one type of cloth. Blackburn was a centre for fustians, and most woollens and worsteds were manufactured in Burnley and Colne. The textile industry grew rapidly and, with new machines, the domestic system was replaced by factory systems which further accelerated the growth of these weaving communities. Nucleated settlements, developed from the late 18th century, were built around factory locations. These dominate the main north-east to south-west route alongside the Ribble flood plain and between the forests of Pendle and Trawden. Regular, imposing stone terraces were built to accommodate textile workers in the 19th century.

**Pendle Hill from Copster Green.**

The proliferation of mills and associated residential development has created a fragmented landscape with a heavily industrialised character. Since the 1920s the textile industry has been in steady decline with many mills becoming derelict or being converted to other uses. Numerous large country houses with ornamental settings occur, particularly along the northern valley sides away from industrial towns. These substantial houses, parklands and barns, dating from the 16th century, attest to the wealth generated by the textile industry. Traditional building materials used are sandstone grit and timber frame, brick was used from the 19th century with stone flag, and from the late 18th century Welsh slate roofs. In some areas, historic parklands have been subsumed within later enclosed farmland. Private and public parks and gardens are also a significant feature of the more urban landscapes (for example, the many parks at Burnley).

The landscape of well-spaced, nucleated villages and medium densities of smaller hamlets and farmsteads was transformed in the 18th and 19th centuries, and further fragmented by the modern transport networks along the valley floors. However, the foundation of later industrial expansion – the improved pastoral economy of the 15th and 16th centuries – is still visible in the dispersed pastoral farmlands of the Ribble Valley flood plain and the later (1600–1850) enclosure of the low moorlands either side of the A56 north of Burnley. Scattered settlements on the valley sides are comprised of older stone buildings, often the longhouse type.

Historic farm buildings are still visible today. They either remain in their original isolation or have been subsumed in later urban growth. Linear and dispersed farmstead groups predominate, with some courtyard steadings developed from the late 18th century when arable farming increased. There are field barns for cattle on higher ground. Aisled barns date from the 16th century and combination barns with cattle housed at storeyed ends were associated with larger farms from the early 17th century and in general use by the 19th century.

There are fragments of former strip-field agriculture alongside northern villages (Foulridge, Kelbrook, and Earby). The Ribble Valley flood plain to the south and west is dominated by irregular pasture fields dating from before 1600. These appear to have been created mainly through processes of assartment – leaving occasional fragments of former woodland along boundaries. To the north-east the field patterns are more planned and rectilinear, reflecting episodes of moorland and Parliamentary enclosure along the fringes of the forests of Trawden and Pendle in the period 1600–1850. Hedges give way to stone walls on rising ground. Except around the fringes of the urban settlements, there is very little evidence of post-1850 enclosure patterns.

Recent developments include the expansion of towns and residential areas, light industry and the road and motorway network, all of which are contributing to and consolidating the urban character of the area. Many redundant mills and associated buildings have been converted into other uses, such as retail and housing. In many areas, farming is now giving way to livery and horsiculture, particularly around the fringes of towns and villages. The rivers that helped to facilitate the Industrial Revolution and, as a result, became polluted with industrial waste, devoid of fish have since been subject to a number of improvement initiatives. Many of the rivers are now host to recreational activities such as angling and canoeing, while the Leeds and Liverpool Canal provides additional opportunities for multi-user pursuits including walking, cycling and horse riding.

## Ecosystem services

The Lancashire Valleys 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 Lancashire Valleys NCA is contained in the 'Analysis' section of this document.

### Provisioning services (food, fibre and water supply)

- **Food provision**: The main land use in this NCA is grass and uncropped land (96 per cent), mainly for sheep and cattle rearing. The predominant farm type is livestock grazing. In 2009 there were 295 commercial livestock grazing holdings in the uplands and Less Favoured Area (LFA) (35 per cent) and 121 in the lowlands (14 per cent).

- **Timber provision**: Some 8 per cent of the area is woodland, much of which is either unmanaged or under-managed and of which only a small proportion is conifer. There are opportunities for local woodland products, including wood fuel.

- **Water availability**: Principal surface water resources within the NCA are the catchments of the rivers Ribble and Calder. The majority of the water abstraction in the area is used for public water supply, industrial purposes and supplying the Leeds and Liverpool Canal.

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

- **Climate regulation:** In this NCA soil carbon levels are generally low, reflecting the 84 per cent coverage of the NCA by mineral soils. Soil carbon levels rise slightly towards the southern half of the NCA, where there are also some pockets of much higher carbon content bordering the Southern Pennines NCA; – these are likely to be associated with the areas of upland heathland. It is important to conserve these pockets of carbon-rich soils, as they provide a carbon storage function. Soil carbon is also high under areas of woodland, and carbon storage and sequestering is also provided by the woodland itself.

- **Regulating soil quality:** Almost 70 per cent of this NCA may be subject to soil quality issues. 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 may suffer compaction and/or capping as they are easily damaged when wet. In turn this may lead to increasingly poor water infiltration and diffuse pollution as a result of surface water run-off. Management measures that increase organic matter levels can help to reduce these problems. Similarly, the slightly acid loamy and clayey soils with impeded drainage have a weak topsoil structure that can easily be poached by livestock and compacted by machinery when wet.

- **Regulating water quality:** The steep, fast-flowing streams and rivers result in high levels of run-off, especially after heavy rainfall, with consequent impacts of erosion and increased sediment load on areas downstream. Appropriate management in this and upstream NCAs can capture sediment run-off and improve infiltration, benefiting water quality both within this NCA and downstream.

- **Regulating water flow:** There is a risk of fluvial flooding along the narrow river valleys where settlements have typically developed. River flood risk within the NCA occurs at Ribchester on the River Ribble, at Burnley and Padiham on the River Calder, at Blackburn on the River Darwen, and at Nelson, Accrington and Oswaldtwistle on the Leeds and Liverpool Canal and associated rivers. Downstream, flood risk also occurs within the Lancashire and Amounderness Plain NCA at Preston on the Ribble and at Walton-le-Dale on the Darwen. Chorley is at risk of flooding from the River Yarrow, which rises on Rivington Moor in the Southern Pennines NCA and flows through the southern part of this NCA before joining the River Douglas in the Lancashire and Amounderness Plain NCA, where further flood risk exists at Croston. Land management practices upstream of this area could potentially make a contribution to reducing the degree of flood risk.

### Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration**: Sense of place is provided by the broad valley of the River Calder and its tributaries, running between Pendle Hill and the Southern Pennines. Large towns and numerous communication routes, including the Leeds and Liverpool Canal, the Preston–Colne rail link and the M65, have created an intensely urbanised and developed landscape – for example, the towns of Accrington, Blackburn and Burnley. Buildings, mainly Victorian-stone terraces, are well integrated into the landscape, while remaining agricultural land is highly fragmented by industry, with small, often ancient, woodlands constrained to narrow, steep-sided cloughs on valley sides. The area also has extensive areas of reclaimed land – a product of former quarries and coal mining – that is now generally well-vegetated, and grazed by sheep. There are also a considerable number of country houses and parklands on the northern valley sides, especially away from the main built-up areas. A strong sense of visual containment is provided by the surrounding hills which also serve as an important backdrop, dwarfing settlements in the valley bottom.

- **Sense of history**: The history of the landscape is evident in its strong industrial heritage linked to the textile industry, with converted or redundant mill buildings, mill lodges and ponds, and the associated towns of Blackburn, Accrington and Burnley which expanded rapidly as a result of the Industrial Revolution. Some towns form part of earlier rural villages, retaining early buildings alongside stone terraces built to accommodate textile workers. Evidence of older buildings, usually of sandstone grit, is also present in the scattered settlements on the valley sides. The historic character is also dominated by access and movement along the valleys, and is reflected in a Roman road and forts at Burwen Castle near Elslack and at Ribchester, and more recently by the Leeds and Liverpool Canal.

- **Recreation**: Recreation is supported by the area's 1,590 km rights of way network (with a density of 2.9 km per $km^2$), including the Pennine Bridleway and Pennine Way National Trails of which just over 28 km cuts through the area, as well as 1,733 ha of open access land (just over 3 per cent of the NCA). The area also offers a variety of recreational activities, including angling and golf, while access to more natural environments provides opportunities for bird watching and other informal leisure pursuits that contribute to public health and wellbeing.

- **Biodiversity**: There is a limited extent of priority habitats within the NCA, with 600 ha of upland heathland being the largest, while woodland and unimproved grassland are also represented. The NCA contains no Natura 2000 sites and just 75 ha are nationally designated as Sites of Special Scientific Interest. There are 275 local sites in the Lancashire Valleys covering 3,228 ha, which is 6 per cent of the NCA.

- **Geodiversity**: The NCA has a relatively simple geology, formed of Carboniferous rocks and more recent glacial deposits. There are currently three nationally designated geological sites within the NCA, namely Darwen River Section, Cock Wood Gorge, and Harper Clough and Smalley Delph Quarries, all of which are important for their exposures of sandstone geology. The 16 Local Geological Sites include examples of natural outcrops, disused quarries and stream sections. These sites provide opportunities to interpret the local geodiversity, helping to inform and educate visitors and increasing their understanding and enjoyment of the sites.

View looking north from Langho. The top of the Bowland Fells can just be glimpsed.

# Statements of Environmental Opportunity

**SEO 1: Conserve and manage the Lancashire Valleys' industrial heritage to safeguard the strong cultural identity and heritage of the textile industry with its distinctive sense of place and history.**

**For example, by:**

- Protecting, conserving, managing and interpreting the area's historic identity, in particular the buildings associated with past textile and mining/quarrying industries, urban fabric, parks, rural villages, country houses, parklands and industrial heritage, to ensure a better understanding of past land use and retain evidence of the relationships between features for the future.
- Protecting, conserving, managing and interpreting the many layers of historical evidence to raise awareness and for public benefit, understanding and enjoyment.
- Promoting and encouraging opportunities to restore and re-use vernacular buildings, using local styles and building materials in order to maintain and enhance the historic character of rural villages and urban areas.
- Increasing awareness of, access to, and interpretation of the area's strong industrial heritage/textile industry, particularly that associated with the Leeds and Liverpool Canal.
- Encouraging and promoting land management practices and developments, such as tracks, that will not be detrimental to, or damage, archaeological evidence or historic features.
- Protecting and encouraging sensitive restoration and re-use of existing, redundant and derelict mill buildings and artefacts, such as mill ponds, associated with the textile industry to retain the historic industrial heritage, particularly linked to the Leeds and Liverpool Canal.
- Seeking opportunities to promote and use the network of paths to gain access to, reveal and interpret the area's rich history, to increase public understanding and enjoyment of it.
- Raising awareness and increasing understanding of the local history of the area and its importance at a national level.
- Conserving important geological exposures and providing interpretation, making links between the geology and the industries that relied on these resources.

**SEO 2: Increase the resilience and significance of woodland and trees, and manage and expand existing tree cover to provide a range of benefits, including helping to assimilate new infrastructure; reconnecting fragmented habitats and landscape features; storing carbon; and providing fuel, wood products, shelter and recreational opportunities.**

**For example, by:**

- Protecting, conserving and enhancing the mosaic and diversity of existing woodlands, especially ancient semi-natural woodland, and improve their connectivity.
- Bringing the area's small broadleaved woodlands, particularly on farms, into management, focusing on the visually important clough and ridge-side woodlands on the lower hillsides and the wet woodlands in the valley bottoms, and focusing on farm shelter plantings and copses that are distinctive to the industrial foothills and valleys.
- Planting new broadleaved woodlands, particularly on degraded farmland and vacant industrial land in the urban fringe, focusing on the visually important clough and ridge-side woodlands.
- Managing and restoring hedges and field boundary trees and connecting to existing fragmented and degraded habitats.
- Encouraging sustainable management of existing woodlands to produce surplus timber and biomass for local use – for example, for wood-fired boilers – while maintaining their biodiversity and landscape value, increasing resilience, and regulating soils and water.
- Ensuring that new woodland strengthens the local landscape and enhances biodiversity, providing recreational opportunities where possible.
- Creating new woodlands to assimilate urban development and to enhance rural character and tranquillity where appropriate.
- Promoting and marketing small-scale biomass production through planting on sites that are isolated by development and are not suitable for agriculture, spoil heaps or closed landfill sites.
- Supporting the aims of the North West Regional Forestry Framework and sub-regional strategies.

**SEO 3: Manage and support the agricultural landscape through conserving, enhancing, linking and expanding the habitat network, and manage and plan for the associated potential impact of urban fringe development, intensive agriculture and climate change mitigation.**

**For example, by:**

- Conserving, enhancing and expanding characteristic landscape and important ecological resources, such as species-rich, unimproved/semi-improved meadows and pastures and wetland meadows, including bringing nationally and locally designated habitats into, and maintaining, favourable condition.
- Managing land adjacent to isolated habitats to ensure that they are protected, expanded, buffered and linked to increase habitat connectivity and allow species movement, especially along rivers, the Leeds and Liverpool Canal, mill ponds and clough woodlands.
- Encouraging improved management of grassland and woodland through increased uptake of environmental incentive schemes to provide a farmed landscape of fields, well-managed hedgerows, mosaics of grass and margins, and small woodlands to benefit species such as farmland birds.
- Managing pressures on remnant farmland adjoining urban areas so that the characteristic stone wall and hedgerow field boundaries, especially those adjacent to urban areas, lanes and important footpaths and viewpoints, are conserved and enhanced.
- Managing and extending permanent grassland, woodland, wetland and riparian habitats along watercourses, the Leeds and Liverpool Canal, cloughs and valley sides to capture sediment, increase holding capacity, slow down run-off and improve infiltration.
- Managing pastures at a sustainable level, to improve soil structure, increase soil carbon storage, aid water infiltration and slow down/reduce water run-off, and safeguard water and soil quality.
- Encouraging expansion of wetland habitats such as reedbeds, woodlands and wet grasslands along valley bottoms, to improve flood mitigation by intercepting and retaining water for longer.
- Encouraging and promoting opportunities within the Upper Ribble and Hodder sub-catchment to provide flood storage and create habitat that could reduce downstream flood risk.

**SEO 4: Conserve and manage the distinction between small rural settlements and the densely urban areas and ensure that new development is sensitively designed to contribute to settlement character, reduce the impact of the urban fringe and provide well-designed green infrastructure to enhance recreation, biodiversity and water flow regulation.**

**For example, by:**

- 'Designing in' green infrastructure principles with housing expansion, business park developments (associated with key road intersections), expansion of water treatment facilities and associated changes such as horsiculture.
- Encouraging innovative new uses for old and/or abandoned buildings, while preserving their characteristic features.
- In urban areas, protecting important views to the hills from the impact of new development, including windfarms.
- Providing new permissive access that links to open access land, long distance rights of way, country parks and other areas of greenspace.
- Protecting the nature conservation interest of vacant land from new development.
- Protecting the setting of the adjacent Forest of Bowland Area of Outstanding Natural Beauty.
- Seek opportunities to develop sustainable urban drainage systems (SUDS) in urban areas in particularly in new development, to improve infiltration and manage surface water.
- Improving the urban-rural fringe through careful design and integration of green infrastructure with housing and industry, through linking new developments with the wider countryside and sustainably manage urban activities within agricultural areas.
- Improving, maintaining and expanding semi-natural habitats on farmland, such as meadows, pastures, wetlands and clough woodlands, which may increase the sense of tranquillity in the urban fringes, for example by planting new woodlands and shelter belts, and ensuring new developments are sensitively designed to reduce any visual and infrastructure impacts on rural areas and the urban fringe.
- Ensuring new woodland screens urban fringes to enhance rural character and tranquillity and contributes to recreational value by providing appropriate access to encourage public engagement with and enjoyment of nature.

# Supporting document 1: Key facts and data

**Area of Lancashire Valleys National Character Area (NCA): 55,423 ha**

## 1. Landscape and nature conservation designations

Five per cent of the NCA or 2,700 ha, lies within the Forest of Bowland Area of Outstanding Natural Beauty (AONB). The Forest of Bowland AONB Management Plan provides a policy framework and identifies a five year programme of actions (April 2009 to March 2014) to help guide the work of the AONB partnership organisations towards achieving the purpose of this plan; to conserve and enhance the natural and cultural beauty of the Forest of Bowland landscape.

The management plan can be downloaded at:

- **http://www.forestofbowland.com/cons_managementplan**

**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) | n/a | 0 | 0 |
| | Special Area of Conservation (SAC) | n/a | 0 | 0 |
| National | National Nature Reserve (NNR) | n/a | 0 | 0 |
| | Site of Special Scientific Interest (SSSI) | A total of 6 sites wholly or partly within the NCA | 75 | <1 |

**Source: Natural England (2011)**

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

There are 275 local sites in the Lancashire Valleys covering 3,228 ha which is 6 per cent of the NCA.

**Source: Natural England (2011)**

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

### 1.1.1 Condition of designated sites

| SSSI condition category | Area (ha) | Percentage of NCA SSSI resource |
|---|---|---|
| Unfavourable declining | 0 | 0 |
| Favourable | 71 | 95 |
| Unfavourable no change | 0 | 0 |
| Unfavourable recovering | 4 | 5 |

**Source: Natural England (March 2011)**

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

## 2. Landform, geology and soils

### 2.1 Elevation

Elevation ranges within this NCA from 5 m above sea level to 486 m.

**Source: Natural England 2010**

### 2.2 Landform and process

The Lancashire Valleys are concentrated in a broad trough which runs north-eastwards from Chorley to Skipton; lying between the higher land of the Yorkshire Dales to the north, the Southern Pennines to the east and south, and the Forest of Bowland on the north and west sides. Pendle Hill, the outlier of Millstone Grit, forms part of the northern boundary of the area.

**Source: Lancashire Valleys Countryside Character Area description**

### 2.3 Bedrock geology

The Lancashire Valleys, with the key towns of Blackburn, Accrington and Burnley, occupy a broad trough underlain by Coal Measures. A Millstone Grit ridge lies between the Ribble and Calder catchments. This includes the Mellor Ridge and part of Pendle Hill. The main river, the River Calder, cuts out of the trough through a gorge at Whalley and joins the River Ribble at the edge of the area to the north-west of the town. The Millstone Grit outcrop of Pendle Hill, with its clear glaciated whaleback form, lies on the northern boundary of area.

**Source: : Lancashire Valleys Countryside Character Area description**

### 2.4 Superficial deposits

The bottom of the trough containing Blackburn, Accrington and Burnley is covered with glacial deposits, mostly till. In the Feniscowles/Pleasington area west of Blackburn there are extensive sand deposits. The undulating lowland farmland and flood plain west of Blackburn is underlain by heavy clays.

**Source: Lancashire Valleys Countryside Character Area description**

### 2.5 Designated geological sites

| Tier | Designation | Number |
|---|---|---|
| National | Geological Site of Special Scientific Interest (SSSI) | 3 |
| National | Mixed Interest SSSIs | 0 |
| Local | Local Geological Sites | 16 |

**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

Forty-six per cent of the NCA is Grade 4 agricultural land. Poorer quality soils (Grade 5) occur in the higher areas to the east of Pendle Hill and around Foulridge, Kelbrook, Earby and Elslack. Better quality soils (Grade 3) occur along the Calder Valley and in the west of the NCA around the Ribble, Darwen and Yarrow rivers. There are 9 main soilscape types in this area; slowly permeable, seasonally wet acid loamy and clayey soils, covering 45 per cent of the area; slowly permeable, seasonally wet slightly acid but base-rich loamy and clayey soils (14 per cent); slightly acid loamy and clayey soils with impeded drainage (10 per cent); slowly permeable, wet very acid upland soils with a peaty surface (8 per cent); freely draining, slightly acid loamy soils (8 per cent); freely draining, slightly acid sandy soils (5 per cent); loamy and clayey flood plain soils with naturally high groundwater (3 per cent); very acid, loamy upland soils with a wet peaty surface (3 per cent); and freely draining flood plain soils (2 per cent).

**Source: Natural England (2010)**

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

| Grade | Area (ha) | % of NCA |
|---|---|---|
| Grade 1 | 0 | 0 |
| Grade 2 | 55 | <1 |
| Grade 3 | 19,058 | 34 |
| Grade 4 | 25,290 | 46 |
| Grade 5 | 2,841 | 5 |
| Non-agricultural | 0 | 0 |
| Urban | 8,179 | 15 |

**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.

- River Calder 24 km
- River Ribble 23 km
- River Darwen 18 km
- Sabden Brook 10 km
- River Aire 9 km
- River Yarrow 9 km

**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.**

Six rivers flow through the NCA totalling 93 km of watercourse along with 78 km of the Leeds-Liverpool Canal.

The NCA contains part of the middle section of the River Ribble, which has its source in the Yorkshire Dales NCA, as well as the Ribble's confluence with the River Hodder which drains the southern slopes of the Bowland Fells NCA. Tributaries of the Ribble within the NCA include the River Calder, and its tributary Sabden Brook, and the River Darwen. The River Yarrow rises on Rivington Moor in the Southern Pennines NCA and flows through the southern part of this NCA before joining the River Douglas in the Lancashire and Amounderness Plain NCA.

### 3.2 Water quality

The total area of Nitrate Vulnerable Zone is 35,791 ha, or 65 per cent of the NCA.

**Source: Natural England (2010)**

### 3.3 Water Framework Directive

Maps are available from the Environment Agency showing current and projected future status of water bodies at:

http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

## 4. Trees and woodlands

### 4.1 Total woodland cover

The NCA contains 4,517 ha of woodland, 8 per cent of the total area, of which 894 ha is ancient woodland.

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

### 4.2 Distribution and size of woodland and trees in the landscape

Small, often ancient, woodlands of oak, alder and sycamore extend along narrow, steep-sided cloughs on the valley sides, for example at Priestly Clough and Spurn Clough and in the Darwen valley. There are several small areas of conifer plantation the largest being at Standrise Plantation associated with Elslack reservoir. There are occasional fragments of former woodland along field boundaries particularly in the Ribble valley flood plain.

**Source: Lancashire Valleys 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 | 3,760 | 7 |
| Coniferous | 348 | 1 |
| Mixed | 199 | <1 |
| Other | 210 | <1 |

**Source: Forestry Commission (2011)**

Area and proportion of ancient woodland and planted ancient woodland within the NCA.

| Type | Area (ha) | % of NCA |
|---|---|---|
| Ancient semi-natural woodland | 787 | 1 |
| Planted Ancient Woodland (PAWS) | 107 | <1 |

**Source: Natural England (2004)**

## 5. Boundary features and patterns

### 5.1 Boundary features

Boundaries are formed by hedgerows with few hedgerow trees, and by stone walls and post and wire fences at higher elevations. Boundaries are generally degraded around urban areas.

**Source: Lancashire Valleys Countryside Character Area description; Countryside Quality Counts (2003)**

### 5.2 Field patterns

The Ribble valley flood plain to the south and west is dominated by irregular, hedgerow-bounded pasture fields dating from before 1600. These appear to have been created mainly through the processes of assarting, leaving occasional fragments of former woodland along boundaries. To the north and east the dominant field forms are more clearly planned and rectilinear in form reflecting episodes of moorland enclosure along the fringes of the Forest of Trawden and Pendle in the period 1600 to 1850. There are rare fragments of former strip-field agriculture alongside northern villages as at Fowlridge, Kelbrook and Earby.

**Source: English Heritage Historic Profiles; Countryside Character Area description; Countryside Quality Counts (2003)**

## 6. Agriculture

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

### 6.1 Farm type

The predominant farm type in this NCA is livestock grazing. In 2009 there were 295 commercial livestock grazing holdings in the Less Favourable Area (LFA) part of the NCA accounting for 35 per cent of all holdings and 121, or 14 per cent, in the lowlands. There were also 131 dairy holdings (15 per cent), 20 specialist poultry holdings (2 per cent), 18 mixed holdings (2 per cent), 12 horticultural holdings (1 per cent), 11 specialist pig holdings (1 per cent) and 6 cereals holdings (1 per cent). Survey data from 2000 to 2009 shows a 31 per cent increase in the number of grazing farms in the LFA while grazing farms in the lowlands decreased by 28 per cent. Of the other holding types specialist pig holdings showed an increase and all other types showed a decrease in numbers.

**Source: Agricultural Census, Defra (2010)**

### 6.2 Farm size

Farm size distribution shows a slight skew towards the smaller size bands with most holdings (35 per cent) being of 5 to 20 ha in size. However, holdings over 50 ha account for 67 per cent of the farmed area. Between 2000 and 2009 the number of commercial holdings decreased overall by 9 per cent from 938 to 850. This decrease was across all size bands with the exception of farms over 100 ha which showed a 10 per cent increase from 62 to 68 holdings. It should be noted that these figures do not include the access that many farmers have to common grazing on moorland.

**Source: Agricultural Census, Defra (2010)**

### 6.3 Farm ownership

2009: Total farm area = 31,902 ha; owned land = 19,241 ha
2000: Total farm area = 31,735 ha; owned land = 20,669 ha.

In 2009 60 per cent of the total farm area was owner occupied. Between 2000 and 2009 there was a slight increase in the total farmed area by 167 ha (1 per cent) although there was a slight decrease in the number of holders from 1,285 to 1,147.

**Source: Agricultural Census, Defra (2010)**

### 6.4 Land use

The main land use in this NCA is grass and uncropped land (96 per cent), mainly for sheep and cattle rearing.

**Source: Agricultural Census, Defra (2010)**

### 6.5 Livestock numbers

Sheep are the most numerous livestock type in this landscape (a total of 118,100 in 2009 in comparison with 37,200 cattle and 2,900 pigs). Between 2000 and 2009 sheep numbers decreased by 19,100 (14 per cent), cattle numbers decreased by 9,900 (21 per cent) and pig numbers decreased by 3,200 (53 per cent).

**Source: Agricultural Census, Defra (2010)**

### 6.6 Farm labour

In 2009 the majority of holdings were run by principal farmers (1,147 or 73 per cent) with only 29 salaried managers (2 per cent) employed. Between 2000 and 2009 the total farm labour decreased by 9 per cent from 1,735 to 1,573. The number of principal farmers decreased from 1,285 to 1,147, salaried managers decreased from 32 to 29, full time workers decreased from 166 to 165, part time workers increased from 148 to 166 and casual/gang workers decreased from 104 to 66.

**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

The River Calder and its tributaries dominate this NCA. Canals, once the main transport routes for industry, are also a feature of the area. These waterways support valuable plant communities as well as populations of birds. Goosander, coot, grebe and warblers are all common here. Great crested newts and otters can also be found.

Fragmented agricultural land is dominated by pasture. Wet grasslands are common on the flood plains, and provide habitat for valuable populations of butterflies and birds. Snipe, curlew, redshank and lapwing are all common sights here. Species rich hay meadows are becoming less common with the application of modern agricultural techniques. The field boundaries are marked by hedgerows with few trees, while stone walls and fencing are characteristic on the higher ground.

Numerous large country houses with associated parkland are largely situated on the south facing valley sides away from major urban areas. Small woodlands occur throughout the farmland particularly on the sides of steep river valleys and cloughs. Wood anemone, herb Paris and small leaved lime can be found here. Wet woodlands dominated by alder occur on the flood plains and river banks.

**Source: Lancashire Valleys Countryside Agency Summary Statements; Lancashire Plains & Valleys Natural Area Profile**

### 7.2 Biodiversity Action Plan (BAP) priority habitats

The Government's new strategy for biodiversity in England, Biodiversity 2020, replaces the previous Biodiversity Action Plan (BAP) led approach. Priority habitats and species are identified in Biodiversity 2020, but references to BAP priority habitats and species, and previous national targets have been removed. Biodiversity Action Plans remain a useful source of guidance and information.

More information about *Biodiversity 2020* can be found at:

**http://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.

| Access designation | Area (ha) | % of NCA |
|---|---|---|
| Broadleaved mixed and yew woodland (broad habitat) | 1,910 | 3 |
| Upland heathland | 615 | 1 |
| Coastal and flood plain grazing marsh | 552 | 1 |
| Lowland meadows | 381 | 1 |
| Lowland dry acid grassland | 91 | <1 |
| Purple moor grass and rush pasture | 79 | <1 |
| Upland calcareous grassland | 71 | <1 |
| Blanket bog | 53 | <1 |
| Lowland heathland | 38 | <1 |
| Upland hay meadows | 13 | <1 |
| Lowland calcareous grassland | 11 | <1 |

**Sources: Natural England (2011)**

- Maps showing locations of UK BAP priority habitats are available at: **http://magic.Defra.gov.uk/website/magic/** select 'Habitat Inventories'

### 7.3 Key species and assemblages of species

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

## 8. Settlement and development patterns

### 8.1 Settlement pattern

Settlement within the Lancashire Valleys is extensive. There is a high proportion of built land which includes the towns of Blackburn, Darwen, Accrington, Burnley, Nelson and Colne. There is substantial new industry in the area as well as many artefacts of the area's industrial heritage. Scattered settlements on valley sides are comprised of older stone buildings, often of the longhouse type, and isolated blocks of stone terraced houses perched at precarious angles on the steep slopes. There are also several large country houses along the Calder valley.

**Source: Lancashire Valleys Countryside Character Area description; Countryside Quality Counts (2003)**

### 8.2 Main settlements

The largest settlements within the NCA include: Blackburn, Burnley, Accrington, Chorley, Nelson, Colne, Skipton, Padiham, Oswaldtwistle and Great Harwood. There are also many towns, villages and hamlets with populations of less than 10,000. The total estimated population for this NCA (derived from ONS 2001 census data) is: 671,807.

**Source: Lancashire Valleys Countryside Character Area description; Countryside Quality Counts (2003)**

### 8.3 Local vernacular and building materials

Buildings are predominantly constructed from sandstone and are generally in good repair. The area's many Victorian buildings and terraces are well-integrated into the landscape. There is a strong industrial heritage associated with the textile industry, and redundant mill buildings, mill lodges and ponds are common. Numerous large country houses with associated parklands occur, particularly on the northern valley sides away from major urban areas.

**Source: Lancashire Valleys Countryside Character Area description; Countryside Quality Counts (2003)**

## 9. Key historic sites and features

### 9.1 Origin of historic features

The history of the landscape is evident in its strong industrial heritage linked to the textile industry, with converted or redundant mill buildings, mill lodges and ponds, and the associated towns of Blackburn, Accrington and Burnley which expanded rapidly as a result of the industrial revolution. Some towns form part of earlier rural villages, retaining early buildings alongside stone terraces to accommodate textile workers. Evidence of older buildings, usually of sandstone grit, is also present in the scattered settlements on the valley sides. The historic character is also dominated by access and movement along the valleys, and is reflected in a Roman road and forts at Burwen Castle near Elslack and at Ribchester, and more recently by the Leeds-Liverpool Canal. Aspects of history likely to be particularly evident to the general public include the area's country houses and associated parklands, located particularly on the northern valley sides. These include Read Park, Huntroyde Demesne and Gawthorpe, and Dunkenhalgh and Towneley Halls, built as a result of the wealth generated from the textile industry.

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

### 9.2 Designated historic assets

This NCA has the following historic designations:

- 11 Registered Parks and Gardens covering 502 ha
- 0 Registered Battlefields
- 34 Scheduled Monuments
- 1,323 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

- Three per cent of the NCA, 1,733 ha, is classified as being publically accessible. This tends to be in the more elevated areas to the east of Pendle Hill and around Foulridge, Kelbrook, Earby and Elslack.
- There are 1,589 km of public rights of way at a density of 2.9 km per $km^2$.
- There are 2 national trails within the NCA; 15 km of the Pennine Bridleway and 13 km of the Pennine Way fall within this 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) | 0 | 0 |
| Common Land | 313 | 1 |
| Country Parks | 642 | 1 |
| CROW Access Land (Section 4 and 16) | 1,733 | 3 |
| CROW Section 15 | 142 | <1 |
| Village Greens | <1 | <1 |
| Doorstep Greens | 1 | <1 |
| Forestry Commission Walkers Welcome Grants | 167 | <1 |
| Local Nature Reserves (LNRs) | 80 | <1 |
| Millennium Greens | 3 | <1 |
| Accessible National Nature Reserves (NNRs) | 0 | 0 |
| Agri-environment Scheme Access | 8 | <1 |
| Woods for People | 689 | 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 lowest scores for tranquillity are found along the M65 motorway corridor, particularly around Blackburn, Accrington and Burnley.

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

| Category of tranquillity | Score |
|---|---|
| Highest value within NCA | 48 |
| Lowest value within NCA | 91 |
| Mean value within NCA | 16 |

**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 the majority of the NCA is categorised as disturbed. The largest remaining undisturbed areas include pockets to the south of Longridge Fell and Pendle Hill, land to the south of Skipton and very small areas to the west of Blackburn.

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

| Category of intrusion | 1960s (%) | 1990s (%) | 2007 (%) | % change (1960s-2007) |
|---|---|---|---|---|
| Disturbed | 52 | 64 | 67 | 15 |
| Undisturbed | 38 | 26 | 16 | -21 |
| Urban | 10 | 10 | 17 | 7 |

**Sources: CPRE (2007)**

Notable trends from the 1960s to 2007 are a general increase in intrusion outwards from the urban centres.

- 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 Forest Inventory, Forestry Commission (2011)
- Countryside Quality Counts Draft Historic Profiles, English Heritage (2004)*
- Ancient Woodland Inventory, Natural England (2003)
- BAP Priority Habitats GIS data, Natural England (March 2011)
- Special Areas of Conservation data, Natural England (data accessed in March 2011)
- Special Protection Areas data, Natural England (data accessed in March 2011)
- Ramsar sites data, Natural England (data accessed in March 2011)
- Sites of Special Scientific Interest, Natural England (data accessed in March 2011)
- Detailed River Network, Environment Agency (2008)
- Source protection zones, Environment Agency (2005)
- Registered Common Land GIS data, Natural England (2004)
- Open Country GIS data, Natural England (2004)
- Public Rights of Way Density, Defra (2011)
- National Trails, Natural England (2006)
- National Tranquillity Mapping data, CPRE (2007)
- Intrusion map data, CPRE (2007)
- Registered Battlefields, English Heritage (2005)
- Record of Scheduled Monuments, English Heritage (2006)
- Registered Parks and Gardens, English Heritage (2006)
- World Heritage Sites, English Heritage (2006)
  Incorporates Historic Landscape Characterisation and work for preliminary Historic Farmstead Character Statements (English Heritage/Countryside Agency 2006)

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

# Supporting document 2: Landscape change

## Recent changes

### Trees and woodlands

- About 20 per cent of the existing woodland is ancient woodland (894 ha), of this 12 per cent (107 ha) is plantation on ancient woodland sites.
- Existing woodlands, which are important landscape features, often lack management. In 2003 data indicated that an extremely small proportion (9 per cent) of the area's woodland was in active management under the Woodland Grant Scheme. An even smaller proportion (5 per cent) of ancient woodland was in management.
- Some new woodlands have been planted, often in association with recreational activities near to major settlements (golf courses) and on derelict land.

### Boundary features

- The estimated boundary length for the NCA is about 3,627 km. The total length of Environmental Stewardship agreements for linear features as at March 2011 is approximately 524 km.
- The most frequent Environmental Stewardship agreements for linear features as at March 2011 were for stonewalls (233 km) and hedgerows (213 km).
- Data from 1999 and 2003 suggests that decline in management of hedges and walls, continues, with conversion to post-and-wire fencing.

### Agriculture

- There was a 5 per cent decline in permanent grassland cover in the period 1990-1998, although this partly reflected a decline in farmland generally. Permanent grassland and hay meadows have been lost due to increases in agricultural productivity and conversion to silage production.
- Urban fringe pressures and demand for recreation activities (such as golf courses) has caused loss of agricultural land and degradation of field boundaries.
- Between 2000 and 2009 there has been a slight increase in the total farmed area of 167 ha (1 per cent).
- Between 2000 and 2009 all livestock numbers decreased; sheep by 19,100 (14 per cent), cattle by 9,900 (21 per cent) and pigs by 3,200 (53 per cent).

### Settlement and development

- Rationalising farming operations has led to the conversion of traditional farm buildings to alternative uses including the conversion of traditional farm buildings to dwellings, with the desire for more rural homes.
- Residential development pressure around towns and villages is an issue in all lowland parts of the area. The motorway corridors are particularly at risk from housing, leisure, retail and commercial development.
- Pressures on farmland adjoining urban areas particularly from livery and horsiculture have caused degradation of field boundaries.

### Semi-natural habitat

- Species-rich hay meadows are becoming less common with the application of modern agricultural techniques.
- The most significant grassland management options under Countryside Stewardship agreements in 2003 were for upland in-bye pasture (328 ha) and upland hay meadows (166 ha).
- In 2003 CSS annual payments for margins and buffers was significant (243 km).

### Historic features

- Rationalisation of farming operations has led to redundancy and/or conversion of traditional farm buildings.
- Valuable industrial heritage buildings and features associated with the textile industry especially along the Leeds-Liverpool Canal have become redundant and neglected. The potential loss, restoration or conversion of these traditional artefacts to other uses affects the landscape and historic character of this area.

### Rivers

- At its western edge in the area of Preston and Bamber Bridge the NCA overlays a major aquifer, which is classed as being 'over abstracted'.
- The River Yarrow receives compensation flows from the Rivington Reservoirs in the Southern Pennines NCA and has 'water available'.
- The River Ribble catchment within the NCA generally has 'water available', although its tributary the River Calder is 'over licensed' in the area of Burnley.

### Minerals

- The NCA lies within a broad trough underlain by Coal Measures, which have been worked at depth and by open-casting. The coal industry has declined over recent years and many sites have now been reclaimed and land restored to woodland, agricultural and recreational use.
- The bottom of the trough is covered in glacial deposits, mostly till. In the Feniscowles/Pleasington area, west of Blackburn, extensive sand deposits occur. Bedrock resources have been quarried where the drift cover is thin. The main materials extracted were sandstone, worked on a small scale for local building, and mudstone, worked for brick-making in large pits at Accrington.
- Areas of former quarrying and coal mining have now largely been reclaimed.

## Drivers of change

### Climate change

- Evidence from the UK Climate Impacts Programme (UKCP09) shows that over the coming century the area's climate is expected to become warmer and wetter in winter and hotter and drier in summer. Under the medium emissions scenario by 2080: mean winter temperatures will increase by 2.6˚C, mean summer temperatures will increase by 3.7˚C, winter precipitation will increase by 16 per cent, summer precipitation will decrease by 22 per cent and there will be an increased frequency of extreme events (floods/drought).
- The North West Landscape Framework Climate Change Assessment 2010/11 identifies urban areas as having a higher vulnerability to climate change due to their lack of habitats and for generally being located on the flattest areas of land. These two factors restrict species movement and ecosystem functionality.
- Prolonged periods of drought could lead to reduced ground water and drying out of peat habitats making them more prone to soil erosion and wildfire events.
- Smaller, fragmented patches of habitat and poor-quality habitat are vulnerable to loss of biodiversity arising from changes in rainfall and temperature.
- Periods of heavy rain may lead to an increase in flooding and an increased risk of soil erosion or weakened soil structure due to flash flooding. There is also an associated greater likelihood of pollution of watercourses downstream and a potential increased risk of landslides during times of increased rainfall.
- Potential for more favourable conditions for crops and other farming practices not presently possible within this area.
- Potential change in cropping patterns and types of crops in response to climate change altering the character of the landscape.
- Threat to trees and woodland from changing pests and diseases and extreme weather events.
- Possible expansion of arable or energy crops into areas currently under permanent grassland but also possibility of more meadows replacing pastures at higher altitudes.
- There will be pressures for renewable energy development.

## Other key drivers

- Habitat connectivity will be needed to address species movement and adaptation to climate change.
- Lack of management and replanting of semi-natural clough woodland and ancient woodland sites may reduce wildlife value and lead to decline in value of woodlands as landscape features and for access and associated recreational opportunities.
- There is an opportunity to increase tree and woodland cover to provide multiple environmental and recreational benefits including reconnecting fragmented habitats, increasing resilience and improving water quality.

- Heavy fertiliser use and diffuse pollution may lead to loss of biodiversity both on and off agricultural land as well as affecting water quality.
- Changing agricultural policy and farm subsidies creates uncertainty and pressures on farming. Increasing emphasis on food security and bio-energy crops.
- Review of agri-environment schemes in 2013 may provide more flexible management incentives attractive to small/marginal/lowland farmers.
- Challenges in the urban fringe, such as the trend towards hobby farming and horsiculture is expected to continue along with increased demand for recreational facilities and access to the open countryside from adjacent urban population. This will require appropriate management to safeguard local features whilst providing opportunities for communities to reconnect with nature and enjoy the health and social benefits this brings.
- Transport pressures and development are likely to continue with ongoing pressure for expansion of residential areas, new housing and industry linked to good transport networks, particularly within the M65/M61 corridors.
- Increasing pressure for commercial scale renewable energy infrastructure such as windfarms and hydro-power.
- Continued exploitation of mineral deposits including re-working of old sites, reclamation schemes, redevelopment and new development has the potential to affect the landscape character of the area.

The area has a strong urban character.

# Supporting document 3: Analysis supporting Statements of Environmental Opportunity

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

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

View across Roeburn Valley.

| 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 | Tranquility | Recreation | Biodiversity | Geodiversity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SEO 1:** Conserve and manage the Lancashire Valleys' industrial heritage to safeguard the strong cultural identity and heritage of the textile industry with its distinctive sense of place and history. | ** | ↔ *** | ↔ *** | *** | ↔ *** | ↔ *** | ↔ *** | ↔ *** | ↔ *** | ↔ *** | *** | *** | *** | ↑ *** | ↑ *** | ↔ ** | ↑ *** | ↔ *** | ↔ *** |
| **SEO 2:** Increase the resilience and significance of woodland and trees, and manage and expand existing tree cover to provide a range of benefits, including helping to assimilate new infrastructure; reconnecting fragmented habitats and landscape features; storing carbon; and providing fuel, wood products, shelter and recreational opportunities. | ** | ↑ *** | ↗ ** | *** | ↗ ** | ↗ *** | ↑ ** | ↑ ** | ↗ ** | ↑ ** | *** | *** | *** | ↗ * | ↗ * | ↗ ** | ↗ ** | ↗ ** | ↗ * |

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

= National Importance; = Regional Importance; = Local Importance

| 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 | Tranquility | Recreation | Biodiversity | Geodiversity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SEO 3:** Manage and support the agricultural landscape through conserving, enhancing, linking and expanding the habitat network, and manage and plan for the associated potential impact of urban fringe development, intensive agriculture and climate change mitigation. | *** | *** | *** | *** | ** | *** | *** | *** | *** | *** | *** | *** | *** | ** | * | ** | ** | *** | *** |
| **SEO 4:** Conserve and manage the distinction between small rural settlements and the densely urban areas and ensure that new development is sensitively designed to contribute to settlement character, reduce the impact of the urban fringe and provide well-designed green infrastructure to enhance recreation, biodiversity and water flow regulation. | ↗ ** | ↗ ** | ↗ ** | *** | ↗ ** | ↗ ** | ↗ ** | ↗ ** | ↗ ** | ↗ ** | *** | o *** | o *** | ↗ *** | ↗ *** | ↗ *** | ↗ ** | ↗ *** | ↗ ** |

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

= National Importance; = Regional Importance; = Local Importance

| Landscape attribute | Justification for selection |
|---|---|
| The broad valley of the River Calder and its tributaries, running north-east to south-west between the backdrops of Pendle Hill to the north and the Southern Pennines. | ■ 6 key rivers flow through the NCA totalling 93 km along with the Leeds-Liverpool Canal (78 km).<br>■ A broad trough which runs north-eastwards from Chorley to Skipton, lying between the higher land of the Yorkshire Dales to the north east, the Southern Pennines to the east and south, and the Forest of Bowland on the north and west sides. Pendle Hill, the outlier of Millstone Grit, forms part of the northern boundary of the area.<br>■ Elevation ranges within this NCA from 5 m above sea level to 486 m.<br>■ Mellor ridge and gorge at Whalley.<br>■ The waterways support valuable plant communities as well as populations of birds. The goosander, coot, grebe and warblers are all common here, and great crested newt and otter can also be found. |
| Underlying coal measures and bedrock resources, with available water supplies which provided the basis for early industrialisation. | ■ Areas of former mineral extraction, stone quarrying and coal mining that have now largely been reclaimed.<br>■ Leeds and Liverpool Canal, and rivers.<br>■ A strong industrial heritage associated with buildings and artefacts from the cotton and textile industries, especially those along then Leeds and Liverpool Canal. |
| Valuable broadleaved woodland cover including small, often ancient, woodlands of oak, alder and sycamore that extend along narrow, steep-sided cloughs on the valley sides. | ■ The NCA contains 4,517 ha of woodland (8.2 per cent of the total area), of which 894 ha is ancient woodland.<br>■ Characteristic examples include: Priestley Clough and Spurn Clough and in the lower Darwen valley.<br>■ Wood anemone, herb Paris and small leaved lime can be found on the flood plains and river banks amongst wet woodland; dominated by alder. |

| Landscape attribute | Justification for selection |
|---|---|
| Characteristic field patterns. | ■ The Ribble valley flood plain to the south and west is dominated by irregular, hedge bounded pasture fields dating from before 1600. These appear to have been created mainly through processes of assartment, leaving occasional fragments of former woodland along boundaries.<br>■ Field boundaries formed by hedges with few hedgerow trees on the flatter land and flood plains and by stone walls and post-and-wire fences at higher elevations.<br>■ Regular parliamentary/moorland enclosure of lower hillsides.<br>■ Increasing degradation and loss of field boundary patterns around towns. |
| Farmed land is predominantly grassland for livestock production, fragmented by urban and industrial fabric. | ■ The main land use in this NCA is grass and uncropped land (96 per cent), mainly for sheep and cattle rearing.<br>■ The predominant farm type in this NCA is livestock grazing. In 2009 there were 295 commercial livestock grazing holdings in the LFA (35 per cent) and 121 in the lowlands (14 per cent).<br>■ 46 per cent of the NCA is Grade 4 agricultural land.<br>■ The farmed land includes a mix of pasture with areas of acid and neutral grassland, flushes and mires.<br>■ Some upland heath and rough pasture on Pendle Hill and the higher land to the south.<br>■ Species-rich hay meadows are becoming less common with the application of modern agricultural techniques.<br>■ Wet grasslands are common on the flood plains for example, Ribble Valley and provide habitat for valuable populations of butterflies and birds including snipe, curlew, redshank and lapwing.<br>■ Rare fragments of former strip-field agriculture alongside northern villages (Foulridge, Kelbrook, Earby). |
| Numerous large country houses with associated parklands, particularly on the northern valley sides away from major urban areas. | ■ Aspects of history likely to be particularly evident to the general public include the area's country houses and associated parklands, located particularly on the northern valley sides.<br>■ Examples include those at Read Park, Huntroyde Demesne and Gawthorpe, Dunkenhalgh and Towneley Halls, built as a result of the wealth of the textile industry.<br>■ 11 registered Parks and Gardens covering 502 ha, 34 Scheduled Monuments and 1,323 Listed Buildings. |

| Landscape attribute | Justification for selection |
|---|---|
| The strong industrial heritage associated with the textile industry. | ■ Long history of textile industry since 1600s.<br>■ Strong Influence of Leeds and Liverpool Canal.<br>■ Early cotton then weaving/spinning and specialist production per town/area.<br>■ Traditional mill complexes and associated buildings, mill lodges and ponds.<br>■ Many mills now redundant, some derelict or converted/restored to alternative uses. |
| Large urban areas which have robust Victorian architecture for municipal buildings which contrasts with the quiet rural settlements with vernacular stone buildings. | ■ There is a high proportion of built up land which includes the towns of Blackburn, Accrington, Burnley, Nelson and Colne.<br>■ The total estimated population for this NCA (derived from ONS 2001 census data) is 671,807.<br>■ Isolated blocks of stone terraced houses perched at precarious angles on the steep slopes.<br>■ Spreading residential areas and urban fringe influences. |
| Several communication routes run along the valleys with associated development and increased urbanisation. | ■ The Leeds and Liverpool Canal (78 km).<br>■ M65/M61/M6 motorways and development hubs at junctions.<br>■ Major roads and rail links.<br>■ New industries. |

## Landscape opportunities

- Bring the area's small broadleaved woodlands, particularly on farms, into management, focusing on the visually-important clough and ridge-side woodlands on the lower hillsides and the wet woodlands in the valley bottoms. Also focus on farm shelter plantings and copses that are distinctive to the industrial foothills and valleys.
- Protect, manage and conserve ancient semi-natural woodlands to reduce grazing, maintain plant/herbs in pasture, and encourage natural regeneration of native species, especially those in cloughs and the undulating lowland farmland west of Blackburn.
- Protect, conserve and actively manage parkland landscapes including restoring links to associated Country houses and farmland, especially in the undulating lowland farmland.
- Conserve and manage wetland/riparian habitats along rivers, streams and the Leeds and Liverpool Canal to protect and support valuable wildlife.
- Create new small native broadleaved woodlands, to provide improved farm shelter, strengthen cloughs and valley side woodlands, enhance the landscape around towns and villages, restore former industrial land and provide a new recreational resource especially in the urban fringe.
- Protect, conserve and strengthen field boundaries both hedgerows and walls, focusing on livestock farms, and relatively intact and visually prominent field boundary patterns, such as those on the Millstone Grit ridge.
- Manage, restore and replant hedgerows and hedgerow trees using species typical of the area.
- Maintain and restore dry stone walls using local stone for repairs to retain them as key historic features, and keep the visual link with the underlying geology.
- Protect the contrasts between the urbanised and industrial valley bottoms and the more rural lower valley sides.
- Protect, conserve and manage traditional hay meadows and pastures to maintain the diversity of semi-natural grasslands, especially remnant flood plain and upland hay meadows.
- Encourage and support traditional agricultural practices to maintain and enhance species-rich meadows.
- Conserve the historic character and unity of villages and hamlets on lower hillsides by using traditional building materials and patterns in restoration, conversion and any new development.
- Maintain and restore traditional farm buildings and barns using local materials/vernacular style, especially the longhouses (laithe houses) which are key features of land on the fringes of the Forest of Bowland.
- Protect and restore redundant or derelict mills and associated buildings, and artefacts such as mill ponds to conserve the strong industrial heritage associated with the textile industry, and offer interpretation and educational experiences to increase visitor understanding and enjoyment of this environment.

## Ecosystem service analysis

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

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

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Food provision** | Livestock farming; sheep, cattle and pigs<br><br>Semi-natural grassland habitats<br><br>Soils | There are over 47,000 ha of agricultural land within the NCA. 80 per cent of the land area is Grade 3 or 4 agricultural land. Stock rearing is the predominant agricultural activity with sheep being most numerous, followed by cattle.<br><br>There is little opportunity for arable crops due to topography and the poor quality of the majority of the soils. | Regional | Food production is an important service to the area, however much of the farmed land is influenced by the adjacent urban areas and associated diversification especially in the urban fringe. Inappropriate stocking regimes, with poor stock management, may have significant detrimental effects on biodiversity, sense of place, soil erosion, water quality and climate change. | Work with the local farming community to achieve appropriate grazing regimes to produce food and other multiple benefits.<br><br>Locally sourced food can also support tourism in the area, and in the process help encourage a locally sustainable green economy. | **Food provision**<br><br>**Biodiversity**<br><br>**Regulating soil erosion**<br><br>**Regulating water quality**<br><br>**Climate regulation**<br><br>**Sense of place / inspiration** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Timber provision** | Existing woodland and forestry estates | 8 per cent of the NCA is under woodland cover (4,517 ha). Much of this (83 per cent) is broadleaved and is situated on steep valley sides.<br><br>There are also 787 ha of ancient semi-natural woodland and a small amount of conifer plantation. | Local | Most of the woodland is on steep valley sides or in cloughs, and is not viable to manage and extract for timber. With majority of the farmed land used for livestock rearing and diversification associated with the adjacent urban areas there is limited potential for woodland creation.<br><br>There is scope for woodland creation in some areas, including within urban and urban fringe area without adverse impacts on sense of place, biodiversity or historic value/features. Need to ensure that new woodlands are located and designed to enhance the local landscape character in terms of typical scale, type and location.<br><br>Clearance of timber from some conifer plantations may provide opportunities to restore to more valuable semi-natural habitats.<br><br>Sound woodland management will help to minimise soil erosion and regulate water availability and flow.<br><br>Climate change may provide new opportunities to establish more woodland in the future. | Seek opportunities to increase timber production from existing woodlands whilst maintaining their biodiversity and landscape value, and regulation of soils and water.<br><br>Protect, conserve and enhance the mosaic and diversity of existing woodlands, especially ASNW, and improve their connectivity.<br><br>Seek to ensure new woodland strengthens the local landscape and enhances biodiversity, providing recreational opportunities where possible.<br><br>Create new woodlands to assimilate urban development and to enhance rural character and tranquillity where appropriate. | **Timber provision**<br><br>**Regulating water flow**<br><br>**Regulating water availability**<br><br>**Climate regulation**<br><br>**Sense of place / inspiration**<br><br>**Tranquillity**<br><br>**Biodiversity**<br><br>**Recreation** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Water availability** | Aquifer<br><br>Reservoirs<br><br>Rivers and streams<br><br>Canals<br><br>Geology and soils | At its western edge in the area of Preston and Bamber Bridge the NCA overlays a major aquifer, which is classed as being 'over abstracted'.<br><br>The River Yarrow receives compensation flows from the Rivington Reservoirs in the Southern Pennines NCA and has 'water available' status.<br><br>Abstractions from the Douglas CAMS area, of which the Yarrow is part, are mainly for public water supply and industry[4].<br><br>The River Ribble catchment within the NCA generally has 'water available', although its tributary the River Calder is 'over licensed' in the area of Burnley. | Regional | Abstracted water is used for public water supply and industrial purposes both within and beyond the NCA. Water is also used to supply the Leeds-Liverpool Canal.<br><br>Land management practices on grassland and uncropped land are critical to improving infiltration and storing surface water in the agricultural landscape, and maintaining groundwater re-charge in aquifers.<br><br>It is also important to minimise compaction and/or capping risk on wet soils, which can arise from over-grazing, trafficking or other mechanised activities. These may exacerbate run-off problems as well as damaging soil structure and quality of water supply. | Seek opportunities to ensure that riparian habitats and other semi-natural habitats are under positive management to, increase holding capacity and aid water infiltration.<br><br>Seek opportunities to develop Sustainable Urban Drainage Systems (SUDS) in urban areas; in particular in new development to improve infiltration and manage surface water.<br><br>Promote and encourage opportunities to work with landowners and managers to manage pastures at a sustainable level, to improve soil structure, water infiltration and slow down/reduce water run-off, and safeguard water quality<br><br>This will also help to mitigate flood risk, reduce soil erosion and improve water quality for drinking and industrial use, climate regulation, habitat networks and ecosystem resilience to climate change. | **Water availability**<br><br>**Regulating water quality**<br><br>**Regulating water flow**<br><br>**Biodiversity**<br><br>**Climate regulation**<br><br>**Regulating soil erosion** |
| **Genetic diversity** | Not applicable in this NCA | N/A | N/A | N/A | N/A | N/A |

[4] *The Douglas Catchment Abstraction Management Strategy*, Environment Agency (April 2003; URL: www.environment-agency.gov.uk/business/topics/water/119927.aspx)

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Biomass energy** | Existing woodland and forestry estates | The existing woodland cover (8 per cent) offers fairly limited scope for the provision of biomass. | Local | The potential yield for short rotation coppice (SRC) is mixed throughout the NCA although is predominantly high, while the potential miscanthus yield is generally medium.<br><br>Any biomass should be sited carefully to avoid adverse impacts on historic environment, biodiversity and food production.<br><br>Increased provision of SRC and miscanthus as a source of renewable energy could contribute towards addressing climate regulation, but could also decrease provision of food if grown on farmland. There may be degraded and scattered parcels of land that are not suitable for agriculture such as spoil heaps and closed landfill sites, which would be suitable for planting.<br><br>Major expansion could also affect the sense of place if SRC and miscanthus became a major component of the landscape because the use of existing land is dominated by housing, industrial development and farming.<br><br>Improved management could provide greater outputs from existing woodlands.<br><br>Adjacent urban settlements and industry provides a potentially high local demand for biomass energy such as for wood-fired boilers in schools and domestic use as wood fuel. For information on the potential landscape impacts of biomass plantings within the NCA, refer to the tables on the Natural England website at: http://www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/areas/default.aspx | Seek opportunities to encourage sustainable management of existing woodlands to produce surplus timber and biomass for local use, such as for wood-fired boilers.<br><br>Seek opportunities to promote and market small scale biomass production through planting on sites that are isolated by development and are not suitable for agriculture, spoil heaps and closed landfill sites.<br><br>Promote opportunities to plant and manage new small woodlands for biomass and local supplies of wood fuel, for example, adjacent to rivers, cloughs and lower hillsides. | **Biomass energy**<br><br>**Climate regulation**<br><br>**Biodiversity** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Climate regulation** | Existing woodland<br><br>Soils<br><br>Permanent grassland<br><br>Semi-natural habitats including upland heathland | Permanent grassland and uncropped land (96 per cent of agricultural land use in this NCA), provides improved soil carbon storage capacity.<br><br>Soil carbon levels are generally low (0-5 per cent), reflecting the 84 per cent coverage of the NCA by mineral soils which can be low in organic matter. Soil carbon levels rise slightly towards the southern half of the NCA (5-10 per cent), where there are also some pockets of much higher carbon content (20-50 per cent) bordering the Southern Pennines NCA. This is likely to be associated with the NCA's very acid loamy upland soils with a wet peaty surface (3 per cent of NCA), slowly permeable wet very acid upland soils with a peaty surface (8 per cent of NCA), and loamy and clayey flood plain soils with naturally high groundwater (3 per cent of NCA), all of which can provide important stores of carbon.<br><br>**Continued on next page...** | Regional | Carbon storage is generally low due to large extent of mineral soils in the NCA but is provided by woodland and its humus rich soils, and small pockets of carbon rich soils under other semi-natural habitat all of which are very important to conserve.<br><br>To maximise the benefits to climate regulation, bare and eroded areas need to be re-vegetated and any activities which may damage permanent vegetation should be restricted.<br><br>Carbon sequestration can be increased in the area's mineral soils by increasing organic matter input and by adopting low input farming systems and limiting the use of artificial fertilisers to reduce the amount of nitrous oxide released. | Encourage management of sustainable grazing regimes on permanent grassland with a low input of artificial fertiliser.<br><br>Seek opportunities to promote and adopt good sustainable management of existing woodlands.<br><br>Encourage opportunities to create new woodlands using native broadleaved species, to benefit wildlife, biodiversity and carbon, whilst also providing an additional recreational resource through appropriate access.<br><br>On soils low in organic matter, measures could be taken to improve carbon sequestration by increasing organic matter inputs and by reducing the frequency and extent of cultivation. | **Climate regulation**<br><br>**Regulating water quality**<br><br>**Water availability**<br><br>**Biodiversity**<br><br>**Timber provision**<br><br>**Regulating soil quality**<br><br>**Regulating soil erosion**<br><br>**Recreation** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Climate regulation continued...** | | ... c**ontinued from previous page**<br><br>The humus-rich soils under woodland cover (8 per cent of the NCA) also store carbon, as will the wood itself, where carbon sequestration can be enhanced by bringing the woodland under management. | | It is important to ensure that the existing woodlands are actively managed to enhance both biodiversity and their ability to store and sequester carbon. The area of woodland cover could be expanded to increase these benefits. | Encourage the sound management and maintenance of permanent grasslands to increase soil carbon storage and subsequent improvement in soil quality.<br><br>Encourage restoration of former industrial sites and derelict land to permanent grassland.<br><br>Manage and extend other semi-natural habitats. | |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Regulating water quality** | Streams and rivers<br><br>Semi-natural habitats including heathland, rough grazing and woodland<br><br>Permanent grassland<br><br>Aquifers | The Rivers Ribble and Calder are of moderate ecological quality whilst the River Darwen has poor quality and the Leeds and Liverpool Canal has good quality.<br><br>The chemical status of surface waters within the NCA fails to achieve good status.<br><br>The chemical status of groundwater across most of the NCA is good[5].<br><br>The NCA falls within the Ribble Priority Catchment designated under Defra's ECSFDI with support for measures which reduce diffuse pollution from agricultural land[6]. | Regional | Seek improvements to water quality through selective reduction in inputs from point source pollution and diffuse pollution.<br><br>On agricultural land this might be achieved through the introduction of improved land management practices, such as the buffering of water courses to address specific pollutant issues, altering the timing of fertiliser and manure applications to grassland and restricting livestock access to streams and rivers.<br><br>Urban, industrial and previously mined/quarried areas can produce high run-off and flash flooding.<br><br>Steep agricultural land and unwooded cloughs may be associated with high rates of runoff into adjacent water courses especially after heavy rainfall, which can be associated with high rates of soil erosion, high turbidity and increased sediment load impacting on areas downstream.<br><br>**Continued on next page...** | Seek opportunities to manage and extend permanent grassland, woodland, wetland and riparian habitats along watercourses, Leeds and Liverpool Canal, cloughs and valley sides to capture sediment, slow-down run off and improve infiltration.<br><br>Encourage opportunities for managing and increasing organic matter in order to help reduce compaction and/or capping of soils which can lead to poor water infiltration and diffuse pollution as a result of surface water run off.<br><br>Promote opportunities to develop Sustainable Urban Drainage Systems (SUDS) in new development of housing and industry to improve infiltration and water quality.<br><br>Promote and work with farmers to encourage adoption of improved land management to address water quality issues across river catchments. In particular through the creation of grassland buffer strips alongside watercourses and restricting livestock access to watercourses. | **Regulating water quality**<br><br>**Regulating soil erosion**<br><br>**Biodiversity**<br><br>**Regulating soil quality**<br><br>**Regulating water flow**<br><br>**Climate regulation**<br><br>**Water availability** |

[5] *River Basin Management Plan, North West River Basin District,* Environment Agency (December 2009; URL: www.environment-agency.gov.uk/research/planning/33106.aspx)

[6] *Catchment Sensitive Farming Funding Priority Statements 2010/11,* Defra (URL: www.defra.gov.uk/foodfarm/landmanage/water/csf/grants/index.htm)

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Regulating water quality continued** | | | | ... **continued from previous page**<br><br>Water quality is also affected by runoff from urban areas and the urban drainage systems.<br><br>New Sustainable Urban Drainage systems (SUDS), can be introduced in urban areas to improve water quality for example, introduction of swales and porous surfaces.<br><br>Managing existing and creating new semi-natural habitats/vegetation cover for example, Woodland planting, increasing riparian vegetation such as scrub and permanent grassland and strengthening hedgerow networks will aid in the capture of chemicals and nutrients before they enter the groundwater. They will also filter or slow sediments and organic matter preventing it from travelling into water courses. | Encourage restoration of former mining and quarrying areas and derelict/degraded land to permanent grassland to reduce run off and pollution sources. | |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Regulating water flow** | Rivers and streams<br><br>Surface water<br><br>Semi-natural habitat including woodland, wetlands, permanent grassland<br><br>Leeds and Liverpool Canal | This NCA contains part of the middle section of the River Ribble, which has its source in the Yorkshire Dales NCA, as well as the Ribble's confluence with the River Hodder which drains the southern slopes of the Bowland Fells NCA. Tributaries of the Ribble within the NCA include the River Calder (and its tributary Sabden Brook) and the River Darwen.<br><br>The Ribble catchment has a history of flooding. River flood risk within the NCA occurs at Ribchester on the River Ribble, Burnley on the River Calder, Blackburn on the River Darwen, and Nelson, Accrington and Oswaltwistle on the Leeds and Liverpool Canal.<br><br>Downstream, flood risk also occurs within the Lancashire and Amounderness Plain NCA at Preston on the Ribble and Walton-le-Dale on the Darwen (Southern Pennines NCA) to the south. Chorley is at risk of flooding from the River Yarrow, which rises on Rivington Moor in the Southern Pennines NCA and flows through the southern part of this NCA before joining the River Douglas in the Lancashire and Amounderness Plain NCA, where further flood risk exists at Croston[7]. | Regional | In upstream NCAs moorland and grassland management needs to be addressed to slow down flow, reduce the rate/speed of runoff and store flood waters.<br><br>Similarly, the improved management and control of flood waters from rapid rising streams and cloughs within this NCA will influence many urban areas and settlements downstream.<br><br>There is also some scope for creating opportunities for rivers to naturally re-engage with their flood plains or creating wetlands adjacent to watercourses to regulate flow and increase water storage. | Encourage opportunities in upstream NCAs to slow down run off from the moorlands by blocking grips and increasing storage capacity of the soils in order to raise water table levels to potentially reduce downstream flood risk.<br><br>Encourage expansion of wetland habitats such as reedbeds, woodlands and wet grasslands along valley bottoms, to improve flood mitigation by intercepting and retaining water for longer.<br><br>Investigate and seek opportunities to develop Sustainable Urban Drainage Systems (SUDS) in new development to improve infiltration and manage surface water.<br><br>**Continued on next page...** | **Regulating water flow**<br><br>**Regulating soil erosion**<br><br>**Regulating water quality**<br><br>**Water availability**<br><br>**Biodiversity**<br><br>**Climate regulation** |

[7] *Douglas Catchment Flood Management Plan Summary Report,* Environment Agency (December 2009; URL: www.environment-agency.gov.uk/research/planning/33586.aspx)

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
|---|---|---|---|---|---|---|
| **Regulating water flow continued** | | | | | ... c**ontinued from previous page**<br><br>Seek opportunities to manage, extend and restore existing semi-natural habitats , such as new woodland planting, strengthening hedgerow networks and managing grasslands to aid infiltration.<br><br>Encourage and promote opportunities within the Upper Ribble and Hodder sub-catchments to provide flood storage and create habitat which could reduce downstream flood risk. | |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Regulating soil quality** | Soils<br><br>Geology<br><br>Semi- natural vegetation<br><br>Permanent grassland<br><br>Woodland | The slowly permeable seasonally wet acid loamy and clayey soils (45 per cent) and the slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (14 per cent) may suffer compaction and/ or capping as they are easily damaged when wet. In turn this may lead to increasingly poor water infiltration and diffuse pollution as a result of surface water run-off.<br><br>Similarly, the slightly acid loamy and clayey soils with impeded drainage (10 per cent) have a weak topsoil structure that can easily be poached by livestock and compacted by machinery when wet. Careful timing of activities is required to reduce this likelihood. | Regional | Management measures that maintain good vegetation cover and increase organic matter levels, can help reduce compaction and/or capping of soils when wet, which can also lead to increasingly poor water infiltration and diffuse pollution as a result of rapid surface water run-off.<br><br>Careful timing of seasonal land management activities is required to reduce problems with soil structure. | Work with farmers and landowners to improve grassland management and soil structure to encourage the build up of organic matter, through adoption of extensive grazing regimes to reduce the level of poaching by livestock.<br><br>Encourage the careful planning of cultivations and the carrying out mechanised activities such as trafficking that will cause compaction of soils, especially in wet conditions. | **Regulating soil quality**<br><br>**Regulating water quality**<br><br>**Climate regulation**<br><br>**Regulating water flow**<br><br>**Regulating soil erosion**<br><br>**Water availability**<br><br>**Biodiversity** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Regulating soil erosion** | Semi-natural vegetation cover<br><br>Woodland<br><br>Hedgerows<br><br>Permanent grassland<br><br>Soils | Soils that cover 64 per cent of this NCA are not susceptible to erosion.<br><br>The remaining soils (34 per cent) are prone to erosion and include; the freely draining slightly acid loamy soils (8 per cent), the freely draining slightly acid sandy soils (5 per cent) , where vegetation is removed or where organic matter levels are low after continuous cultivation. These soil types are light and also at risk of wind erosion, especially where coarse textured (freely draining slightly acid loamy soils), cultivated or left bare.<br><br>The slightly acid loamy and clayey soils with impeded drainage (10 per cent) are easily compacted by machinery or livestock if accessed when wet and are prone to capping or slaking, increasing the risks of soil erosion by surface water run-off, especially on steeper slopes.<br><br>**Continued on next page...** | Regional | 34 per cent of the soils in this NCA are subject to soil and/or wind erosion occurring when vegetation is removed and ground left bare, where organic matter levels are low, where soils are coarse textured, when wet and easily compacted by machinery or livestock, and where they are prone to capping or slaking by surface water run-off; this occurs especially on steeper slopes.<br><br>Measures will be beneficial where they retain water in situ; ensure good vegetative cover; and avoid over-grazing/ trampling or damage by mechanised activities.<br><br>Risks arise with loamy and sandy soils which are vulnerable to erosion if heavily trafficked or after heavy rain. Improving organic matter content and vegetation cover on these soils is important.<br><br>The many watercourses result in high levels of runoff, especially after heavy rainfall, with consequent impacts of soil erosion and sediment load impacting on areas downstream. | Seek opportunities to manage permanent grasslands to build up organic matter and avoid compaction, for instance by reducing grazing pressures, thus slowing down run-off.<br><br>Encourage opportunities to manage and extend woodland and riparian habitats along cloughs, valley sides and near water courses to prevent or capture sediment run-off and improve infiltration.<br><br>Encourage restoration and management of hedgerows and maintaining dry stone walls in good condition to act as wind breaks and bind the soil. | **Regulating soil erosion**<br><br>**Regulating water quality**<br><br>**Regulating soil quality**<br><br>**Regulating water flow**<br><br>**Biodiversity**<br><br>**Climate regulation** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Regulating soil erosion continued** | | … **continued from previous page**<br><br>The slowly permeable wet very acid upland soils with a peaty surface (8 per cent) often found on the hill tops are at risk of gullying/ hagging (and loss of particulate organic matter) where surface vegetation is damaged or lost. Drainage of these soils (for example through gripping) may also result in increased oxidation of carbon and soil wastage. Measures will be beneficial that retain water in situ; ensure good vegetative cover; and avoid over-grazing/ trampling or damage by mechanised activities.<br><br>Erosion is equally prevalent in the very acid loamy upland soils with a wet peaty surface (3 per cent) often found on steep slopes, where a combination of rapid runoff and easily damaged peat layers results in soil erosion. | | There are also risks of poaching and compaction on soils with impeded drainage.<br><br>The small pockets of upland soils with a peaty surface are at risk of gullying/ hagging (and loss of particulate organic matter) where surface vegetation is damaged or lost. Issues include ensuring that these peaty soils retain water in situ, have good vegetative cover and are not overgrazed, subject to trampling / poaching or damage by mechanised activities. Drainage of these soils for example, through gripping, may also result in increased oxidation of carbon and soil wastage. | | |
| **Pollination** | Not applicable in this NCA | N/A | N/A | N/A | N/A | N/A |

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| **Pest Regulation** | Not applicable in this NCA | N/A | N/A | N/A | N/A | N/A |
| **Sense of place/ inspiration** | The broad valley of the River Calder and Ribble and their tributaries<br><br>Large towns and communications corridors<br><br>Leeds and Canal<br><br>Extensive areas of reclaimed land<br><br>Scattered rural villages and hamlets in lower hills<br><br>Homogeneity of stone buildings<br><br>Wooded cloughs<br><br>Strong Industrial heritage<br><br>AONB designation<br><br>Country Parks, Local Nature Reserves and other local green spaces | Sense of place is provided by the broad valley of the rivers Ribble and Calder and their tributaries, running northeast to southwest between Pendle Hill and the Southern Pennines.<br><br>Additionally, local areas of green space provide environments that are important to communities, providing connections to the natural environment, from which they derive enjoyment and inspiration. | Regional | Large towns and numerous communication routes, including the Leeds and Liverpool Canal, the Preston-Colne rail link and the M65 have created an intensely urbanised and developed landscape including the towns of Accrington, Blackburn and Burnley.<br><br>Further development of transport corridor and associated infrastructure may lead to a weakening of the sense of place. Agricultural land is highly fragmented by industry, with small, often ancient woodlands, constrained to narrow, steep sided cloughs on valley sides.<br><br>Pastures are bounded by hedges on low ground, while stone walls and post-and-wire fences are more characteristic of higher ground, with boundary edges often degraded around urban areas. Field sizes are regular in the west and irregular to the east.<br><br>**Continued on next page...** | Plan to protect and conserve the contrasts between open expansive moorlands, walled pastures of the moorland fringes, and enclosed wooded valleys.<br><br>Manage and restore grasslands to retain livestock industry.<br><br>Manage and expand clough woodlands through new tree planting.<br><br>Encourage Farmers and Landowners to maintain and restore patterns of dry stone walls, and Manage, Restore and enhance the hedgerows patterns to strengthen them as valuable landscape features and wildlife habitats in the farmed landscape. | **Sense of place/ inspiration**<br><br>**Sense of history**<br><br>**Recreation**<br><br>**Tranquillity**<br><br>**Food Provision**<br><br>**Biodiversity**<br><br>**Geodiversity** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Sense of place/ inspiration continued** | | | | **... continued from previous page**<br><br>The area also has extensive areas of reclaimed land, a product of former quarries and coal mining that is now generally well vegetated and grazed by sheep, as well as a considerable number of country houses and parklands on the northern valley sides especially away from the main built up areas.<br><br>Land reclamation from quarrying, mining and past industries needs to strengthen and enhance landscape character, whilst still retaining some evidence of the industrial heritage.<br><br>There are important recreational areas close to where people live and work, and in addition to offering valuable wildlife habitats, they provide a sense of place and inspiration for local communities.<br><br>There is a strong sense of visual containment resulting from the surrounding hills which also serve as an important backdrop, dwarfing settlements in the valley bottom. | Seek opportunities to conserve and maintain local settlement patterns of stone built villages, hamlets, farmsteads and barns with their vernacular architecture and building materials, and to avoid the loss of historic evidence through insensitive development.<br><br>Seek opportunities to encourage the urban populations to engage with the natural environment through better access provision, and volunteering activities within local green space, and encouraging their involvement in the future management of sites.<br><br>Improve the urban-rural fringe through careful design and integration of green infrastructure with housing and industry, linking new developments with the wider countryside to sustainably manage urban activities within agricultural areas.<br><br>Increase awareness of, access to, and interpretation of strong industrial heritage/ textile industry, particularly associated with the Leeds and Liverpool Canal, to increase knowledge, understanding and enjoyment of these features. | |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Sense of history** | Industrial heritage linked to the textile industry<br><br>Historic access and movement along the valleys<br><br>Country houses and parkland<br><br>11 Registered Parks and Gardens<br><br>34 Scheduled Ancient Monuments<br><br>1,323 Listed Buildings<br><br>Vernacular architecture and building materials | The history of the landscape is evident in its strong industrial heritage linked to the textile industry, and associated mill buildings, mill lodges (some redundant, derelict and/or underused) and ponds.<br><br>Densely populated, stone built towns of Blackburn, Accrington and Burnley which expanded rapidly as a result of the industrial revolution.<br><br>Large country houses with parks and gardens built from wealth of textile and mining industries away from urban areas.<br><br>Stone built rural and urban settlements. | Regional | There is a strong connection between geology and the industrial heritage, linking to local quarrying, coal mining and water power that initiated the Industrial Revolution and development of textile industry that has influenced the landscape.<br><br>Increasing the sense of history has the potential to increase the sense of place which may in turn lead to an increase in biodiversity and create recreational opportunities by reinforcing the historic character of the landscape.<br><br>Some towns form part of earlier rural villages, retaining early buildings alongside stone terraces to accommodate textile workers. Evidence of older buildings, usually of sandstone grit, is also present in the scattered settlements on the valley sides.<br><br>The historic character is also dominated by access and movement along the valleys, and is reflected in a Roman road and forts at Burwen Castle near Elslack and at Ribchester, and more recently by the Leeds and Liverpool Canal developed for industrial use but now mainly recreational.<br><br>**Continued on next page...** | Seek ways to Protect, conserve, manage and interpret the area's historic identity, in particular the buildings associated with past textile and mining/ quarrying, industries, urban fabric and parks, rural villages, country houses, parklands and industrial heritage to ensure a better understanding of past land use and retain evidence of the relationships between features for the future.<br><br>Seek opportunities to protect, conserve, manage and interpret the many layers of historic evidence to raise awareness and to increase public engagement, enjoyment and understanding<br><br>Promote and encourage opportunities to restore and re-use vernacular buildings using local styles and building materials | **Sense of history**<br><br>**Sense of place/ inspiration**<br><br>**Recreation** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Sense of history** | | | | **... continued from previous page**<br><br>Aspects of history likely to be particularly evident to the general public include the area's country houses and associated parklands, located particularly on the northern valley sides. These include Read Park, Huntroyde Demesne and Gawthorpe, and Dunkenhalgh and Towneley Halls, built as a result of the wealth from the textile industry. | in order to maintain and enhance the historic character of rural villages and urban areas.<br><br>Encourage and promote land management practices and developments such as tracks that will not be detrimental to or damage archaeological evidence or historic features.<br><br>Encourage sensitive restoration and re-use of existing, redundant and derelict mill buildings associated with the textile industry to retain the historic industrial heritage, particularly associated with the Leeds and Liverpool Canal.<br><br>Raise awareness and increase understanding of the local history of the area and the importance of this at a national level.<br><br>Seek opportunities to promote, improve and use the rights of way network to access, reveal and interpret the area's rich history, enabling greater understanding and enjoyment.<br><br>Encourage opportunities to maintain, conserve and restore patterns of dry stone walls and the vernacular architecture of farmsteads and field barns. | |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Tranquillity** | Agricultural land<br><br>Woodland<br><br>Parklands and urban green spaces<br><br>Rivers, streams and Leeds and Liverpool Canal | Tranquillity has declined fairly significantly in the past fifty years. Total area of the NCA classified as 'undisturbed' decreased from 38 per cent in the 1960s to 16 per cent in 2007. Greatest remaining 'undisturbed' areas include small pockets of farmland, woodland and parkland on the lower slopes of Longridge Fell and Pendle Hill in the north and the Southern Pennines to the south, as well as the south-west of Skipton, and west of Blackburn, the Ribble valley and stretches of the Leeds and Liverpool Canal.<br><br>Majority of the land in NCA is categorised as disturbed (67 per cent) with 17 per cent urban.<br><br>The NCA suffers from high levels of intrusion from urban /housing development, industry and noise, in the transport corridor surrounding the M65. | Local | Tranquillity has declined fairly significantly, in the past fifty years with the amount of disturbed land increasing by 15 per cent since the 1960s.<br><br>A sense of tranquillity is associated with small pockets of woodland in cloughs, on valley sides, in the parklands associated with country houses, and along undeveloped stretches of Leeds and Liverpool Canal and rivers such as the Ribble and Sabden Brook.<br><br>The remaining undisturbed areas are an important source of perceived tranquillity in the local area and are highly valued for the relative tranquillity they provide.<br><br>Providing increased opportunities and improved access to tranquil environments, through management, enhancement and expansion of existing and creation of new woodlands and other semi-natural habitats. This may help manage the challenges associated with key sites, ensuring that they can remain tranquil and contribute to biodiversity, sense of place and recreation. | Seek opportunities to protect and enhance remaining areas of undisturbed or less disturbed land, for example, parklands, urban green space from development.<br><br>Encourage opportunities to improve, maintain and expand semi-natural habitats on farmland, such as meadows, pastures, wetlands and clough woodlands which may increase the sense of tranquillity in the urban fringes. For example, by planting new woodlands and shelter belts and ensuring new developments are sensitively designed to reduce any visual and infrastructure impacts on rural areas and the urban fringe.<br><br>Seek to ensure new woodland contributes to the recreational value and screen urban fringes to enhance rural character and tranquillity.<br><br>Seek opportunities through regeneration and restoration, new housing and industrial developments to create additional green infrastructure provide quiet enjoyment and improve wellbeing through increased contact with the natural environment. | **Tranquillity**<br><br>**Sense of place/ inspiration**<br><br>**Biodiversity**<br><br>**Recreation**<br><br>**Geodiversity**<br><br>**Sense of history** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Recreation** | Network of public rights of way<br><br>Open access land<br><br>Country parks<br><br>Industrial heritage – textiles<br><br>Leeds and Liverpool Canal<br><br>Woodlands<br><br>Registered Parks and Gardens<br><br>Local Nature Reserves<br><br>Recreational activities such as golf | 1,590 km rights of way (with a density of 2.9 km per $km^2$), including the Pennine Bridleway (15 km) and Pennine Way (13 km) which cuts through the area.<br><br>1,733 ha of open access land (just over 3 per cent of the NCA).<br><br>Other recreation provisions are recognised through "Woods for People" (689 ha) and Forestry Commission Walkers Welcome Grants (167 ha), country parks (642 ha), Local Nature Reserves (80 ha) and 11 Registered Parks and Gardens, together with other local green space. These locations accommodate a variety of recreational activities for quiet enjoyment including walking, cycling and horse riding and other activities such as bird watching, fishing, canoeing and golf. | Regional | Only 3 per cent of the Lancashire Valleys is classified as being publically accessible.<br><br>Whilst the extent of open access land is limited, the large urban population within the Lancashire Valleys has access to many public rights of way, as well as Country Parks, Local Nature Reserves, Woodlands, Parklands and urban green spaces.<br><br>Reflecting the needs and interests of the large urban populations in the area, and with easy access by road, rail and bus, there are many opportunities to access the natural environment for recreation and leisure pursuits.<br><br>Improved access to and the provision of a range of recreational opportunities and interpretational facilities would enable people to enjoy the natural environment and landscape without significant or detrimental effects.<br><br>Local woodlands, cloughs and the strategic/historic Leeds and Liverpool Canal may generate local interest to improve and expand habitats, create wildlife corridors and provide new access for people. | Seek opportunities to improve access by ensuring that paths are maintained and well signposted, creating new circular routes and some surfaced paths are provided for use by all levels of ability.<br><br>Seek opportunities to provide increased access and interpretation of the landscape and its many historic features, especially boundary stones, tracks, farms, canals and mills.<br><br>Seek opportunities to provide new and improved access to green spaces, especially within urban fringe areas, new housing and industrial developments enabling communities to reconnect with the natural environment close to where they live, allowing them to enjoy this contact, and benefit from the health and social rewards it affords them.<br><br>Provide interpretation of the landscape, its history and its features through sensitive restoration and regeneration schemes. | **Recreation**<br><br>**Sense of place/ inspiration**<br><br>**Sense of history**<br><br>**Biodiversity**<br><br>**Geodiversity**<br><br>**Tranquillity** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Biodiversity** | Semi-natural habitats<br><br>SSSI and Local Wildlife sites<br><br>Woodlands<br><br>Wetlands<br><br>Mill ponds<br><br>Rivers and canals<br><br>Species | There is a limited extent of BAP priority habitats within the NCA; with 1,910 ha of broadleaved woodland being the largest, then 615 ha of upland heathland unimproved grassland are also significant.<br><br>The NCA contains no internationally designated nature conservation sites or National Nature Reserves and just 75 ha are nationally designated as SSSI.<br><br>There are 275 Local sites covering 3,228 ha (6 per cent of NCA). | Local | Small isolated pockets of Habitats and species have been identified that are of local conservation importance and require action in order to conserve, manage and enhance them.<br><br>Consideration should be given to surrounding areas to promote linking and expansion of habitats (and populations) to improve their biological condition through sensitive land management practices. This may help habitats and species to adapt to climate change, link habitats and allow species movement to strengthen populations to provide a more integrated approach.<br><br>For example, this could include managing and restoring field margins; providing buffers along watercourses; planting new woodlands; creating linear wildlife corridors along rivers and canals, managing and extending green spaces within urban areas to improve connectivity.<br><br>**Continued on next page...** | Encourage improved management to Bring nationally and locally designated habitats, into and maintain favourable condition.<br><br>Seek opportunities to conserve, enhance and expand semi-natural habitats and post-industrial habitats<br><br>There are opportunities to manage the land adjacent to the isolated habitats to ensure that they are protected, expanded, buffered and linked to increase habitat connectivity and allow species movement especially along rivers, Leeds and Liverpool Canal, mill ponds and clough woodlands. | **Biodiversity**<br><br>**Regulating water quality**<br><br>**Sense of place/ inspiration**<br><br>**Recreation**<br><br>**Regulating soil quality**<br><br>**Geodiversity** |

| Service | Assets/ attributes: main contributors to service | State | Main beneficiary | Analysis | Opportunities | Principal services offered by opportunities |
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| **Biodiversity continued** | | | | **... continued from previous page**<br><br>Lowland meadows are now rarely managed in a traditional way and are confined to the upland fringes where the steeper slopes and smaller field size have made improvement less worthwhile. Permanent pastures for livestock grazing also provide conditions for upland waders.<br><br>The urban fringe location enables people to experience and enjoy biodiversity close to home at local nature reserves. | Encourage opportunities to promote sustainable recreation, public understanding and education opportunities linked to biodiversity. Enhance the value of habitats for interpretation, education and visual amenity.<br><br>Encourage improved Management of grassland and woodland through increased uptake of environmental incentive schemes to provide a farmed landscape of fields, well-managed hedgerows, mosaics of grass and margins, and small woodlands to benefit species such as farmland birds .<br><br>Seek to improve restoration of mineral / industrial sites, maintaining their soil quality and water flow to maximise their value to wildlife and biodiversity.<br><br>Encourage opportunities to incorporate green infrastructure projects into new developments especially on the urban fringe to enhance sense of place, recreational and biodiversity value. | |

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| **Geodiversity** | Geological SSSI<br><br>Local Geological Sites<br><br>Exposures in old quarries<br><br>Local stone used for building | There are 3 geological SSSI in this NCA and 16 Local Geological Sites.<br><br>The Lancashire Valleys, occupy a broad trough underlain by Coal Measures and covered in glacial deposits, mostly till.<br><br>A millstone grit ridge lies between the Ribble and Calder catchments; this includes the Mellor Ridge and part of Pendle Hill.<br><br>The bottom of the trough containing Blackburn, Accrington and Burnley is covered in glacial deposits, mostly till. In the Feniscowles / Pleasington area west of Blackburn there are extensive sand deposits.<br><br>The undulating lowland farmland and flood plain west of Blackburn is underlain by heavy boulder clays. | Regional | The NCA is a heavily urbanised area and there are pressures on geological sites for landfill and development.<br><br>The close proximity of large populations also offers opportunities for education, interpretation and recreation at these sites.<br><br>Old and existing quarries provide opportunities for people to see and understand the underlying geology and allow continued research into the geodiversity of the NCA.<br><br>The reclamation and restoration of past mineral workings and quarries provides opportunities to link man's activities with a sense of place and history whilst increasing habitats for wildlife. | Encourage and seek opportunities to maintain the diversity and integrity of geological and geomorphological features within the NCA, linking them to the history and development of land use to enhance their value for interpretation, education and visual amenity.<br><br>Encourage initiatives to Improve public access to, enjoyment of and understanding of the area's geology.<br><br>Promote opportunities to use local building materials to repair, restore and build new developments and housing<br><br>Seek restoration of past mineral sites and quarries for agriculture, recreation and wildlife value, sensitive to local geology and geodiversity.<br><br>Opportunities related to the role of geology in the Industrial Revolution and textile industry. | **Geodiversity**<br><br>**Sense of place/ inspiration**<br><br>**Sense of history**<br><br>**Recreation**<br><br>**Biodiversity** |

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