National Character Area profile:

100. Herefordshire Lowlands

Supporting documents

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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.

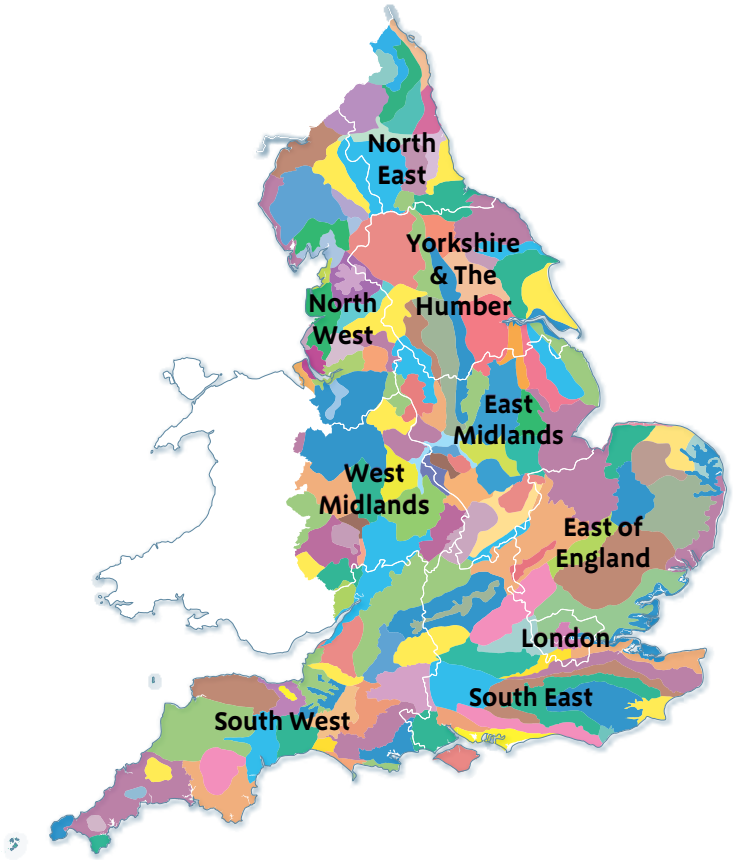
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

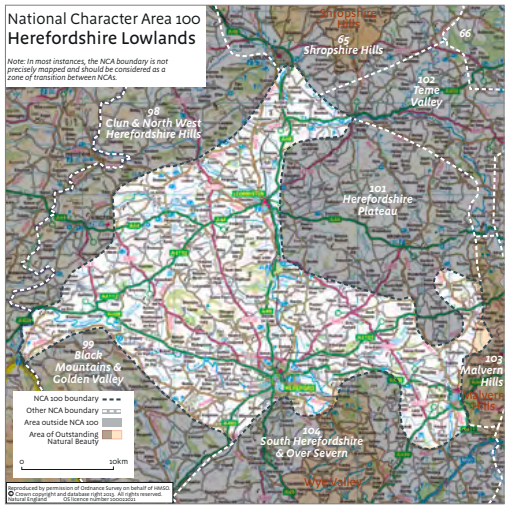
[3] European Landscape Convention, Council of Europe (2000; **URL: http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm**)

Summary

The Herefordshire Lowlands National Character Area (NCA) lies almost entirely within Herefordshire, with small areas to the north and east in Shropshire and Worcestershire and to the south-east in Gloucestershire. It is largely tranquil and rural in character but does include the larger settlements of Hereford and Leominster. There are small dispersed settlements of hamlets and villages, many of which contain older buildings with the local vernacular of black-and-white timber-framed buildings. Restored cider barns with characteristic double doors and historic farmsteads are also common.

The landscape is gently undulating with steep-sided cornstone hills in the central area dominated by ancient woodland of ash and field maple or oak and bracken. Woodland within the area is a significant landscape feature, typically on the hill tops and valley sides. Many of these woodlands are actively managed (commercially) to produce quality timber, for example Garnons Estate. The NCA is an important area for commercial agricultural supported by the fertile and high-grade agricultural soils; the farming is mixed arable and livestock. Traditional orchards are still to be found, though suffering decline, with new orchards and dwarf varieties of trees also common. The area is also important for commercial production of soft fruit under polytunnels, supplying much of the UK. Historic parklands such as at Berrington Hall have many veteran trees that are important for invertebrates.

There are many rivers in the area, the largest of which are the rivers Wye, Lugg and Frome, flowing through wide, fertile mudstone valleys. Old Red Sandstone is commonly found in the west and east of the area and here the soils take on a distinctive red colour. The River Wye Special Area of Conservation is of international importance, designated for its natural river habitat, which includes species such as native migratory fish (lamprey, shad and salmon), and the wide, meandering river valley creates a unique and beautiful landscape. Recreational opportunity is offered by long-distance trails including the Wye Valley Walk which links to the Shropshire Hills and the Herefordshire Trail which links the market towns in Herefordshire. Views can be expansive across to neighbouring NCAs, looking west to the Black Mountains, north to the Clun and Shropshire Hills, and east to the Malvern Hills.



Click map to enlarge; click again to reduce.

Statements of Environmental Opportunity

- **SEO 1**: Protect and manage the internationally important River Wye Special Area of Conservation and the many other watercourses and their flood plains to improve the health of the rivers and the quality and availability of water. Develop the capacity of the riverine environment to tolerate more extreme flow levels by protecting and creating new wet meadow and woodland in the flood plain and seek to increase recreational opportunities related to the riverine environment.

- **SEO 2**: Protect and enhance the natural and historic environment, integrating new development through the use of green infrastructure principles informed by existing heritage, geodiversity and biodiversity assets. Protect the agrarian character of the area by making the most of versatile and fertile soils to produce food while integrating semi-natural features and protecting above- and below-ground heritage assets and geological assets and reinforcing the strong sense of character.

- **SEO 3**: Protect, manage and restore semi-natural habitats, in particular woodlands, grasslands, orchards and wet meadows within the rural and urban areas to improve ecological connectivity, biodiversity, landscape character, the historic environment, and flood water storage capacity and the ability of the landscape to adapt to the impacts of climate change. In particular, manage, restore and create new woodland, and develop connectivity in other semi-natural habitats such as the hedgerow networks and orchards.

Grazing and agriculture in the river valleys, River Wye.

Description

Physical and functional links to other National Character Areas

The Herefordshire Lowlands National Character Area (NCA) lies almost entirely within Herefordshire, with small areas to the north and east in Shropshire and Worcestershire, and in the south-east in Gloucestershire. It is bounded by the Clun and North West Herefordshire Hills NCA and the Black Mountains and Golden Valley NCA to the north and west, the Malvern Hills, Herefordshire Plateau and Teme Valley NCAs to the east and South Herefordshire and Over Severn NCA to the south.

The rivers Wye, Lugg and Frome flow through the NCA in wide, fertile valleys eroded into mudstone and glacial deposits and provide a physical and ecological link with Wales and the Black Mountains and Golden Valley, the Clun and North West Herefordshire Hills and the Herefordshire Plateau NCAs upstream and the Herefordshire and Over Severn NCA downstream. The Wye flows in from the west, from Wales and the Black Mountains and Golden Valley NCA, and then from Hereford into the South Herefordshire and Over Severn NCA. The River Lugg flows through the Clun and North West Herefordshire Hills, crossing into the NCA from the west. It flows through the town of Leominster and south of here it is joined by a tributary, the River Arrow. The River Frome flows southwards into the NCA from the Herefordshire Plateau NCA, west past Yarkshill to Hampton Bishop south-east of Hereford, where it joins the Lugg. The River Teme crosses the northern tip of the NCA as it flows south from Ludlow before turning east to enter the Teme Valley NCA at Tenbury Wells.

Old Red Sandstone rocks underlie most of the area, linking with the neighbouring Black Mountains and Golden Valley NCA, and the Teme Valley and Herefordshire Plateau NCAs. There are widespread coverings of glacial deposits. There is an inlier of older marine Silurian rocks in the Shucknall Hill area.

Recreational opportunity is offered by long-distance trails connecting this NCA to others include the Wye Valley Walk which links to the Shropshire Hills and the Herefordshire Trail which connects the market towns in Herefordshire. Views can be expansive across to neighbouring NCAs, looking west to the Black Mountains, north to the Clun and Shropshire Hills, and east to the Malvern Hills and Woolhope Dome.

The area includes several nationally designated areas for landscape, geology and nature conservation importance. Small areas of both the Malvern Hills (773 ha) and the Wye Valley (130 ha) Areas of Outstanding Natural Beauty fall within this NCA. In addition, 430 ha of the River Wye Special Area of Conservation (SAC) and a small (42 ha) part of The Flits and the Moccas Park National Nature Reserves fall within the NCA.

Main transport links in the area are the A roads linking Hereford and Worcester, Hay-on-Wye and Leominster. Rail links run from the south through Hereford and on to Ludlow, and from the east between Worcester and Hereford, passing through Ledbury.

Key characteristics

- Gently undulating landscape with localised steep-sided hills in the centre and wide agricultural flood plains.
- Much of the area is underlain by Old Red Sandstone, with localised deposits of alluvium and glacial drift. There is also a small area of Silurian limestone and siltstone at Shucknall Hill. Fertile soils support intensive mixed agriculture, especially on the better drained glacial river terraces.
- Wide, meandering river valleys drain the area, including the Wye, a major ecological and recreational asset, and the Lugg, and the valleys of the rivers Frome and Arrow also offer rich habitats.
- Pasture with occasional wet meadows and permanent grassland along the rivers. Low hedgerows with sparse tree cover. Arable cultivation on lower-lying land.
- Localised traditional and bush orchards and occasional hop fields planted with windbreaks.
- Several historic parklands include Humphry Repton's landscape improvements at Garnons and Hampton Court, Capability Brown's landscape at Berrington Hall, Uvedale Price's Foxley and numerous medieval parks, many with important ancient and veteran trees.

Continued on next page...

Wide fertile flood plans and low wooded hills.

Key characteristics continued...

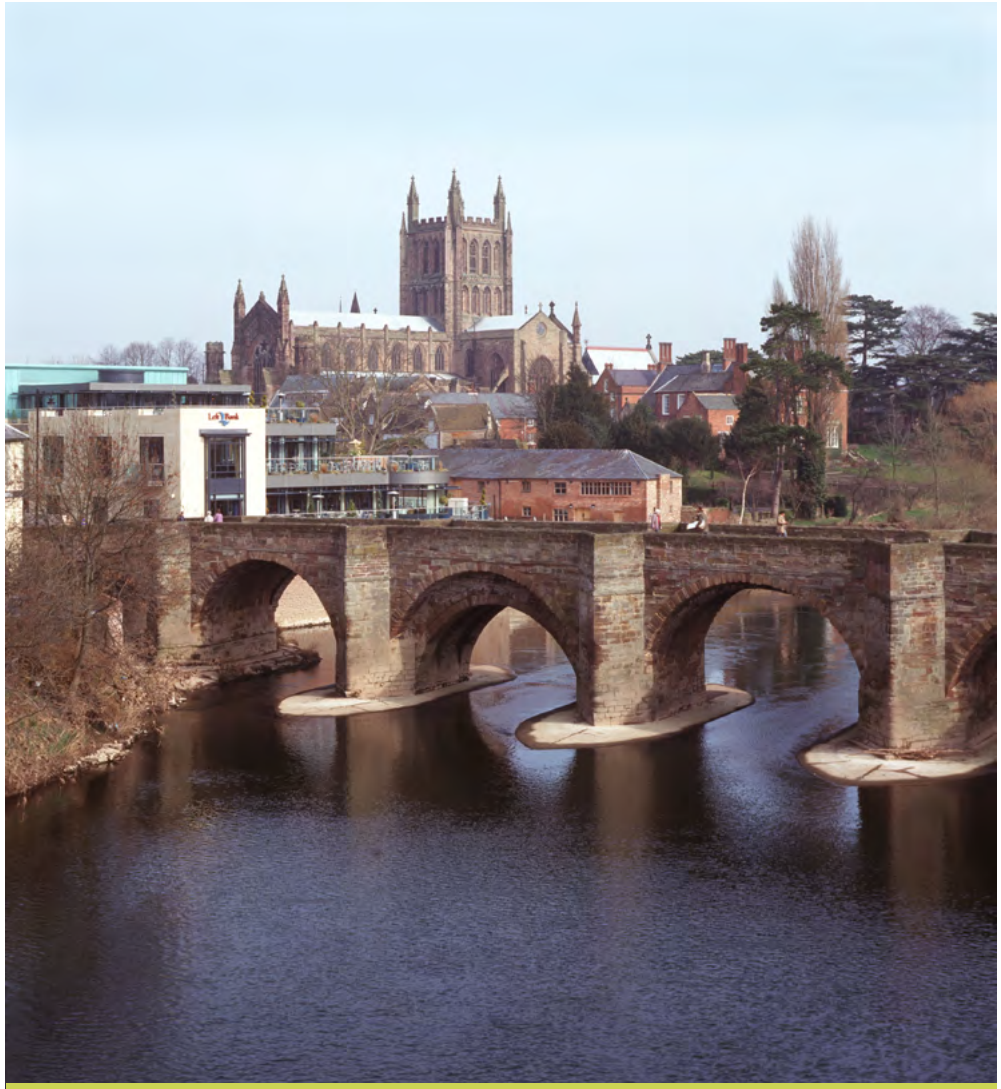
River Wye at Whitney showing the fertile and distinctive red soils of the Herefordshire Lowlands.

- Timber-framed (black-and-white) buildings are characteristic with stone and red brick also used frequently as building materials.
- Dispersed rural settlement pattern throughout with scattered villages, hamlets, farmsteads and clustered settlements around commons. Historic market towns of Hereford and Leominster are the principal settlements.
- Tranquil and relatively undisturbed by major infrastructure aside from a few crossing A roads between Hereford, Hay-on-Wye and Leominster.

Herefordshire Lowlands today

Lying almost entirely within Herefordshire but with small areas to the north and east extending into Shropshire and Worcestershire, and in the south-east into Gloucestershire, this is a rural lowland landscape bounded by the Herefordshire Hills and the Black Mountains to the north and west, the Malvern Hills and Bromyard plateau to the east and north, and the Wye Valley to the south. Three of the largest five towns in the county – Hereford, Leominster and Ledbury – fall within the NCA. The county town of Hereford lies on the River Wye, west of the confluence with the River Lugg. It is a cathedral city, and many of the buildings are made from rich pink-red stone, brick, clay tile and slate (traditional building materials), giving the city a soft, warm character. The remains of Hereford Castle are still visible, an important historic site as it is one of only four pre-Norman castles in the country. There are a number of smaller castle sites in the area, one with Roman fortifications, and smaller manor sites. Queenswood, the only country park in Herefordshire, falls within the NCA and is a popular visitor attraction.

The county of Herefordshire shares a boundary with Wales and there is a sense of a border landscape with a history of fortification that has left small castles and earthworks. Much of the area is lowland fertile farmland with an undulating topography and wide flood plains, punctuated by a number of often wooded hills such as Dinmore and Wormsley rising steeply from them. The gently undulating mudstone lowlands are crossed by the wide river plain of the Wye with the rivers Frome and Lugg also meandering across the fertile plains. The higher areas were once part of a continuous plateau, but the hard cap has been eroded in many places, creating groups of hills, such as those at Wormsley where Merry Hill, Credenhill and Nupton Hill are separated by steep-sided, small valleys.



Bridge over the River Wye, Hereford.

The Upper Silurian Raglan Mudstone Formation, the lowest of the Old Red Sandstone rocks, underpins the low-lying land. It is composed of red and greenish-grey silts and mudstone with some sandstone and calcrete limestone bands. The hills are underlain by Lower Devonian St Maughans Formation strata consisting of alternating beds of siltstone and sandstone containing nodular calcrete limestones formally known as 'cornstones'. The Old Red Sandstone gives rise to the fertile cultivated land with rich red soils that characterise the area. In the Wye Valley there are extensive spreads of glacial deposits. Gravels were formerly extracted in pits such as those at Belmont and Stretton Sugwas. These superficial deposits include kettle moraines, a hummocky topography with pools in hollows which have no exit for drainage. Fine examples of kettle holes are seen west of Hereford near Kenchester in the Wye Valley and in a belt from Kington to Orleton in the north of the NCA. Kettle holes are formed in superficial material deposited as the glacier melted. They show the places where blocks of ice, buried under the moraine, finally melted and the gravel above them collapsed. In some parts of the river valleys, the mudstone is overlain by fertile alluvium. Sub-alluvial gravel beds also occur in the Lugg Valley area. These were formerly extracted at Bodenham and are still being worked at Wellington.

The plain is drained to the west by the River Wye, entering the area at Hay-on-Wye, in the south-west. The rivers Frome and Lugg converge just north of Hampton Bishop and then a mile further south meet the Wye at Mordiford. The River Arrow is a tributary of the Lugg, joining it just south of Leominster. The River Teme flows southwards into the area from Ludlow and then turns eastwards at Woofferton to enter the Teme Valley proper at Tenbury Wells. The River Teme formerly flowed south and was a tributary of the Lugg. Its course changed during the ice age and now flows east to join the River Severn.

All of the rivers have wildlife interest, particularly for higher plants and mosses. Aquatic plants include water crowfoot, pondweed and yellow water lily with bankside vegetation composed of species such as water avens, great pond sedge, yellow flag and marsh speedwell. Kettle hole ponds in glacial moraines form an important habitat with rare and endangered species, some remnant from periglacial times. The sediment accumulated in these ponds gives a record of the changing plant and animal species as the climate changed over tens of thousands of years.

Raglan mudstone wall at Bodenham.

Mature oak tree, Garnons.

The NCA contains more than 6,000 ha of woodland which amounts to around 7 per cent of the total area. Around half of this is ancient woodland, largely of ash and field maple or oak and bracken types supporting a ground flora that is often rich in herbs such as wild daffodil, bluebell, dog's mercury, wood anemone and violet. The remainder has many coniferous elements of productive woodland of spruce, Douglas fir and larch.

Running south-west from Hope-under-Dinmore to Staunton-on-Wye in the centre of the NCA are the most wooded parts with ash, field maple and dog's mercury woodland as well as oak, bracken and bramble woods. Both types are well represented at Wellington Wood Site of Special Scientific Interest (SSSI) near Dinmore. This is one of the largest and most biologically rich ancient semi-natural woodlands in the NCA. These woodlands were traditionally managed as coppice, which has declined significantly, leaving only a few woodlands still managed in this way. Traditional orchards were once extensive across the area but now are now found mainly at the edges of the hamlets and around farmsteads.

Remnants of wet woodland also remain along the river valleys and wet grassland is very restricted. Isolated examples of previously extensive areas can be found, including Lugg and Hampton Meadows SSSI on the outskirts of Hereford, one of the largest surviving meadows of this type in the country. Many of the hedgerows are over-trimmed and gappy. Across most of the lower-lying areas they are of 19th-century enclosure origin and are limited in diversity. Thicker, more mature, species-rich hedgerows are found on the rising ground and steeper slopes of the hills and adjacent areas.

There is a high concentration of medieval parks, and numerous designed landscaped parks. Many hill tops are marked by iron-age hill forts, such as Credenhill Camp and Sutton Walls Camp. The parks, along with traditional orchards, often support very rich invertebrate fauna, particularly species associated with mature timber and deadwood.

Arable cultivation is concentrated in the Wye, Lugg and Frome river valleys, with mixed agriculture elsewhere. Although the agriculture is highly commercial and productive, the farms themselves are still relatively small, the majority being below 20 ha in the mid-19th century and in 2000 68 per cent of businesses operating on less than 50 ha. The area is nationally important for soft fruit production, much of which is now grown in polytunnels, with potatoes as another important crop. Many original field boundaries have been removed to create large fields for agricultural purposes. This open character is broken by orchards and occasional hop fields, often with high shelterbelts around them. Smaller pasture fields and numerous hedgerow trees are to be found on the higher ground. Occasionally there are poplar shelterbelts along the valley bottoms where the surviving permanent grassland is now found – a survivor of the formerly much more extensive Lammas meadows on the flood plains of the Wye, Frome and Lugg.

Timber-framed buildings are common, including a high proportion from the 16th century or earlier. Weatherboarding is a common form of cladding for timber-framed buildings, particularly barns, and is often associated with tall, stone plinths and gable walls. Old Red Sandstone and greyish-yellow Downton Stone are also frequently seen in older buildings. There are converted hop barns and cider houses (distinguished by wide doors). The settlement pattern across the NCA is dispersed with nucleated villages along the river valleys and small market towns such as Ledbury. This tranquil rural area offers opportunities for walking on local and long-distance footpaths as well as recreation on the many rivers. The many SSSI, the Wye SAC and a network of semi-natural habitats exist within a commercially farmed environment.

The landscape through time

The oldest rocks in the NCA are found on Shucknall Hill where Silurian limestones and siltstones have been up-folded into an anticline adjacent to a long-distance fault line, the Neath Valley Disturbance which follows the line of the Frome Valley adjacent to Shucknall Hill. These rocks were formed in warm seas. The rocks of most of the area are Old Red Sandstone, the oldest of which are Upper Silurian in age and the later Devonian, laid down on a large landmass formed when two tectonic plates of the Earth's crust collided and pushed up the Welsh mountains. Softer mudstone rocks with some sandstone bands (Silurian Raglan Mudstone Formation, Upper Silurian in age) underlie the major river valleys. The Raglan Mudstone Formation formed on a coastal plain occasionally flooded by the sea. Fine sediment formed mudstones with some sandstones, which now underlie the lowland of central Herefordshire.

Limestone is found on steep slopes where the land rises from the lowlands to the hills. About 400 million years ago, the climate was hot and arid, causing lime-rich groundwater to be drawn to the surface where it evaporated. Concentrations of calcium carbonate were left as a nodular limestone layer, the Bishop's Frome Limestone. Later, coarser material was deposited by seasonal streams, forming mainly sandstone with some mudstones, the St Maughans Formation, which now underlies the hills rising above the Herefordshire plain.

There is a rare example of a dolerite igneous rock, the Bartestree Dyke, which formed when molten material intruded into a crack in the Earth's crust in the Permian Period. This hard, crystalline rock was formerly worked in a quarry near St Michael's Hospice.

The ice age had a great effect on the area. There are hummocky moraines with kettle holes both in the Wye Valley and in a band stretching from Kington to Orleton in the north of the NCA. A series of terminal glacial moraines crosses the Wye Valley to the west of Hereford. To the east of the limit of the Devensian

Glaciation, which reached Hereford and roughly the line of the A49 north of Hereford, isolated patches of older Anglian glacial deposits are found on the top of ridges. The rivers Teme, Lugg, Wye and Leadon have a series of remnants of river terrace deposits which date to the last interglacial period.

Across the area there is extensive evidence for prehistoric activity and settlement in the river gravels, including cropmarks of the late Bronze Age and Iron Age. There are some good examples of Romano-British farmsteads and iron-age hill forts such as at Credenhill and Sutton Walls Camp.

Repton's landscaped park at Garnons.

Roman development of the landscape has been an important influence. There are a number of Roman roads including Watling Street, a large Roman settlement at Kenchester (Magna), a Roman villa at Bishopstone and a crossing of the Wye at The Weir. Offa's Dyke was rebuilt but the original course of the dyke (around 780) ran from Hereford to Lyonshall and beyond. The establishment of a border between England and Wales set the context for the 'marches' landscape with historically the feel of a 'frontier' county. Defended manors, mottes and moated sites are found in just about every settlement and even the characteristic separated church bell tower suggests defensive intent. This is also linked to the fertility and productivity of the landscape which makes it very valuable. The market and mercantile influence on the landscape is also important with centres at Ledbury, Pembridge and Eardisley. From this also comes the rise in the fortunes of the gentry and the establishment of many medieval and Tudor gentry houses with attached parkland (also the parklands of the nobles and particularly the Bishop of Hereford). Later the agricultural wealth of the lowlands also fuelled the establishment or redevelopment of houses and parkland. The predominant settlement pattern of the area is dispersed but most of the villages and hamlets were established by the 11th century. Nucleated villages developed along river valleys at crossing points and defensible locations. Arable cultivation was historically concentrated in the Wye, Lugg and Frome river valleys with mixed agriculture elsewhere, and orchards for cider making appearing in the 14th century. Extensive watermeadow systems along the wide river valleys developed from the 12th through to the 18th century and were often paid for by wealthy landowners to 'improve' agricultural productivity.

During the 17th and 18th centuries the central Herefordshire plain was primarily a corn–livestock region with wheat being the main cereal grown. Cattle and pigs were often kept in the cider orchards. The farms in the area were generally small, the majority below 20 ha in the mid-19th century and in 2000 68 per cent of businesses still operated on less than 50 ha. Historic designed landscapes are linked to the agricultural affluence of the area. A good example is Garnons, a Repton landscape next door to Foxley, seat of Uvedale Price, one of the first proponents of the picturesque landscape movement.

Between the 16th and 19th centuries farmsteads tended towards loose courtyard plans with large threshing barns. Cider houses, distinguished by wide doors, and hop kilns were incorporated into 18th-century farmsteads – some of these buildings have earlier timber-framed cores or recasings in stone of earlier timber buildings.

The predominant field pattern is of multi-period enclosures. Open fields, some organised on two- or three-field rotations, probably developed from small common arable cores after the late 11th century around larger nucleated settlements in the Lugg and middle Wye valleys. Around these communal fields, there lay a complex intermingling of assarted fields, common land and common arable. Enclosure was generally complete by the 18th century. Since then there has been a significant process of boundary removal in arable areas, particularly in the third quarter of the 20th century. The slopes to the higher land are characterised by smaller fields subdivided principally for stock management and have suffered less hedgerow removal. In the latter part of the 20th century larger fields became a major element of the landscape east of Hereford. A very late connection to the rail network contributed to the retention of the rural character of the area. Expansion of the cider and fruit producing industries in the late 19th century established the commercial orchard character as opposed to the traditional orchard landscape. Fruit production resulted in the location of Robertson's jam factory at Ledbury, linked to more recent soft fruit production under polytunnels. The Robertson's site was redeveloped by Universal Beverages Limited, processing vast amounts of bulk fruit for the drinks industries (in 2011 they processed 117,000 tonnes of apples).

The area has been dominated by commercial agriculture for the past few centuries with small areas of semi-natural habitat and a dispersed rural settlement pattern. It is a relatively undeveloped area which has escaped the pressure of modern development with some pressure to accommodate further growth around the urban centres of Hereford and Leominster, both of which have already grown far beyond their historic cores.

Ecosystem services

The Herefordshire Lowlands 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 Herefordshire Lowlands NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** The NCA supports a mixture of farming, from livestock to mixed intensive arable, and this makes an important contribution to the region. Primarily cereals, general cropping and horticulture predominate with many 'bush' orchards supporting local and national drinks industries. Soft fruit production, much under polytunnels, supplies many national supermarket chains.

- **Biomass energy:** Existing woodland cover offers potential for the provision of biomass by bringing unmanaged woodland under management and as a by-product of commercial timber production. There is potential for miscanthus and short rotation coppice although with predominantly Grade 2 and some Grade 1 agricultural soils arable production may be favoured.

- **Water availability:** The NCA is in a high rainfall area with the main river, the Wye, fed from a wide catchment extending into the Welsh mountains to the west. The main uses of water in the catchment are for public water supply and agriculture, with very little industrial use. Large quantities of water are used both in Hereford and Ledbury in the drinks industries, both processing and treating waste. When Bulmers are treating apple pulp waste in the autumn there is barely enough water to treat the sewage waste from Hereford. Surface and groundwater resources in this NCA have been assessed as 'no water available'. The NCA does not overlie any major aquifer,

and overall there is a 'low risk' to groundwater levels from abstractions in the NCA. There are also no significant reservoirs or lakes within the NCA.

- **Timber provision:** The area contains many woodlands which are managed to produce high-quality timber products for furniture, joinery and sawmilling.

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

- **Climate regulation:** Existing woodlands cover 7 per cent of the NCA. This is important for the sequestration and storage of carbon, especially where the woodland is ancient and under management. There are patches of higher soil carbon content (5–10 per cent) in the west of the NCA. Although this is not indicated by the soil types it may potentially be associated with areas of lowland mixed deciduous and wet woodland and the 300 ha of marsh, fen and grassland habitat in the NCA.

- **Regulating water flow:** Much of this NCA is considered an area of 'low to moderate' fluvial flood risk. Extensive flood alleviation measures and defences have been developed to protect the centre and lower-lying areas of Hereford. There is important high-quality agricultural land in this area, with a large proportion at flood risk, principally in the vicinity of the lower River Lugg, along the River Frome and along sections of the River Leadon. The Environment Agency supports opportunities to store water or manage run-off to provide flood risk or wider environmental benefits, including along the rivers Wye and Lugg. Substantial areas of flood meadow remain, principally around the confluence of the rivers Wye, Lugg and Frome. Woodlands (particularly wet woodlands) play an important role in regulating water flow (reducing run-off) and improving quality (reducing diffuse pollution) by stabilising soil.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** Sense of place is provided by the distinctive, undulating, intensively farmed landscape with localised steep, often wooded, hills such as Dinmore and Wormsley rising above wide flood plains, with the meandering rivers of the Lugg, Frome and internationally important Wye, marked by occasional pollarded trees. The city of Hereford, the county town, lies at the southern end of the area and exerts a strong influence across most of the NCA. Hay-on-Wye to the west and Ledbury to the east act as 'gateways' into the area, from Wales and from the Malvern Hills respectively.

- **Tranquillity:** A sense of tranquillity is likely to be particularly associated with the deeply rural and distinctive character of the traditionally farmed Herefordshire countryside crossed by wide, meandering river valleys and punctuated by steep, wooded hills with parkland and extensive orchards around the many small settlements.

- **Recreation:** Recreation is supported by the area's 1,319 km rights of way network (with a density of 1.5 km per km^2) as well as 458 ha of open access land (0.5 per cent of the NCA). Queenswood Country Park on Dinmore Hill, half way between the two major population centres, is a much-used recreational resource. Access for recreation is also available within the river valleys. A National Cycle Route follows the Lugg Valley and there is access to the Offa's Dyke National Trail from the Wye Valley on the Welsh border. A public right of navigation exists on the River Wye throughout the area, making it extremely popular with canoeists and other boaters.

- **Biodiversity:** There is one internationally designated site within the NCA – the River Wye SAC. The River Wye is an extensive river system crossing the border between England and Wales and supports a number of important and rare species. The SAC extends over 2,200 ha, of which 430 ha lie within this NCA. There are 24 SSSI in the NCA, totalling more than 1,000 ha.

- **Geodiversity:** As well as the SSSI at Monnington Scar there are 36 Local Geological Sites within the NCA. Many of the biological SSSI owe their character to the underlying geology. The Sturts contains the important habitat of kettle hole ponds in a glacial moraine.

Statements of Environmental Opportunity

SEO 1: Protect and manage the internationally important River Wye Special Area of Conservation and the many other watercourses and their flood plains to improve the health of the rivers and the quality and availability of water. Develop the capacity of the riverine environment to tolerate more extreme flow levels by protecting and creating new wet meadow and woodland in the flood plain and seek to increase recreational opportunities related to the riverine environment.

For example, by:

- Enhancing the riverine character of the NCA by improving flood plain habitat, seeking opportunities to manage and create new wet meadow and woodland.
- Working with a wide range of partners to ensure that catchment sensitive farming principles and methods are used to reduce soil erosion, improve water quality, regulate water flow, reduce the impacts of flooding and help to build resilience to climate change, thereby improving the condition of riverine habitats and the opportunities for species that rely on the river to thrive.
- Managing riparian habitats, particularly low-input permanent pasture, hedgerows and woodland, to reduce soil erosion and improve water quality and biodiversity.
- Managing woodland on steep-sided hills and bankside trees, where appropriate, by coppicing to minimise land slippage, soil erosion and trees entering the rivers.
- Managing livestock grazing close to rivers to minimise soil compaction, soil erosion and diffuse pollution while addressing the need for the provision of water for livestock that does not have an impact on the water quality.
- Retaining, restoring and protecting bankside vegetation and the natural flood plain function of the rivers by appropriately managing, restoring and creating wetland habitats such as flood plain wet grasslands and woodlands; and improving the management of agricultural drainage and land use, increasing the area and volume of flood water storage capacity, reducing surface water run-off and soil erosion, reducing the impacts of flooding and improving resilience to climate change, water quality and biodiversity.
- Creating grassland buffer strips, water meadow and wet woodland adjacent to rivers to reduce soil erosion and improve water quality.
- Seeking opportunities to improve recreational opportunities for all sections of the community along the river corridors through the creation of new rights of way links and circular walks, particularly linking with the urban centres and long-distance footpaths.

SEO 2: Protect and enhance the natural and historic environment, integrating new development through the use of green infrastructure principles informed by existing heritage, geodiversity and biodiversity assets. Protect the agrarian character of the area by making the most of versatile and fertile soils to produce food while integrating semi-natural features and protecting above- and below-ground heritage assets and geological assets and reinforcing the strong sense of character.

For example, by:

- Planning and delivering high-quality green infrastructure, informed by the Herefordshire Green Infrastructure Strategy, linking settlements and creating ecological and recreational networks; and maximising opportunities for people to have a high-quality experience of nature and heritage in both the urban areas and wider countryside.
- Conserving and protecting the integrity and fabric of historic buildings and their surrounding landscapes, particularly where new uses are being considered, and encouraging the use of appropriate styles and sustainable locally distinctive materials throughout the NCA.
- Protecting the area's historical and contemporary rural nature, lack of intrusion and sense of tranquillity while supporting a working landscape that provides essential food, homes and recreational opportunities; and planning for reduced-carbon affordable housing that enhances landscape character and biodiversity, using local materials and built to high ecological standards.
- Conserving, managing and creating new orchards, conserving old fruit varieties, and developing the market for locally grown fruit and awareness of this as a local quality produce.
- Conserving, enhancing and making accessible the network of geological sites, where appropriate, to help to improve the understanding of the role that geodiversity plays, in particular its connection with biodiversity, landscape character, and industrial and cultural heritage.

Listed buidlings in Withington, built of local Withington stone, a distinctive pale greenish-grey Devonian sandstone once extensively quarried for local buildings in the village.

SEO 3: Protect, manage and restore semi-natural habitats, in particular woodlands, grasslands, orchards and wet meadows within the rural and urban areas to improve ecological connectivity, biodiversity, geodiversity, landscape character, the historic environment, and flood water storage capacity and the ability of the landscape to adapt to the impacts of climate change. In particular, manage, restore and create new woodland, and develop connectivity in other semi-natural habitats such as the hedgerow networks and orchards.

For example, by:

- Managing the semi-natural and ancient woodlands to improve landscape character, recreational opportunities, biodiversity and the benefits it can bring to soil quality and long-term carbon storage.
- Creating new woodland to improve connectivity with fragmented small woodlands and other habitats, re-introducing traditional coppice management, where appropriate, as a source of wood fuel, increasing recreational opportunities and increasing carbon storage for climate regulation.
- Maintaining standing dead trees and fallen trees within historic parklands and wood pasture to provide habitats for a range of species including invertebrates, roosting bats and birds, and replanting to replace fallen and decayed ancient and mature trees to maintain landscape character and sense of place and enhance biodiversity.
- Creating and restoring traditional orchards to maintain a network of this important landscape feature and priority habitat.
- Retaining, restoring, managing and planting new hedgerows in traditional local style, to enhance landscape character and improve habitat connectivity, particularly where this can assist in regulating water flow and soil erosion.
- Managing unimproved and wet grassland and seeking opportunities to create new habitat that reduces fragmentation and increases the extent of buffer zones.
- Managing existing traditional orchards and planting new orchards using local varieties to maintain local character and genetic diversity.
- Ensuring good take-up of agri-environment schemes to ensure sustainable land management and wildlife-friendly farming practices.
- Mapping of historic sites and development of management plans to ensure that the sites are protected and conserved as well as enjoyed as an asset to the area.

Supporting document 1: Key facts and data

Area of Herefordshire Lowlands National Character Area (NCA): 88,680 ha

1. Landscape and nature conservation designations

Small areas of both the Malvern Hills (773 ha) and the Wye Valley (130 ha) Area of Outstanding Natural Beauty (AONB) are located in this NCA. A total of 903 ha of this NCA are designated as AONB or 1 per cent.

Management plans for the protected landscapes can be found at:

- www.malvernhills.org.uk/
- www.wyevalleyaonb.org.uk/

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	% of NCA
International	Ramsar	n/a	0	0
European	Special Protection Area (SPA)	n/a	0	0
	Special Area of Conservation (SAC)	River Wye SAC	430	5
National	National Nature Reserve (NNR)	The Flits NNR; Moccas Park NNR	42	<1
	Site of Special Scientific Interest (SSSI)	A total of 24 sites wholly or partly within the NCA	1,109	12

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.

The majority of the 139 ha SSSI of Moccas Park lies in the adjacent NCA of Black Mountains and Golden Valley. There are 257 Local sites in the Herefordshire Lowlands covering 4,563 ha which is 5 per cent of the NCA.

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at: http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm
- Details of Local Nature Reserves (LNR) can be searched at: http://www.lnr.naturalengland.org.uk/Special/lnr/lnr_search.asp
- Maps showing locations of Statutory sites can be found at: http://magic.Defra.gov.uk/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	1	<1
Favourable	160	15
Unfavourable no change	503	46
Unfavourable recovering	427	39

Source: Natural England (March 2011)

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

2. Landform, geology and soils

2.1 Elevation

The lowest elevation in this NCA is 34 m; the highest point is 288 m. The mean elevation across the NCA is 93 m.

Source: Natural England (2010)

2.2 Landform and process

Fertile, undulating, mudstone lowlands crossed by the rivers Lugg, Wye and Frome are punctuated by steep, often wooded hills. Flat topped, steep-sided hills, locally broken by narrow combes rise above the lowlands. The landscape is predominantly lowland in character with a few isolated flat-topped hills and a plateau area of rolling landform in the north-east. The higher areas were once part of a continuous plateau but the hard cap has been eroded in many places. There are thus groups of hills, for example those at Wormsley, whereas Merry Hill, Credenhill and Nupton Hill are separated by steep-sided, small valleys. The plain is drained by the River Wye which meets the Lugg and the Frome near Hereford, the rivers lie within wide, shallow valleys often making sweeping meanders.

Source: Herefordshire Lowlands Countryside Character Area Description, Central Herefordshire Natural Area Profile

2.3 Bedrock geology

Lower Old Red Sandstone bedrock is found in the low-lying land and comprises of red and greenish-grey silts and locally calcareous mudstone. The hills are underlain by Lower Old Red Sandstone strata, consisting of alternating beds of siltstone and sandstone containing nodular calcrete limestones formally known as 'cornstones'. A breakdown of solid geology as a proportion of total land area is as follows: 89 per cent siltstone and mudstone, interbedded; 4 per cent argillaceous rocks and sandstone, interbedded; 3 per cent sandstone and 1 per cent siltstone.

Source: West Midlands Geodiversity Partnership. Natural England (2010), Herefordshire Lowlands Countryside Character Area Description, Central Herefordshire Natural Area Profile

2.4 Designated geological sites

For the most part the area is underlain by Old Red Sandstone made up of beds of easily eroded red and grey marls which give rise to the rich red soils that characterise the area. In some parts of the river valleys, the mudstone is overlain by fertile alluvium. Much of the lower-lying land is in intensive arable cultivation on bright red soils derived from the Old Red Sandstone.

Source: West Midlands Geodiversity Partnership, Herefordshire Lowlands Countryside Character Area Description

2.5 Designated geological sites

Tier	Designation	Number
National	Geological Site of Special Scientific Interest (SSSI)	4
National	Mixed Interest SSSI	1
Local	Local Geological Sites	36

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

Much of the lower-lying land is in intensive arable cultivation on rich red soils derived from the Old Red Sandstone. In some parts of the river valleys, the mudstone is overlain by equally fertile alluvium.

Source: Herefordshire Lowlands Countryside Character Area Description

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

Grade	Area (ha)	% of NCA
Grade 1	6,272	7
Grade 2	50,542	57
Grade 3	24,891	28
Grade 4	4,468	5
Grade 5	0	0
Non-agricultural	610	1
Urban	1,883	2

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 Wye	51 km	River Teme	15 km
River Lugg	48 km	River Leadon	12 km
River Arrow	22 km	River Lodon	7 km
River Frome	15 km	River Wye/ Afon Gyw	4 km

Source: Natural England (2010)

The plain is drained by the River Wye which meets the Lugg and the Frome near Hereford. The rivers lie within wide, shallow valleys, often making sweeping meanders.

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

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 75,042 ha, 85 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 6,280 ha of woodland (7 per cent of the total area), of which 2,654 ha is ancient woodland.

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

4.2 Distribution and size of woodland and trees in the landscape

Woodland dominates the 'cornstone' hills. Most of it is deciduous with abundant oak and ash and some of it is mixed. Although much is ancient, in the north-west it is predominantly secondary.

Source: Herefordshire Lowlands Countryside Character Area Description, Central Herefordshire Natural Area Profile , Countryside Quality Counts 2003

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	4,212	5
Coniferous	1,010	1
Mixed	603	<1
Other	455	<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	1,658	2
Planted Ancient Woodland (PAWS)	996	1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Locally, the hedges have been cut very low or renewed and hedgerow trees can be sparse. Occasionally there are poplar shelterbelts along the valley bottoms.

Source: Herefordshire Lowlands Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

Much of the lower lying land is in intensive arable cultivation with low hedges and sparse hedgerow tree cover. This open character is broken by orchards and hop fields, often with high shelterbelts around them. Smaller pasture fields and numerous hedgerow trees are to be found on the higher ground rising out of the Lowlands and intermittently around the woodland of the 'cornstone' hills. Occasionally there are poplar shelterbelts along the valley bottoms where the surviving permanent grassland is now found – survivors of the formerly much more extensive Lammas meadows on the floodplains of the Wye, Frome and Lugg. Intensification of agriculture has led to the removal of hedges, undue reduction in their height and loss of hedgerow trees.

Source: Herefordshire Lowlands 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

Farm types in this area are evenly balanced between arable farms (36 per cent) and livestock farms (36 per cent). Arable farms are equally distributed between cereals, general cropping and horticulture (each 12 per cent of the holdings). 3 per cent of commercial holdings are dairy farms, and 28 per cent lowland grazing livestock. There has been a 25 per cent increase in cereal farms since 2000, and all other farm types have decreased.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Farms are broadly evenly distributed across farm size bands, however, the majority 83 per cent of the farmed area is on commercial holdings larger than 50 hectares, a proportion which is unchanged compared to 2000.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

2009: Total farm area = 70,658 ha; owned land = 51,144 ha
2000: Total farm area = 75,370 ha; owned land = 54,929 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

45 per cent of the agricultural area is grass or uncropped land and 26 per cent is cereals. Oilseeds only covers 6 per cent of the area but the area growing this crop has more than doubled since 2000.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

In 2009 there were 158,700 sheep in the area, 50,800 cattle and 12,400 pigs.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

In 2009 there were a total of 5,655 agricultural workers in the area. 47 per cent of these were casual / gang workers, 32 per cent principal farmers, 12 per cent full time workers, 6 per cent part time workers and 3 per cent salaried managers. There was a marked increase in the recorded number of casual/gang workers (by 1,613) between 2000 and 2009, which in 2000 only accounted for 24 per cent of the workforce.

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

In the past the woodlands were managed as coppice or coppice with standards. This management approach has declined significantly, and only a small proportion of woods are currently managed by this system.

Neglected coppice or high forest stands are now the dominant woodland type. The series of low hills running south-west from Hope under Dinmore to Staunton on Wye are the most wooded parts of the NCA. Remnants of the once extensive wet valley woods exist.

Parkland was once important in this NCA with twenty medieval parks listed in Leonard Cantor's Gazeteer. Such habitats, as well as traditional orchards, often support very rich invertebrate fauna, particularly species associated with mature timber and deadwood. Some of the fine ancient trees associated with this habitat now stand in an arable landscape rather than the original pasture.

Traditional orchards were once a common feature of the landscape in this NCA, but by the late 1940s a large percentage of these orchards had been lost this loss continues. The remaining orchards provide a rich open woodland habitat with nest holes and deadwood of value for invertebrates and birds.

Until the mid-twentieth century neutral grasslands formed a large part of the land cover associated with a characteristically closely hedged landscape. Those wet grasslands that survive are particularly associated with area of common land that have escaped drainage improvements. Wet grassland is very restricted in the NCA, but isolated examples of extensive areas can be found, including one of the largest surviving meadows of this type in the country, and the one where the traditional medieval practices are most closely followed. Along the north-eastern fringe of the NCA is isolated unimproved grassland, some, such as Queestmoor Meadow SSSI, are still managed as traditional hay meadows with aftermath grazing.

Mature hedgerows are a valuable wildlife habitat providing shelter, food and corridors between sites for invertebrates, amphibians, birds and small mammals. This NCA is well endowed with hedgerows, many of which are two to three hundred years old.

Source: Central Herefordshire Natural Area Profile

7.2 Priority habitats

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

More information about *Biodiversity 2020* can be found at;
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.

Priority habitat	Area (ha)	% of NCA
Broadleaved mixed & yew woodland (Broad Habitat)	2,782	3
Coastal & floodplain grazing marsh	211	<1
Lowland meadows	74	<1
Purple moor-grass & rush pasture	36	<1
Fens	1	<1

Source: Natural England (2011)

Maps showing locations of 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 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

The villages in the Herefordshire lie just off the valley floors, or at the edges of the area, nestling below the 'cornstone' hills. They are linked by a circuitous network of lanes in contract to the 'A' class roads which can dominate the valley landscapes. Hereford and Leominster have spread into their surrounding river valley landscapes with often quite abruptly-edged residential estates and edge-of-town retail and industrial estates.

Source: Herefordshire Lowlands Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

The main settlements in the Herefordshire Lowlands NCA are: Hereford; Leominster and Ledbury. The total estimated population for this NCA (derived from ONS 2001 census data) is: 122,575.

Source: Herefordshire Lowlands Countryside Character Area description; Countryside Quality Counts (2003)

8.3 Local vernacular and building materials

The old centres of the towns and larger villages have black and white timber-framed buildings, many of them like Abel's early 17th century market hall at Leominster, designed with great flair and elaboration. Old Red Sandstone has been widely used, particularly in the large farmsteads. There are many fine red sandstone churches, of which Kilpeck is the most spectacular and best known. Downton Stone with its greyish-yellow colouring has also been widely used but many of the 19th century and early 20th century buildings, particularly around Hereford are of red brick.

Source: Herefordshire Lowlands Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

Mesolithic, Neolithic, Bronze Age and Iron Age settlement, agriculture and burial sites are present beneath the alluvium of the river Lugg, with good evidence of pre-history activity in the river gravels. On the surrounding hills and the Old Red Sandstone hills within the plain there is an impressive array of Iron Age hillforts, some of which remained occupied in the Roman period. The Roman station of Bravinium was the predecessor of Leintwardine. During the post-Roman period, much of the landscape was probably significantly cleared of woodland, with the leah names around the 'cornerstone' hills as evidence of continued wooded cover there. The area's two present day principle settlements, Leominster and Hereford were the focus of early religious foundations and have remained significant centres ever since. Viking raids and the threat of Welsh invasion strongly influenced defensive features in the landscape.

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

9.2 Designated historic assets

This NCA has the following historic designations:

- 10 Registered Parks and Gardens covering 1,788 ha
- 0 Registered Battlefields
- 95 Scheduled Monuments
- 3,043 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/

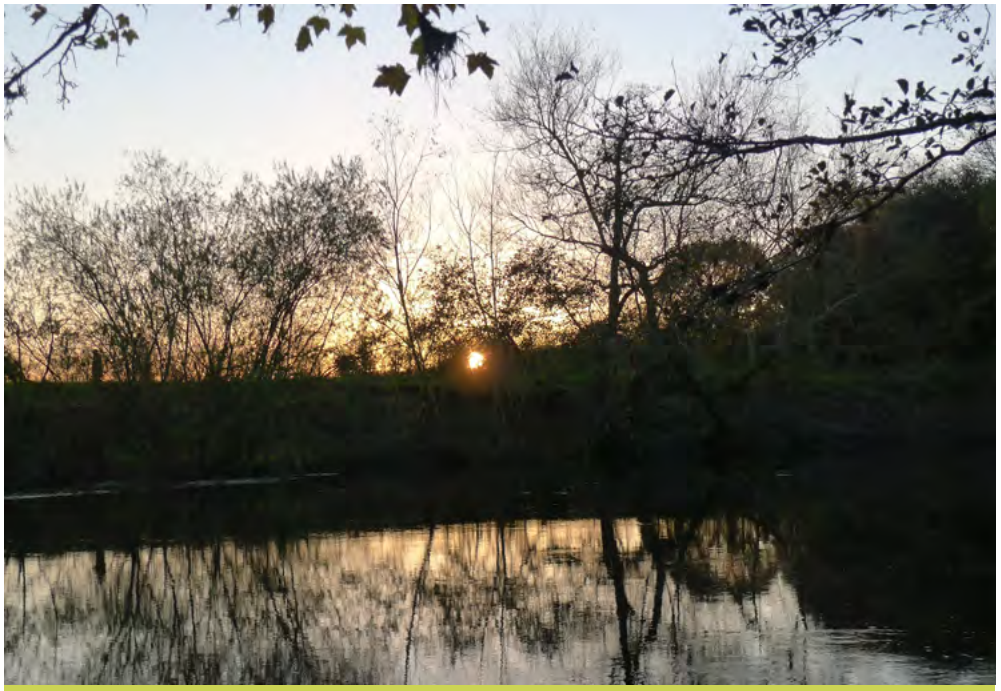
10. Recreation and access

10.1 Public access

- 1 per cent of the NCA (1,047 ha) is classified as being publically accessible.
- There are 1,319 km of Public Rights of Way at a density of 1 km per km^2.
- There are no National Trails within the Herefordshire Lowlands NCA.

Sources: Natural England (2010)

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



Access and public rights of way providing recreational opportunites.

Access designation	Area (ha)	% of NCA
National Trust (Accessible all year)	39	<1
Common Land	408	<1
Country Parks	67	<1
CROW Access Land (Section 4 and 16)	468	<1
CROW Section 15	133	<1
Village Greens	11	<1
Doorstep Greens	1	<1
Forestry Commission Walkers Welcome Grants	430	<1
Local Nature Reserves (LNRs)	76	<1
Millennium Greens	3	<1
Accessible National Nature Reserves (NNRs)	0	0
Agri-environment Scheme Access	<1	<1
Woods for People	447	<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 centre of Hereford has the lowest score and the highest score is in the north west of the NCA to the south west of Orleton, just to the north of Bircher.

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

Category of tranquillity	Score
Highest value within NCA	36
Lowest value within NCA	-77
Mean value within NCA	2

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 most disturbed areas are around the towns of Hereford, Leominster and Ledbury (in order of disturbance), along with the main road network.

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

Category of intrusion	1960s (%)	1990s (%)	2007 (%)	% change (1960s-2007)
Disturbed	7	16	27	20
Undisturbed	92	83	71	-21
Urban	1	1	2	1

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are an overall increase in the area of disturbed land by 20 per cent, matched by a decrease in the areas of undisturbed land by 21 per cent.

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

12. Data sources

- British Geological Survey (2006)
- Natural Area Profiles, Natural England (published by English Nature 1993-1998)
- Countryside Character Descriptions, Natural England (regional volumes published by Countryside Commission/Countryside Agency 1998/1999)
- Joint Character Area GIS boundaries, Natural England (data created 2001)
- National Parks and AONBs GIS boundaries, Natural England (2006)
- Heritage Coast Boundaries, Natural England (2006)
- Agricultural Census June Survey, Defra (2000,2009)
- National Forest Inventory, Forestry Commission (2011)
- Countryside Quality Counts Draft Historic Profiles, English Heritage (2004)*
- Ancient Woodland Inventory, Natural England (2003)
- 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

- The steep slopes of the central hills are dominated by woodlands, but there are scattered copses and plantations throughout the area. The woodlands have been historically managed as coppice; however, there has been a decline in management of some woodlands in the area over the past 30 years.
- There are wide meandering river valleys, including the Wye, Lugg and Frome with occasional pollarded willows. Localised traditional and some bush orchards are in decline with their condition deteriorating due to lack of management.
- There has been a marked increase in extent of management agreements. In 1999 about 22 per cent of the established eligible National Inventory of Woodlands and Trees stock was covered by a woodland grant scheme management agreement.
- In 2003 about 57 per cent of the woodland cover was on an ancient woodland site with a high proportion of these sites covered by a woodland grant scheme. The extent of uptake of management agreements suggests the woodland resource is enhancing.
- Many woods in the area are unmanaged. Countryside Quality Counts (CQC) data suggests that while new planting has added about 4 per cent to this landscape, many of the smaller woodlands of landscape significance are unmanaged. Only 34 per cent of total woodland stock is covered by woodland grant schemes.

Boundary features

- Intensification of agriculture led to the removal of hedgerows, reduction in their height and loss of hedgerow trees up to the introduction of the Hedgerow Regulations. CQC data indicates that while there is some hedgerow management within Countryside Stewardship agreements, uptake rates are low.
- The estimated boundary length for the NCA is about 7,138 km. Total length of agreements between 1999 and 2003 is equivalent to about 4 per cent of this total. The resource has probably been neglected.
- The hedgerows are often cut low with sparse tree cover. The condition and number of hedgerow trees have been in decline as they have not been replaced.

Agriculture

- Cropping patterns have remained steady. Countryside Stewardship uptake for annual area features follows the national average. The most extensive annual Countryside Stewardship agreements in 2003 were for lowland pastures on neutral/acid soils and restoration and management of old orchards.
- Many of the area's traditional orchards are neglected and newly created bush orchards are very different in character. CQC data suggests that there are limited Countryside Stewardship agreements in this area for old orchards.
- Pasture improvement and arable expansion threaten areas of semi-natural grassland and meadow resulting in fragmentation and loss of habitats and reduction in opportunities for species movement/adaptation and species loss.

Settlement and development

- Although the average rates of development are low, development is concentrated locally, particularly west of Leominster and around Hereford apart from where constrained by the rivers Lugg and Wye. This is having an impact on the surrounding countryside resulting in some visual intrusion from urban development.
- In 2011 the livestock market was relocated from its former city centre site to a new location at Stretton Sugwas on the western fringes of the city. This also marked the beginning of a major city centre redevelopment around the Edgar Street quarter of Hereford.
- In 2009 the former Robertson's factory site on the outskirts of Ledbury was redeveloped presenting a substantial development with potentially wide-reaching implications on the local landscape.
- Many traditional farm buildings have been converted to residential or holiday use. This is probably due to farm amalgamations and the financial incentives of property development.

Semi-natural habitat

- Intensification of agriculture has, in the past led to the removal of hedgerows, undue reduction in their height and loss of hedgerow trees. CQC data indicates that while there is some hedgerow management within Countryside Stewardship agreements, uptake rates are low.
- The valley bottom meadows are under pressure from agricultural intensification and fragmentation. There have been only a limited number of Countryside Stewardship agreements for lowland pasture and hay meadows according to CQC data.
- Flood plain erosion is judged to be a significant issue by some stakeholders and seems to have been partly caused by draining and intensively farming the flood plain for root crops[4]. CQC data suggests a loss of permanent and temporary grass, and an expansion of crops, fallow and set-aside.

Historic features

- In 1918 about 4 per cent of the NCA was historic parkland. By 1995 it is estimated that 43 per cent had been lost.
- In 2003, about 33 per cent of the remaining parkland was covered by an Historic Parkland Grant, and about 28 per cent included within an agri-environment scheme.
- About 73 per cent of listed historic farm buildings remain unconverted. About 79 per cent are intact structurally. This evidence suggests that the character of important aspects of the historic landscape remains neglected.
- Timber-framed (black-and-white) buildings are typical across much of the area but stone and red brick are also frequently used as barns and many of these, along with traditional cider houses have been converted to dwellings.
- A number of heritage assets in the area are identified as being 'at risk', ranging from the historic park and garden at Shobdon, through to a number of buried archaeological sites and to a range of buildings.

[4] *River Lugg Internal Drainage Board Biodiversity Action Plan 2010*

Rivers

- There is limited evidence of management agreements to promote riverine habitats, suggesting some neglect.
- The biological river water quality in 1995 was predominantly very good but has since declined due to the impact of some agricultural practices.
- The chemical water quality in 1995 was predominantly excellent and it has been maintained.
- In 2005 Omerod and Clews identified issues around diffuse and point pollution from intensive agriculture and silted habitats as adversely affecting water quality[5].

Minerals

- There has been and continues to be aggregate extraction in the lower Lugg Valley, most notably near Wellington. There has also been extensive gravel extraction in the Wye Valley just west of Hereford and to the north-west of Hereford in the past. Aggregate was quarried from the igneous rock near Bartestree.

Drivers of change

Climate change

- Climate change modelling for the UK predicts warmer wetter winters and hotter drier summers. This is likely to affect species composition and range, requiring greater connectivity between habitats to allow for migration.
- Increased intensity of rainfall will cause more frequent flood events, resulting in increased sediment loads and nutrient run-off from agricultural land into ditches and rivers.
- Water storage by increasing flood plain habitat and woodland cover within catchments may be increasingly important for lessening the impact of flooding downstream particularly at pinch points such as in and around Hereford.
- There could be potential risks of drought and availability of water for irrigating crops. An increased demand for abstraction is likely due to arable expansion and may become a greater problem with hotter and drier summers.
- The likely impact of climate change on orchards, both traditional and commercial bush orchards, needs to be monitored and managed. It is important to retain variability of the genetic resource to allow adaptability to changing climate.
- A changing climate, in particular summer droughts, is likely to increase the vulnerability of the woodlands particularly the ancient semi-natural woodland and veteran trees becoming increasingly vulnerable to damage, pest and disease.

[5] www.wyeuskfoundation.org

Other key drivers

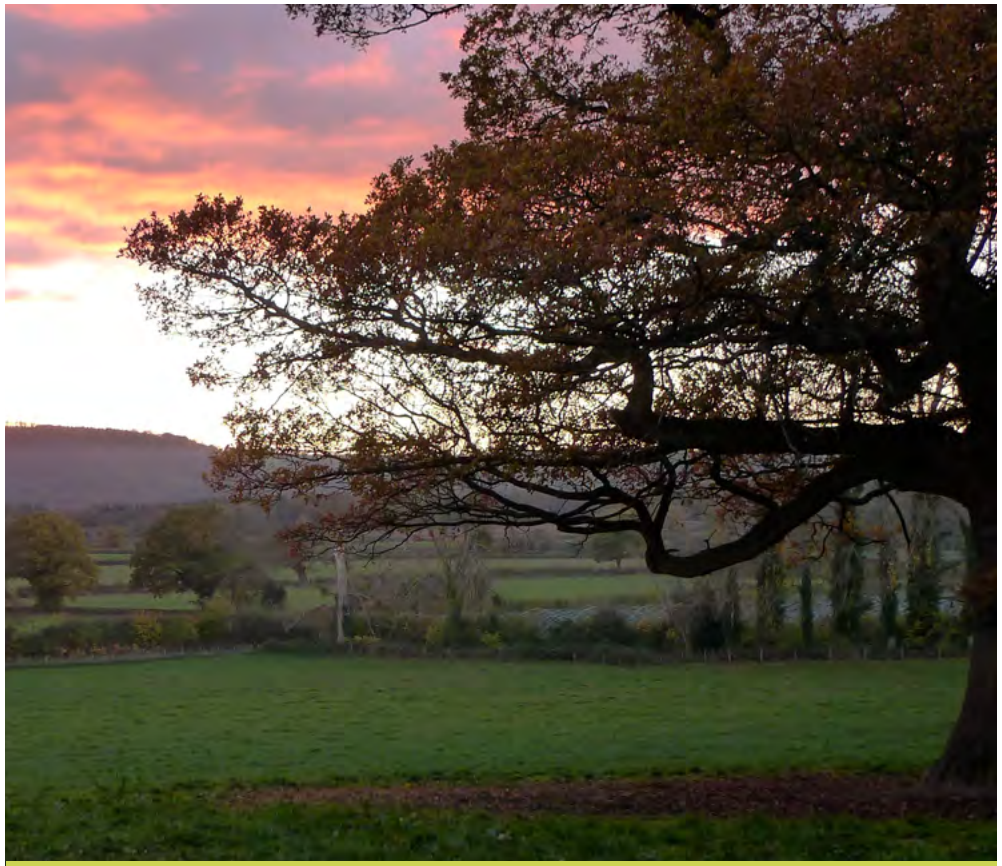
- The need for food security may result in continued expansion of arable production. This may impact on ecological habitats, networks and species, as well as landscape character. Agri-environment schemes can offer opportunities to work with land managers to incorporate management of farmland habitats, develop and create networks of new habitats and enhance the rural character of this landscape.
- In parts of the NCA, particularly Leominster and Hereford, development pressure provides a key driver for improved delivery of green infrastructure and the possibility to maximise opportunities to integrate it into new development from the outset.
- Further growth of Hereford is considered to be constrained without the construction of an outer distributor road taking traffic away from the city centre. Options are being considered for routes to either the east or west of the city.
- Increasing fuel costs have resulted in more biomass installations, a growing demand for woodfuel and more woodlands being managed.

Pastoral rolling landscape near Kenchester.

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.



Rolling hills and wide river valleys.

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: Protect and manage the internationally important River Wye Special Area of Conservation and the many other watercourses and their flood plains to improve the health of the rivers and the quality and availability of water. Develop the capacity of the riverine environment to tolerate more extreme flow levels by protecting and creating new wet meadow and woodland in the flood plain and seek to increase recreational opportunities related to the riverine environment.	↗ **	↔ ***	↗ ***	↗ *	↗ *	↗ *	↑ **	↑ **	↗ **	↑ ***	↑ **	o	n/a	↗ *	↗ ***	↗ **	↗ ***	↑ ***	↗ *
SEO 2: Protect and enhance the natural and historic environment, integrating new development through the use of green infrastructure principles informed by existing heritage, geodiversity and biodiversity assets. Protect the agrarian character of the area by making the most of versatile and fertile soils to produce food while integrating semi-natural features and protecting above- and below-ground heritage assets and geological assets and reinforcing the strong sense of character.	↗ ***	↔ ***	↔ ***	↔ ***	↗ *	↗ ***	↗ ***	↗ **	↗ **	↗ **	↗ **	↗ *	n/a	↑ ***	↑ ***	↗ *	↑ *	↑ ***	↗ *
SEO 3: Protect, manage and restore semi-natural habitats, in particular woodlands, grasslands, orchards and wet meadows within the rural and urban areas to improve ecological connectivity, biodiversity, landscape character, the historic environment, and flood water storage capacity and the ability of the landscape to adapt to the impacts of climate change. In particular, manage, restore and create new woodland, and develop connectivity in other semi-natural habitats such as the hedgerow networks and orchards.	↗ *	↗ **	↗ *	↗ **	↗ *	↗ *	↗ *	↗ *	↑ ***	↑ ***	↑ ***	↑ ***	n/a	↗ ***	↗ ***	↗ ***	↑ ***	↑ ***	↗ ***

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

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

Landscape attribute	Justification for selection
An undulating tranquil agricultural and sparsely populated landscape that includes the urban areas of Leominster and Hereford.	■ Much of this tranquil rural area is underlain by Old Red Sandstone, with localised deposits of alluvium and glacial drift producing rich, red fertile soils that support a range of agricultural land uses including pasture, arable, root crops and widespread fruit growing. ■ This rural hinterland of Hereford supports the local economy. ■ This quiet rural area is only an hour from the Birmingham and Black Country conurbation yet retains many elements and characteristics of rural, agrarian land use linked to the county town of Hereford. Evidence of historical agricultural patterns and land use including some former common land, assarted field systems, open field systems around villages, forest, parkland and flood meadows.
Wide meandering river valleys, including the Wye, Lugg, Frome and Arrow with occasional pollarded willows. Pasture is frequent with occasional wet meadows and permanent pastures along the rivers.	■ The wide river valleys create a distinctive lowland landscape between the central and occasional hills. ■ The Wye defines the south-western edge of the area, the location of the city of Hereford at its confluence with the River Lugg and the 'gateway' to Wales at Hay-on-Wye. It is designated as an internationally important Special Area of Conservation for its wealth of associated wildlife. ■ Recreation is well-developed along the River Wye with opportunities for angling, kayaking and walking along the Wye riverside path. Other rivers in the area have potential for further recreational development. ■ Large expanses of floodwater cover much of the area in winter after high rainfall turning some villages into 'islands' such as Bodenham, Moreton on Lugg and Wellington.
Steeply sloping hills in the centre of the NCA dominated by ancient and other woodlands.	■ The central steep-sided wooded hills support significant areas of ancient woodland and form an important band of timbered landscape at the heart of the area. ■ Rich in biodiversity the wooded landscapes form an important resource at high risk from climate change and inappropriate management. ■ The most wooded part of the NCA on the hills has an important role in slowing water movement through the catchment and into the rivers. Many of the villages lie at the foot of the hills. ■ The woods provide the characteristic autumn colour of the area and in Spring have carpets of bluebells, stitchwort and wild daffodils as well as support both fungi and a wealth of bird life, notably buzzards and herons.

Landscape attribute	Justification for selection
Localised traditional and bush orchards and occasional hop fields planted with windbreaks. Low hedgerows forming field boundaries.	■ Traditional orchards are a defining element of the landscape and many villages of the area, and are important resources containing significant genetic diversity. ■ New plantation orchards contribute to the character of the landscape; the formal rows often climbing the lower slopes of hills, the spring blossom and bright autumn fruit adding colour. ■ Low hedgerows with hedgerow trees are characteristic boundary features but have been subject to excessive trimming and removal in the past to support agricultural land use. ■ Hops are grown primarily in the north and east of the area. There are now more hop fields in Herefordshire than Kent, but are still declining features nationally.
A dispersed settlement pattern with scattered villages, hamlets and farmsteads throughout. The historic market towns of Hereford, Leominster and Ledbury are the principal settlements with some more recent dense urban development.	■ The area has a distinctive, tranquil rural settlement pattern of small hamlets and villages connected by quiet country lanes. ■ Mainly nucleated settlements are centred on a church and manor (and many with a market place). ■ Historic farmsteads ranging from loose arrangements of farm house and barns to 19th century planned model farms, many now restored and reused, are distinctive features of the area. ■ Characteristic black-and-white villages such as Weobley and Pembridge; castle, moated and manor sites at the heart of villages, for example Eardisland, Bredwardine and Dilwyn. A variety of churches at the centre of villages forming notable landmarks from the fine spire at Weobley to the detached towers at Bosbury and Pembridge.
Several important landscaped historic parklands including associated country houses and medieval parks with veteran trees.	■ There are a number of landscaped parks of historical significance, as well as remnants of ancient parkland. Historic parkland such as Berrington Hall forms an important tourist attraction for the area. ■ Veteran trees are an important feature of the historic parkland and include many ancient oaks that form an important habitat for invertebrates.
A strong sense of history and historical land use and settlement.	■ The area is rich in evidence of historic settlement and this helps to give the area its sense of place and history. Much of the older settlement evidence is along the flood plain of the River Lugg. The area's two present day principal settlements, Leominster and Hereford were the focus of early religious foundations and have remained significant centres ever since. Viking raids and the threat of Welsh invasion strongly influenced defensive features in the landscape. ■ Mesolithic, neolithic, bronze-age and iron-age settlements, iron-age hill forts, some of which remained occupied in the Roman period.

Landscape opportunities

- Conserve ancient and veteran trees within historic parkland, former wood pasture, in field boundaries, traditional orchards and in the wider landscape for the benefit of fauna and flora that depend upon them and for their heritage value. Replant and replace fallen and decayed ancient and mature trees to maintain landscape character, sense of place and enhance biodiversity.

- Protect and manage the ancient semi-natural woodlands and associated habitats occurring across the NCA. Particularly in the central area across the hills. Plan for the expansion, buffering and increased connectivity of woodland and unimproved grassland habitats. Re-introduce traditional coppice management where appropriate as a source of wood fuel, increasing recreational opportunities and carbon sequestration and storage. Plan for the increase in demand for wood fuel and the growth of renewable energy in a way that is in keeping with intrinsic character.

- Manage, restore and enhance traditional orchards with their associated biodiversity, contribution to the historic environment and local genetic varieties. Ensure a continuity of deadwood, maintain biodiversity value and increase the variability of age structure of orchard trees.

- Retain, restore, manage and plant new hedgerows, replacing hedgerow trees where necessary and managing field boundaries in traditional local styles, to enhance landscape character, improve habitat connectivity and reduce soil erosion on slopes.

- Protect, manage and enhance the rivers Wye, Lugg, Frome and Arrow as a characteristic riverine landscape, rich and diverse in riparian habitat that supports a wide range of flora and fauna. Plan for the anticipated higher frequency of flood events and higher levels of winter rainfall through the restoration of traditional flood meadows, expansion of riparian habitats around the river corridors to include wet grassland and other flood plain habitat including wet woodland.

- Protect the areas of strong rural character that lack intrusion and have high levels of tranquillity while supporting a working landscape that provides essential food, homes and recreational opportunities. Plan for reduced-carbon affordable housing that enhances landscape and biodiversity, using local materials built to high environmental standards.

- Manage the existing access network of rights of ways and cycle routes and plan new links, particularly between urban areas on the boundary of the NCA and the wider countryside linking to public transport.

- Protect the historic features in the landscape ranging from the buried archaeology of the prehistoric to Roman periods, the medieval settlements, structures and field systems and later examples of agrarian land use and industry.

- Enhance green infrastructure links between the urban centres and wider countryside and develop and enhance green infrastructure within the urban areas using sustainable building methods, implementing the aim and objectives of the Herefordshire Green Infrastructure Strategy. Urban expansion of Leominster and Hereford needs to sensitively incorporate development into surrounding countryside and secure green infrastructure benefits for urban communities.

- Maximise opportunities for recreation and enjoyment of nature, particularly along the river valleys, linked by sustainable transport networks.

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	Mixed livestock Pasture Naturally fertile soils especially in the flood plain Mixed arable Soft fruit production Orchards	The NCA supports a mixture of farming with 36 per cent of holdings with livestock, 36 per cent arable and 12 per cent mixed agriculture. Food provision is an important service within this rural NCA with livestock farming, particularly sheep, and cattle, making a significant contribution to local and regional food resources. Cereals, general cropping, horticulture and grazing with sheep are the predominant farm holdings. Potato growing is frequent, but localised. There are substantial soft fruit growing holdings across the area supplying national markets. Commercial orchards and some more traditional orchards supply national drinks markets.	Regional	The NCA is of regional importance for food production with some nation markets supplied from specialist producers. The fertile soils and high-grade agricultural land lend themselves to commercial mixed agriculture. Given the nature of the area in terms of the important river catchments, sensitive soil management and best practice farming is essential to maintain river and soil quality and prevent soil erosion. The area is dominated by commercial agriculture resulting in only localised access for recreation. Commercial agriculture can offer both benefits to biodiversity where positive action to incorporate and integrate semi-natural features is taken, but can equally isolate existing semi-natural sites.	Maximise the opportunities to use the local and regional markets. Create links with tourism initiatives such as: tasting events, seasonal celebrations, orchard history, and walking routes to link with other traditional orchards. Ensure that traditional local varieties are preserved and the variety of species is enhanced. Encourage best practice in soils and water management. Encourage the adoption of catchment sensitive farming principles. Encourage the incorporation of complementary semi-natural features into the farmed environment, such as– field margins, beetle banks, hedgerow buffer strips, ponds and farm woodland.	**Food provision** **Pollination** **Genetic diversity** **Regulating soil erosion** **Biodiversity** **Climate regulation** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Area of existing woodland	Seven per cent of the NCA is woodland; approximately 1,000 ha of conifer and 5,000 of broadleaved, mixed and 'other' woodland. A little more than a third of the woodland resource is ancient woodland and a third of this plantation on ancient woodland sites (PAWS). In some areas ancient semi-natural woodland is under coppice management but In general the woodland resource is under managed.	Local	There are some opportunities for commercial timber and grants are bringing more woodland under management. Some plantation woodland exists on the steep-sided hills in the centre of the area and in the upper Wye Valley, but difficult terrain and limited market value often makes extraction unviable.	Identify opportunities for the expansion and linking of woodland where appropriate[6]. Identify local markets for locally produced hardwoods and by-products from managed ancient woodland. Where possible extract softwood timber from PAWS and return to broadleaved woodland.	**Timber provision** **Biodiversity** **Sense of place/ inspiration** **Sense of history** **Regulating soil erosion** **Climate regulation** **Regulating water flow** **Biomass energy**

[6] *Woodland opportunities – Ancient woodland landscape map:* **www.forestry.gov.uk/website/forestry.nsf/byunique/infd-6n4gzu**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	High rainfall area Rivers	The main rivers in this NCA are the Wye, Arrow, Frome and Lugg. The River Wye is the largest river in the area, the Lugg and Arrow its tributaries. It joins the Severn Estuary at Chepstow. Water is abstracted from all the rivers for domestic consumption, and treated waste water is returned to them. Water is taken from the Wye into the Severn to supplement domestic supplies to Gloucester. The domestic supplies to central Herefordshire are dependent on rainfall in the Welsh and north Herefordshire Hills, rates of abstraction downstream and the maintenance of biological condition in midstream (the Wye SAC and Lugg SAC). There are also significant demands for water for irrigation and industry at Hereford. **Continued on next page...**	Regional	There is a status of 'no water available' from all of the surface and groundwater resources in this NCA. There is 'no water available' from the River Wye or the River Lugg and its tributaries the Arrow and Frome. New licenses for abstraction from these rivers and their tributaries will only be granted if it can be 'demonstrated that the abstractions will have no adverse effect on the integrity of the River Wye SAC'. The Environment Agency Wales encourages the use of 'water management measures' such as winter storage reservoirs in this area, in order to make supplies more reliable[7]. The NCA does not overlay any major aquifers. There is a minor aquifer in the Yazor Brook Valley, which is a former route of the River Wye before its diversion in the ice age. Here a deep channel has been cut into bedrock and then filled with gravels. Groundwater sources are closely connected to surface water resources, and their resource availability has been included within that of the surface water resources described above.	Maintain flow levels in water courses by managing abstraction so as to avoid over-abstraction resulting in low flow levels. Encourage riparian zone management to increase the number of winter water storage areas and create new wet meadow and wet woodland habitat. Support measures to maintain and improve soil structure in the flood plain to increase permeability and water retention by the soil. Slow the flow of water across the landscape to maintain more constant river levels through ponds, scrapes and more naturalised drainage within the NCA and across the Wye catchment. Support measures that harvest and conserve water, protect watercourses, and prevent water quality deterioration caused by diffuse pollution and rapid run-off.	**Water availability** **Biomass energy** **Climate regulation** **Regulating water quality** **Food provision** **Biodiversity** **Recreation** **Geodiversity** **Sense of place/ inspiration** **Sense of history**

[7] *Wye Catchment Abstraction Management Strategy, Environment Agency Wales (March 2008)*

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability cont.		**... continued from previous page** The Wye is considered to be a good example of a large river with rich biodiversity including Atlantic salmon, however a variety of issues such as habitat degradation and diffuse pollution have had a serious impact on populations.			Development and redevelopment in major urban areas needs to ensure water security and recycling. Green infrastructure and sustainable urban drainage principles should be applied.	
Genetic diversity	Traditional orchards Hereford cattle	Traditional orchards with heritage trees are a feature of this NCA but have been in decline for some time. They contain many rare and ancient varieties of apple, pear, damson and occasionally cherry. Hereford cattle originated in the county in the 18th and 19th centuries and have subsequently spread worldwide as a universal beef breed. A number of pedigree Hereford herds remain in the area.	National	It is important to maintain genetic diversity of orchard fruit varieties in order to safeguard food provision and afford increased resilience to climate change and disease. Traditional orchards have been in decline since the Second World War due to changing farming practices. There are no figures for this NCA but Herefordshire as a whole, has seen a loss of around 70 per cent over the last 70 years. Where Hereford cattle still graze the landscape they contribute significantly to both the genetic foundation of the breed and the distinctive sense of place. They are a useful breed for 'conservation' grazing.	Encourage landowners to maintain traditional orchard varieties, particularly rare varieties only found in Herefordshire. Encourage the regeneration of local orchards and planting of new orchards using locally sourced varieties to ensure that the genetic variety of species is maintained and enhanced Use local traditional breeds of livestock, such as Hereford cattle, where appropriate for conservation grazing maintaining a genetic resource in the county of origin.	**Genetic diversity** **Food provision** **Pollination** **Climate regulation** **Biodiversity** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biomass energy	Ancient semi-natural woodland and commercial coniferous plantation	Existing woodland cover offers potential for the provision of biomass by bringing unmanaged woodland under management and as a by-product of commercial timber production[8]. There is a high potential for miscanthus and short rotation coppice.	Local	The steep slopes of the central hills of this NCA are dominated by woodlands, and there are scattered copses and plantations throughout the area that may yield small volumes of wood fuel for local markets if brought under positive management[9]. Although there is high potential for energy crops the fertile and versatile soils of the area are generally under arable, pastoral or fruit production. There has been little or no uptake of energy crop initiatives across the area.	Increase and realise biomass potential by bringing unmanaged woodland under management and as a by-product of commercial timber production. With particular reference to traditional coppice for small-scale wood fuel production and benefits to biodiversity.	**Biomass energy** **Timber provision** **Biodiversity** **Climate regulation** **Regulating soil erosion** **Regulating water quality**

[8] *Potential landscape impacts of biomass within the NCA, Natural England website:* **www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/default.aspx**

[9] *Opportunities and optimum sitings for energy crops, Natural England website (accessed December 2010):* **www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/areas/100.aspx**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Existing woodlands Permanent pasture Wet meadows Hedgerow network, hedgerow trees and orchards Parkland	Existing woodlands cover over 6,280 ha of the NCA or 7 per cent of the total area. This is important for the sequestration and storage of carbon, especially where the woodland is under sympathetic management. Orchard trees, ancient hedgerows with mature oaks in addition to the small amount of parkland present in this NCA, also contribute. There is generally a low soil carbon content across the NCA of 0 to 10 per cent reflecting predominantly mineral soils, which have lower carbon content, especially where under continuous arable cultivation. There are also patches of higher soil carbon content (5 to 10 per cent) in the west of the NCA. Although this is not indicated by the soil types it may potentially be associated with areas of lowland mixed deciduous and wet woodland and the 300 ha of marsh, fen, and grassland habitat in the NCA. **Continued on next page...**	Regional	Carbon storage in the existing woodland plays an important part, but may be increased by the planting of additional woodland, on appropriate sites, and through management. The rapid loss of traditional orchards (now recorded at 2 per cent that has been seen over the last few decades will have reduced the carbon storage capacity of this landscape both in the dense planting of trees and in the undisturbed pasture beneath. The flood plains and wetlands will also have areas of higher carbon storage in soils, particularly in the undisturbed, traditional flood meadows found along the rivers Wye and Lugg. Permanent pasture retains carbon, an increased proportion of which would be released through microbial action if the soil was ploughed and exposed to air.	There is an opportunity to increase the carbon storage potential of the area through the planting of new woodland and maintaining traditional orchards, hedgerow network and mature trees, Support the restoration and creation of new wetland habitats and expand winter water storage capacity where possible, which will help to sequester carbon as well as reducing flood risk. Work with the farming community to ensure they have adequate access to soil analysis to enable the calculation of appropriate levels of fertilizer inputs to reduce energy wastage and benefit water quality. Encourage the adoption of best practice in soil management – cultivation and organic matter application – in order to realise the full potential of soils to sequester and store carbon.	**Climate regulation** **Regulating soil quality** **Regulating water quality** **Regulating water flow** **Biodiversity** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation cont.		**... continued from previous page** Areas of higher soil carbon content are also likely to be found in the undisturbed pastures of the Lugg and Wye flood meadows.		Across most of the farmed area carbon sequestration and storage can be enhanced through the addition of organic matter alongside reductions in the area and frequency of cultivation.		

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Hedgerows and buffer strips across steeper slopes Permanent grassland Wet meadows Wet woodlands	The ecological quality of river water in the NCA varies. The River Wye has a 'good' ecological status throughout most of its length within the NCA, but a 'poor' status upstream of Bredwardine. The River Arrow has a 'moderate' ecological status, and the River Lugg has a 'good' ecological status, which worsens to 'poor' downstream of Leominster. The River Frome has a 'poor' ecological status. The River Leadon has a 'moderate' ecological potential while the River Teme in the north-east of the NCA has a 'good' ecological status. The chemical status of the rivers Wye, Frome, and Lugg, upstream of Leominster, is 'good' but the Teme is 'failing to achieve good' chemical status. The chemical status of the remaining river lengths 'does not require assessment'. The groundwater chemical status across the NCA is 'good'. [10] **Continued on next page...**	Regional	Soil erosion and subsequent sedimentation and point source pollution from farmyards are the principal impacts on water quality across the area. Sedimentation from eroded soils following inappropriately timed cultivation and the growing of potatoes without regard to best practice cultivation and planting also impact on water quality, as does nutrient run-off from intensive ley grassland and cultivated fields. Point source pollution from localised domestic waste water remains a problem with a dispersed settlement pattern, particularly in the west of the area. Himalayan balsam is a concern along most watercourses, causing erosion of the banks as it shades out other natural vegetation reducing the proportion of plants with stabilising roots, and then die back in the winter leaving the soil of the bank exposed.	Work with farmers across the river catchments to reduce point source pollution emanating from farmyards, upgrading failing slurry and waste containment structures. Work with farmers and land managers to encourage the implementation of best practice cultivation and cropping patterns to minimise the risk of soil erosion and subsequent sedimentation in watercourses. Ensure farmers and land managers have access to up-to-date and accurate soil fertility and cropping plans to reduce unnecessary application of fertilisers. Maintain ecological flow levels in watercourses by managing abstraction so as to avoid over-abstraction resulting in low flow levels. Expand the network of semi-natural habitats adjacent to watercourses including; flood plain grazing marsh, creation of grassland buffer strips and the restoration of hedgerows across slopes to help intercept sediment and nutrients before they enter watercourses.	**Regulating water quality** **Water availability** **Biodiversity** **Regulating soil erosion** **Regulating soil quality** **Climate regulation**

[10] *Severn River Basin Management Plan, Annex A: Current state of waters,* Environment Agency (December 2009)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality cont.		**... continued from previous page** Almost the entire NCA lies within one of Defra's River Teme, Lugg or Wye priority catchments. In addition to severe sedimentation, diffuse agricultural pollution is widespread, especially associated with the commercial production of root crops (potatoes), the use of maize stubbles for the winter disposal of excess slurries and manures, and dirty water run-off from farmyards[11].			Support actions to reduce the impact from pesticides including metaldehyde (slug pellets). Control invasive non-native species particularly along riverbanks to reduce soil exposure and erosion of the bank. Support other measures identified in the diffuse water pollution plan[12].	

[11] Defra Catchment Priorities

[12] *River Teme SSSI Diffuse Water Pollution Plan,* Natural England and Environment Agency (2010)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Rivers, streams and ditches Woodlands Flood plain grasslands Hedgerows Semi-natural habitats	The riverine ecology is very sensitive to low flow rates meaning abstraction is carefully monitored. This NCA is considered an area of 'low to moderate' fluvial flood risk to property. There is important agricultural land in this area, with a large proportion of good quality land at flood risk. The Environment Agency supports opportunities to store water or manage run-off to provide flood risk or wider environmental benefits, including along the rivers Wye and Lugg[13]. South and east of Hereford there is a large area of mostly agricultural land with significant risk of flooding associated with the confluence on the rivers Wye and Lugg[14]. At Leominster there are approximately 300 properties at risk from flooding of the River Lugg. A flood alleviation scheme provides some protection. At Hereford, the main source of flood risk is from the rivers Wye and Lugg and a number of smaller brooks running through the city, as seen with severe flooding in the summer of 2007. **Continued on next page...**	Regional	The sensitivity of the local riverine ecology to flow variations (in other words their vulnerability to abstraction impacts) in the River Wye is high as it is an important habitat for salmon. The Environment Agency Severn Flood Management Plan Policy, which covers this area, states: "Areas of low to moderate flood risk where we are generally managing existing flood risk effectively." and we "Continue with existing or alternative actions to manage flood risk at the current level". Development and redevelopment must be managed to minimise flood risks such as restoring access for floodwater onto areas of historical flood plain. This requires redevelopment to be limited to flood-compatible land-uses for example in the flood plain of the Teme there is potential for restoration to wet grassland. Historically a number of rivers and watercourses throughout the area have had the channels modified to 'improve' water flow. In most cases restoration of natural channel courses and profiles would improve flood water management.	Improve soil quality to increase water retention and reduce run-off. Promote the uptake of sustainable urban drainage solutions in new and existing buildings and settlements. Investigate opportunities to increase the use of river valleys for flood storage[15]. Identify projects which have benefits for biodiversity and reduce flooding; diverting excess winter rainfall into reservoirs for summer use and combining flood risk management with improving biodiversity[16].	**Regulating water flow** **Regulating water quality** **Regulating soil quality** **Regulating soil erosion** **Geodiversity** **Biodiversity** **Sense of place/ inspiration**

[13] *Wye and Usk Catchment Flood Management Plan, Summary Report,* Environment Agency Wales (January 2010) [14] *Risk of Flooding from Rivers and Sea, Environment Agency website (accessed December 2010; URL:* **http://maps.environment-agency.gov.uk/wiyby/wiybyController? x=531500.0&y=181500.0&topic=floodmap&ep=map&scale=3&location=London,%20City%20of%20London&lang=_e&layerGroups=default&textonly=off***)* [15] Environment Agency, Working with natural processes to manage flood and coastal erosion risk, A Guidance document, March 2010 (**http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/geho0310bsfi-e-e.pdf**) [16] Achieving more operational flood storage areas and biodiversity, Final Report 2009, Environment Agency (URL: **http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/geho0610bsoa-e-e.pdf**)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow cont.		**... continued from previous page** A recently completed flood alleviation scheme provides protection to nearly 200 properties and the main road running through the centre of Hereford from the River Wye[17]. Anew culvert will divert water from the Yazor Brook to the River Wye protecting a further 119 properties. (This scheme is unlikely to work as the Yazor Brook follows a former course of the River Wey where the channel is cut deeply into bedrock and then filled with gravel. Diversion of surface water will not stop ground water flowing at depth through the gravels and continuing to flood central Hereford as has happened several times since the flood alleviation scheme was completed. A greater understanding of the glacial history of the area is needed by planners.) [18]			Maintain ecological flow levels in watercourses by managing abstraction so as to avoid over abstraction resulting in low flow levels. Investigate opportunities to create and extend semi-natural flood plain habitats such as flood meadows, wet woodland and reedbed to mitigate the severity of downstream flood events. Investigate and realise opportunities for re-naturalising the channel and profile of watercourses and ensure they are effectively and functionally connected to their adjacent flood plains.	

[17] *Wye and Usk Catchment Flood Management Plan, Summary Report,* Environment Agency Wales (January 2010)
[18] Herefordshire Futures – Flood Alleviation

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Deciduous woodland cover Hedgerow networks Unimproved pastures Semi-natural habitats	There are five main soilscape types in this NCA: ■ Freely draining slightly acid loamy soils, covering 43 per cent of the NCA. ■ Slightly acid loamy and clayey soils with impeded drainage (35 per cent). ■ Slowly permeable seasonally wet acid loamy and clayey soils (8 per cent). ■ Loamy and clayey flood plain soils with naturally high groundwater (8 per cent). ■ Freely draining flood plain soils (5 per cent).	Local	The slightly acid loamy and clayey soils with impeded drainage are easily poached by livestock and compacted by machinery when the soil is wet. Weak topsoil structures can easily be damaged. Careful timing of activities is required to reduce the likelihood of soil compaction. Where the soil is under agricultural use, maintaining and improving the soil quality will safeguard and retain productive food provision in the long term and increase the soils resilience to climatic change and extreme weather events. Changing management practices to reduce damage to soil quality could provide increases in food production in the long term. Increases in soil quality will reduce negative impacts from farming on the natural environment through reduction in run-off pollution. This will improve water quality and biodiversity.	Realise the potential of the freely draining slightly acid loamy soils to increase organic matter levels through management interventions, increasing their value for recharging groundwaters that provide base flows to many of the rivers of the NCA. Maintain good soil structure to aid water infiltration and match nutrients inputs to needs to prevent pollution of groundwaters. Secure opportunities to ensure that soil management plans are in place to prevent deterioration of water quality caused by soil erosion and nutrient leaching. Work with the farming community to achieve appropriate stocking regimes which avoid poaching and reduce erosion. Support measures which increase the volume of organic matter within worked soil to improve soil structure and conditions for soil fauna, increasing water infiltration. Encourage the adoption of best practice cultivation and cropping regimes to minimise the extent and frequency of cultivation. Maintain the extent and coverage of permanent, undisturbed semi-natural habitats, particularly pasture and woodland.	**Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Geodiversity** **Biodiversity** **Food provision** **Sense of place/ inspiration**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Hedgerows and buffer strips across steeper slopes Woodlands and woodland copses Scrub Semi-natural and permanent grassland Sustainable systems of arable cultivation	Seventy-nine per cent of the soil cover within this NCA is prone to soil erosion. The soils that are not susceptible to erosion are the slowly permeable seasonally wet acid loamy and clayey soils, the loamy and clayey flood plain soils with naturally high groundwater and the freely draining flood plain soils together covering 21 per cent of the NCA. Sedimentation of water courses is a major problem throughout the area. Causes within the Wye catchment are the erosion of soils from arable fields left bare over winter, potato growing which does not adopt best practice techniques and from areas under maize cropping especially over winter months when maize stubbles are left in situ.	Regional	The freely draining slightly acid loamy soils covering 43 per cent of the NCA have an enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, exacerbated where organic matter levels are low after continuous arable cultivation and cropping or where soils are compacted. There is also the potential for wind erosion on some coarse textured cultivated variants. The slightly acid loamy and clayey soils with impeded drainage are prone to compaction and capping and slaking, leading to increased risk of soil erosion by surface water run-off, especially on steeper slopes. Almost the entire NCA lies within one of Defra's River Teme, River Lugg and River Wye priority catchments. In the catchment of the Lugg there is an identified need for soil management along its tributaries, while in the River Teme catchment silting of watercourses is associated with more intensive cropping and dairy systems. **Continued on next page...**	Work with the farming community to achieve appropriate stocking regimes which avoid poaching and reduce erosion. Work with farmers and land managers to increase the uptake of best practice cultivation and cropping regimes, encouraging cross-slope cultivation and planting and the avoidance of direct water pathways on sloping land to reduce the erosion and transport of soils into watercourses and across neighbouring land (most notably, roads). Reinstate and strengthen hedgerows and create grass buffer strips across grassland and steeper slopes under arable cultivation. Strengthen the hedgerow network and increase the population of hedgerow trees across the flood plains. Support measures which increase the volume of organic matter within the soil to improve soil structure and conditions for soil fauna, increasing water infiltration and soil stability.	**Regulating soil erosion** **Regulating soil quality** **Water availability** **Geodiversity** **Biodiversity** **Food provision** **Regulating water quality** **Regulating water flow**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion cont.				**... continued from previous page** Increases in soil quality will reduce negative impacts from land management on the natural environment through reduction in erosion and run-off pollution. This will not only improve water quality but also biodiversity. On steep slopes soil erosion from intensively managed grassland can result from the overwintering of livestock and associated poaching of soils, and cultivated fields. Permanent grassland and reduced poaching will reduce soil exposure and vulnerability to run-off. Woodlands, dense hedgerows and buffer strips across slopes and alongside watercourses can reduce the velocity of water as it flows across farmland, potentially reducing soil erosion and safeguarding soil quality.	Manage riverside trees to prevent collapse of pollards and coppice stools, and replace lost riverside trees where appropriate (avoid creating heavy shade along long sections of watercourses).	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Flower-rich hedgerows Traditional orchards Wood pasture and parkland Flower-rich roadside verges	Pollination of crops in this NCA is required for some market gardening, orchard fruit and some arable crops. There is a negligible amount of species-rich grassland habitat (9 ha of priority habitat grassland) but nectar sources are provided by the traditional and bush orchards of this NCA and its remnant hop gardens, along with the network of hedgerows and the unaccounted network of roadside verges that still contain floristic diversity.	Regional	There is scope to improve the condition of habitats to provide more habitat for pollinators, including parkland, wood pasture, unimproved grassland, flower-rich meadows and verges and to expand areas where appropriate to do so. Incorporation of flower-rich headlands, hedgerows and buffer strips into agricultural systems extends the network of nectar sources throughout the farmed landscape, sympathetic management of road verges can be a beneficial addition to this network and also are aesthetically pleasing reinforcing a sense of place. Some traditional orchards remain in varied condition. There is a need for these orchards to be restored back into good condition, and plant new ones using traditional varieties. An abundance of pollinating species is of particular importance to the soft fruit growing activities found across much of the area, some of which encourage the introduction of bees into their farmed landscapes.	Increase the area of semi-natural habitats with particular emphasis on traditional orchards, unimproved grassland, woodland, wood pasture and parkland and species-rich hedgerows. Mechanisms to achieve this may be through agri-environment grants. Work with the local authority and parishes to create multi-functional green spaces incorporating sympathetic management for pollination including appropriate management of road verges, adding to the network of nectar sources close to pollinated food crops. Secure the economic viability of traditional orchards by promoting local varieties, and by raising awareness of the cultural and environmental value of orchards in this NCA. In addition, through mechanisms such as agri-environment schemes, encourage the use of field margins, beetle banks and headlands in arable land, to encourage pest regulating species in close proximity to food crops requiring pollination.	**Pollination** **Pest regulation** **Food provision** **Biodiversity** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pest regulation	Existing semi-natural habitat Agricultural field margins Species-rich hedgerows Woodland	The range and spread of semi-natural habitats throughout the NCA will support species that will aid pest regulation. Fruit and particularly soft fruit production is prone to losses from pest species.	Regional	Although there is a reasonable spread of rich semi-natural habitat across the NCA there is scope to improve the condition of this resource through appropriate management and to extend it where possible. Action to increase habitat suitable for pest regulating species may be of particular benefit in areas where fruit is grown.	Maintain and expand the area of semi-natural habitats, throughout the NCA to provide a range of niches to support pest regulating species including invertebrates, birds and mammals.	**Pest regulation** **Pollination** **Biodiversity** **Food provision**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
A sense of place/ inspiration	Distinctive, rural, commercially farmed undulating landscape with low hedgerows Steep, central wooded hills Wide river valleys and flood plains with pollarded trees Historic landscaped parkland Traditional orchards Small areas of permanent pasture and species-rich wet flood meadow Dispersed settlement pattern with characteristic buildings of red sandstone or brick, and some villages with old 'black-and-white' timber framed buildings The city of Hereford, Leominster and Ledbury	Sense of place is provided by the distinctive, undulating commercially farmed landscape with localised steep, often wooded, hills such as Dinmore and Wormsley, rising above wide flood plains with the meandering rivers of the Lugg, Frome, Arrow and internationally important Wye, marked by occasional pollarded trees. The fertile low-lying land is commercially cultivated with large arable fields, low hedgerows and localised traditional and bush orchards and hop yards and fruit farms, many using polytunnels, often surrounded by high shelterbelts located close to villages. Livestock production, and particularly beef from Hereford cattle, is closely associated with this area. Small areas of fen, permanent pasture and species-rich wet flood meadow provide a reminder of the past wetland character of the river flood plains. **Continued on next page...**	Regional	Though an area of commercial agriculture a strong, a sense of place is retained through the distinctive landscape, low wooded hills and wide meandering river corridors. Hedgerows and orchards are in decline and there is a lack of management in the area's woodlands. Semi-natural habitat it is fragmented. The main towns and the city of Hereford retain strong historic cores, although suburban areas are rapidly becoming bland and less distinctive. Dominant cultural features such as Hereford Cathedral and the historical bridges crossing the rivers Wye and Lugg may be threatened by outward and upward development. Pressure for development in the smaller towns and the larger villages also poses a challenge to the retention of a clear sense of place and identity; the pattern of many villages closely defined by a densely developed historical core around market places, churches and manor sites. The strong sense of a 'border' landscape – close to Wales, but detached from the West Midlands – may be eroded over time.	Maintain, restore and create new woodland throughout, linking areas of woodland particularly across the central hills. Work with land managers to find opportunities to maintain and restore distinctive traditional orchards and hop fields where practical and work to find markets for produce to ensure their future viability and sustainability. Maintain and restore wood pasture and parklands and hedgerow trees that provide a wooded feel, and unimproved wet grasslands and woodlands along river valleys. Ensure habitats are linked through habitat creation, are restored and are well managed. Ensure the strongly distinctive pattern, form and features of settlements are maintained and enhanced through the use of good quality design, reflecting the historical development of settlements and the materials and building techniques that pervade.	**Sense of place/ inspiration** **Sense of history** **Geodiversity** **Recreation** **Biodiversity** **Food provision**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
A sense of place/ inspiration cont.		**... continued from previous page** On higher ground there are smaller fields of pasture with many hedgerow trees, and aside from the steep wooded hills there are scattered copses and plantations. Settlement is widespread with a dispersed settlement pattern with scattered mainly nucleated villages, hamlets and large farmsteads linked by a network of winding lanes largely on lower ground and valley sides with clustered settlements around commons. Buildings are in characteristic red sandstone or brick with timber- framed buildings also a typical feature across the area including a number of 'black-and-white' villages with a core of timber-framed buildings. The historic market towns of Hereford and Leominster form the principal settlements and there are a number of historic parks.			Encourage the continuing production of locally distinctive breeds, such as Hereford cattle.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Iron-age hill forts Mesolithic and bronze- and iron-age archaeological features throughout the landscape Landscaped parkland Remnants of traditional orchards Medieval settlement patterns Traditional buildings Farmsteads City of Hereford, the Marches and Offa's Dyke	The history of the landscape is evident in the imposing iron-age hill forts, castles such as Clifford, Weobley and Pembridge overlooking river valleys, with defensive manors and moated sites often close to churches and market places, linked to the border landscape between England and Wales. The 7th century defensive and administrative border between the two countries ran through the lowlands marked by the earthworks of Offa's Dyke. There is a notable survival of historic farmsteads from a range of periods, a strong 'black-and-white' timber framed building tradition and use of locally sourced red sandstone for building. Archaeology from the Mesolithic period onwards including crop marks of late bronze-age and iron-age/Romano-British farmsteads and Roman remains and field systems. **Continued on next page...**	Regional	The fertile and versatile soils of the Herefordshire Lowlands have resulted in a long-standing agrarian land use and distinct nucleated settlement pattern. The remains of historic features and heritage assets, both above and below ground are challenged by intensive agricultural activity and the expansion and alteration of both the small and larger towns. Inappropriate cultivation may damage or destroy earthworks and buried remains. Neglect and unsympathetic conversion of and development around locally and nationally important buildings and the historic cores of settlements may undermine both the legibility of the historic record and the distinctive character of farmsteads and settlements.	Provide interpretation to increase the understanding of the importance of historic land use in shaping the current landscape. Encourage the use of best practice cultivation and agricultural methods to ensure the preservation of buried archaeological remains and above ground earthworks. Encourage the sympathetic management and only where necessary, the conversion of important buildings in the landscape. Where identified as necessary, new development in historic settlements should seek to conserve and enhance the distinctive pattern and distribution of buildings, roads and enclosures, with the use of locally distinctive materials and local vernacular styles as appropriate.	**Sense of history** **Sense of place/ inspiration** **Geodiversity** **Biodiversity** **Recreation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history cont.		**... continued from previous page** Leominster and Hereford, the main settlements within the area, were significant religious centres in the middle-late Saxon period and the earldom of Hereford was established before the Conquest. The cathedral in Hereford and the priory church in Leominster remain prominent in the townscapes. Numerous fine landscaped parklands designed by Humphry Repton and others, as at Hampton Court and Garnons and Uvedale Price's 'picturesque' landscape at Foxley. The owners of these landscapes were also closely linked to the agricultural wealth and development in the county and influenced the shape of the agricultural landscape, for example, through the development of extensive water meadow systems. This is further supported by frequent traditional orchards which formed a significant part of the economy from the 14th century reaching something of a peak in the late 18th century.			Work with land owners to ensure the ongoing legibility and structure of the historic environment particularly through the conservation and management of historic parks and gardens, traditional farmsteads and associated landscape elements, such as orchards, moats and flood meadows, and earthworks. Provide high quality recreational, interpretative material and tourism opportunities, such as circular trails and themed local and community events, linked to the sensitive management and conservation of historic and cultural features to aid understanding, enjoyment and sense of wellbeing.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Riverside walks within wide meandering river corridors Ancient woodland Rolling hills Traditional orchards Historic parks and gardens	Tranquillity and intrusion levels have declined; areas of undisturbed land have decreased from 83 per cent in the 1960s to 71 per cent in 2007. The largest areas of tranquillity lie away from the main transport corridors (A456, A49, A4103 and A438) and major settlements including Ludlow, Ledbury, Leominster and Hereford. Tranquillity is particularly associated with the deeply rural and distinctive character of the traditionally farmed Herefordshire countryside crossed by wide meandering river valleys punctuated by steep, wooded hills with parkland and extensive orchards around the many small settlements.	Regional	The topography and climate of the area are important contributors to the high levels of tranquillity in that they limit the opportunities for development and major transport routes. Development around all the main towns risks intruding into the areas of rural tranquillity, both through increases in vehicular activity and light pollution.	Protect the area from inappropriate development and infrastructure that would detract from the sense of remoteness and tranquillity of the area. Use tree planting and other semi-natural planting around new and existing development that intrudes into the wider landscape to minimise of limit the effects of light and noise pollution.	**Tranquillity** **Sense of place/ inspiration** **Sense of history** **Geodiversity** **Biodiversity** **Recreation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation	Ancient woodland Rivers and other waterways Rights of way Tranquil landscape	Recreation is supported by the area's 1,319 km rights of way network (with a density of 1.5 km per km^2) as well as 458 ha of open access land (0.5 per cent of the NCA). Access for recreation is available within the river valleys and on the River Wye. A national cycle route follows the Lugg valley and there is access to the Offa's Dyke National Trail from the Wye Valley on the Welsh border. Queenswood Country Park at Dinemor Hill provides recreational access to woodland for the populations of both north Hereford and Leominster and many of the surrounding villages.	Regional	The River Wye is important for recreation in various forms including walking cycling, canoeing and kayaking and fishing. It is an attractive landscape that draws people from around the West Midlands and from further afield. Some recreational activities may not always be complementary and 'honey-pot' sites may suffer high levels of disturbance. Recreation reconnects or maintains people's connection with the landscape and ecosystems that support them and encourages a valuing of their surroundings; however, a limited rights of way network and little access land restrict contact with the farmed, historic and natural environment.	Ensure that access balances recreational enjoyment with protection of biodiversity, geodiversity and historic features. Continue to develop and implement the Rights of Way Improvement Plan for Herefordshire. Develop opportunities for linking Hereford and Leominster to the surrounding rural area by developing sustainable transport networks Work to implement the aims and objectives of the Herefordshire Green Infrastructure Strategy particularly the strategic corridors and zones that would increase access provision in and between the main settlements. Increase understanding and enjoyment through education and interpretation materials. Create new links within the rights of way network to increase recreational capacity within the farmed landscape.	**Recreation** **Sense of place/ inspiration** **Sense of history** **Geodiversity** **Biodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	Rivers Wye and Lugg Traditional orchards Deciduous woodland and wet woodland Wet grassland and fen Wood pasture and parkland Riparian habitat	There is one internationally designated site within the NCA – the River Wye SAC. The River Wye is an extensive river system crossing the border between England and Wales and supports a number of important and rare species, including 'an exceptional range' of aquatic flora. The SAC extends over 2,200 ha, of which 430 ha lies within this NCA. There are 24 SSSI in the NCA, totalling over 1,000 ha (1 per cent of the NCA area). Over half (52 per cent) of SSSI are in 'unfavourable' condition; one third are in 'unfavourable recovering' condition, and only 15 per cent of SSSI are in 'favourable' condition. There is more than 3,000 ha of priority habitat within the NCA (4 per cent of the NCA area), more than half of which (1,760 ha) is wet woodland. Other notable habitats include lowland mixed deciduous woodland, and flood plain grazing marsh.	International	River habitats are important in this NCA, the River Wye in particular. Siltation, sedimentation and diffuse pollution from agricultural run-off and domestic waste water, combined particularly with low summer water levels may jeopardise the status of the river. Ancient and wet woodland are important habitats distributed throughout this NCA, as are parklands and wood pasture. Lack of appropriate management, changing climate and new pests and pathogens may significantly influence their structure, composition and condition. Wet meadows and fen make up important flood plain habitat. Changes in flooding patterns and timings along with inappropriate grazing and cutting regimes may significantly impact on their condition and quality. Kettle hole ponds in hummocky glacial moraine form an important and rather rare habitat in the Wye Valley west of Hereford and in a band stretching from Kington to Orleton in the north of the NCA. Other important habitats include flower-rich hedgerows and road-side verges, and traditional orchards. **Continued on next page...**	Improve water quality in the rivers by working with the farming community and water managment bodies, such as the Environment Agency and water companies, to address diffuse and point source pollution and issues around sedimentations. Improve the condition and connectivity of traditional orchards and ancient woodland using associated woody habitats such as hedgerows and wood pasture and parkland. Bring traditional orchards into positive management, restock them where appropriate with traditional, locally sourced varieties and seek to protect them from inappropriate development. Maintain the current extent of semi-natural and ancient woodlands and introduce active management where appropriate, to enhance landscape character, recreation opportunities and biodiversity and the benefits it can bring to soil quality and long term carbon storage.	**Biodiversity** **Geodiversity** **Climate regulation** **Pollination** **Pest regulation** **Recreation** **Sense of place/ inspiration** **Tranquillity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity cont.				**... continued from previous page** Traditional orchards are particularly prone to degradation as a result of lack of management and restocking and many, located at the edge of settlements, may come under pressure from development. Floristically diverse hedgerows and verges are degraded by inappropriate and too frequent cutting. The sensitive restoration of traditional orchards could benefit biodiversity, local food production, tourism and improve the understanding of our cultural heritage.	Work with the local authority and land owners to ensure the appropriate management of road-side verges and hedgerows. Encourage land owners and farmers to incorporate semi-natural features into the farmed environment to improve ecological connectivity, adding to natural pest regulation and pollination resources.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Soft mudstone river valleys Hills capped with sandstone Limestone rocks Igneous intrusion Glacial and fluvial deposits Old Red Sandstone River geomorphology	Wide river valleys, underlain by soft mudstone rocks with isolated hills capped by harder rock. Extensive glacial deposits forming low ridges and hummocky ground. Fluvio-glacial deposits, particularly in the Wye and Lugg valleys but also in the Arrow valley have been exploited in the past and revealed information about river geomorphology, past environmental conditions and human use and occupation of the landscape. Gravels are still extracted at Wellington in the Lugg valley. The oldest rocks are limestones and siltstones from the Ludlow Series of the Silurian, seen on Shucknall Hill. Old Red Sandstone, the oldest of which are Upper Silurian in age and the later rocks Devonian. There is also an igneous intrusion, Permian in age, the Bartestree Dyke.	Regional	There is a lack of geodiversity data for this area and an opportunity to undertake additional mapping and research work. There is a need for making the network of geological sites more accessible, where appropriate, to help improve the understanding of the role geodiversity plays in particular its connection with biodiversity, landscape character, industrial and cultural heritage of the area. The use of locally derived stone has created a close association between the geology of the area and the distinctiveness and identity of the Herefordshire landscape. Lack of access to new sources of stone limit the potential to reinforce local character in new development and to repair important existing buildings. Continued extraction of mineral resources from the Lugg valley provides opportunities for further research into the geomorphology of the river and past human occupation of the landscape, but this needs to be balanced against the limited and finite resources available and the impacts on landscape character and existing semi-natural habitats.	Identify additional Local Geological Sites where appropriate. Identify sources of local building stone to allow the continued research into the geodiversity of the area while reinforcing local distinctiveness and sense of history.	**Geodiversity** **Biodiversity** **Sense of place/ inspiration** **Sense of history**

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