121: Low Weald

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NATURAL ENGLAND

Introduction

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

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

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

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

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

National Character Areas map

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

Summary

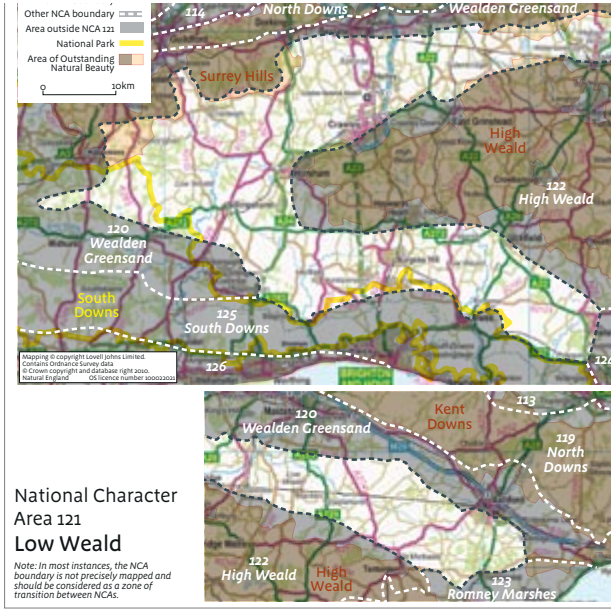
The Low Weald National Character Area (NCA) is a broad, low-lying clay vale which largely wraps around the northern, western and southern edges of the High Weald. It is predominantly agricultural, supporting mainly pastoral farming owing to heavy clay soils, with horticulture and some arable on lighter soils in the east, and has many densely wooded areas with a high proportion of ancient woodland. Around 9 per cent of it falls within the adjacent designated landscapes of the Surrey Hills, Kent Downs and High Weald Areas of Outstanding Natural Beauty and the South Downs National Park. Around 23 per cent of the area is identified as greenbelt land.

It is important for biodiversity, being rated among the most important NCAs for richness of bat species, bullfinch and lesser-spotted woodpecker, and several plants, including spiked rampion, plus a variety of rare lichens. It also supports rare invertebrates, notably woodland butterflies. Ebernoe Common and The Mens are Special Areas of Conservation (SAC) and 5 ha of the Lewes Downs SAC also extend into the area. There are 44 Sites of Special Scientific Interest (SSSI). Ebernoe Common is also a National Nature Reserve, along with Ham Street Woods. The NCA is identified as a potential Forest District[4] so opportunities exist to achieve huge benefits by connecting existing woodlands.

The area has many sites that are critical for the understanding of complex Wealden geology, including 11 geological SSSI. There are also important historical sites, many associated with the Wealden iron industry, and nearly 900 ha of Registered Parks and Gardens, with many more, smaller designed landscapes.

The area is generally wet and woody. It is dissected by flood plains and its impermeable clay soil and low-lying nature make many areas prone to localised flooding. Ponds are common, often a legacy of iron and brick-making industries. Gill woodland is a particular feature and a valuable habitat, scarce elsewhere in the south-east of England.

Despite its proximity to London and continuing pressure for development, the Low Weald remains essentially rural in character with small-scale villages nestled in woodland and many traditional farm buildings, including oast houses, which are typical in the east.



Click map to enlarge; click again to reduce.

[4]Preliminary Nature Conservation Objectives for Natural Areas – Woodland and Forestry, Reid, C.M. and Kirby, K.J., English Nature Research Report 239 (1997)

Statements of Environmental Opportunity

SEO 1: Protect, manage and significantly enhance the area's intricate and characteristic mix of semi-natural ancient woodlands, gill woodland, shaws, small field copses, hedgerows and individual trees to reduce habitat fragmentation and benefit biodiversity, while seeking to improve and encourage access for health and wellbeing and reinforce sense of local identity.

SEO 2: Conserve and enhance the distinctive historical aspects of the Low Weald landscape, including its important geological features and sites of heritage interest, particularly those associated with Wealden iron industry, enabling access, continued research, interpretation, understanding and enjoyment of the extensive and nationally significant resources.

SEO 3: Work at a landscape scale to improve the quality, state and structure of all Wealden rivers, streams and standing waterbodies and their appropriate flood plains, taking account of water quality, water flow and hydraulic connection with the flood plain, while seeking to enhance biodiversity, historic features and recreation opportunities and reinforcing sense of place.

SEO 4: Maintain the sustainable but productive pastoral landscape of the Low Weald, while expanding and connecting semi-natural habitats to benefit biodiversity, regulating soil and water quality by promoting good agricultural practice, and maintaining the extent and quality of unimproved permanent grassland and meadows. Restore degraded neutral grasslands to buffer sites and encourage pollinators and predators for pest regulation.

Views of the South Downs from Low Weald.

Description

Physical and functional links to other National Character Areas

The High and Low Weald form an area known from Saxon times as the Weald; they remain inextricably linked. The Low Weald is a broad, low-lying clay vale which largely wraps around the northern, western and southern edges of the High Weald National Character Area (NCA) in a rough horseshoe shape. In the far east, its northern tip ends at a sandstone cliff which marks the boundary of Romney Marshes NCA while the southern tip adjoins Pevensey Levels NCA. It is bounded for much of its length by the Wealden Greensand NCA in the north, crossing the counties of Kent, East and West Sussex and Surrey, and the South Downs NCA in the south. In the north-west the NCA borders the Surrey Hills. Although the wooded landscape means that views to higher ground are limited, the Low Weald is overlooked from hills in adjacent NCAs.

Networks of roads, including the M23, largely cross the area north–south along with railway lines to the South Coast, London and Gatwick Airport which provide commuting opportunities for much of the Low Weald's population. National Cycle Network Route 21 links the Low Weald to Greenwich in the north and Eastbourne in the south.

The catchments of the rivers Beult, Eden, Medway and Mole all drain from the area into the Wealden Greensand NCA, while those of the Arun, Adur, Ouse and Cuckmere drain through the South Downs to the sea along the South Coast, and the area provides essential water supplies to large parts of adjacent NCAs.

Low Weald in West Sussex with views of South Downs in the distance.

The unique geology of The Weald is shared with parts of Boulonnais and Pays de Bray in France.

Key characteristics

- Broad, low-lying, gently undulating clay vales with outcrops of limestone or sandstone providing local variation.
- The underlying geology has provided materials for industries including iron working, brick and glass making, leaving pits, lime kilns and quarries. Many of the resulting exposures are critical to our understanding of the Wealden environment.
- A generally pastoral landscape with arable farming associated with lighter soils on higher ground and areas of fruit cultivation in Kent. Land use is predominantly agricultural but with urban influences, particularly around Gatwick, Horley and Crawley.
- Field boundaries of hedgerows and shaws (remnant strips of cleared woodland) enclosing small, irregular fields and linking into small and scattered linear settlements along roadsides or centred on greens or commons. Rural lanes and tracks with wide grass verges and ditches.
- Small towns and villages are scattered among areas of woodland, permanent grassland and hedgerows on the heavy clay soils where larger 20th-century villages have grown around major transport routes.
- Frequent north–south routeways and lanes, many originating as drove roads, along which livestock were moved to downland grazing or to forests to feed on acorns.
- Small areas of heathland particularly associated with commons such as Ditchling and Chailey. Also significant historic houses often in parkland or other designed landscapes.
- The Low Weald boasts an intricate mix of woodlands, much of it ancient, including extensive broadleaved oak over hazel and hornbeam coppice, shaws, small field copses and tree groups, and lines of riparian trees along watercourses. Veteran trees are a feature of hedgerows and in fields.
- Many small rivers, streams and watercourses with associated watermeadows and wet woodland.
- Abundance of ponds, some from brick making and quarrying, and hammer and furnace ponds, legacies of the Wealden iron industry.
- Traditional rural vernacular of local brick, weatherboard and tile-hung buildings plus local use of distinctive Horsham slabs as a roofing material. Weatherboard barns are a feature. Oast houses occur in the east and use of flint is notable in the south towards the South Downs.

Bluebell wood, Low Weald.

Low Weald today

The Low Weald is the eroded outer edges of the High Weald, largely coinciding with the outcrop of Weald Clay but with narrow bands of Gault Clay and the Lower and Upper Greensands which outcrop close to the scarp face of the South Downs. Below the irregular escarpment of the greensand belt and the chalk lies a broad vale, rarely exceeding more than 40 m above sea level, with many areas as low as 15 m. The resulting landscape is gently undulating with occasional steep-sided stream valleys, ridges and plateaux, becoming hillier to the south as it reaches the South Downs.

Water is a dominant feature, owing to the topography and impervious clay, particularly ponds and many meandering streams with riparian willows and alders. The area includes major parts of the valleys and flood plains of several principal rivers of the region such as the Wey, Mole, Arun, Adur, Ouse, Eden, Medway, Teise and Beult and supplies water to surrounding NCAs, specifically via reservoirs.

Land use is still predominantly agricultural, and largely pastoral owing to the heavy clay soils with either grazed grassland or forage, including hay meadows. Most grassland has been agriculturally improved, but fragments of unimproved, floristically rich meadow and pasture are still present.

Fields are generally small and irregular, many formed by woodland clearance or 'assarting' in the medieval period and often bounded by shaws or formed from cleared land along woodland edges. Many of the especially species-rich hedgerows in this area may be remnants of larger woodland and often follow the pattern of medieval banks or ditches. Wherever there are lighter soils on slightly higher ground, more mixed farming is found, including arable and fruit

Kent orchard with shelterbed.

growing on the drift deposits of brickearths in Kent. Fields in these areas tend to be larger and more regular with fewer hedgerows.

Like the High Weald, the Low Weald is densely wooded, especially in its western arc through West Sussex and Surrey. Numerous and extensive blocks of ancient, semi-natural coppiced woodland and important wood pasture sites, such as Ebernoe Common, are striking features. Oak is the principal tree and, despite centuries of clearances for settlement, transport and agriculture, significant areas of ancient woodland survive.

Isolated farmsteads, often occupying ancient sites (some moated), form the predominant settlement pattern, intermixed with small villages, often with 'Street' or 'Green' names suggesting secondary settlement. These farmsteads are associated with a landscape of small and irregular fields, created by assarting from woodland in the medieval period, or medium-sized and more regular fields created between the 15th and 18th centuries by enclosure through agreement of former arable strips. The latter are more common in the eastern parts of the area. Many small towns and typical Wealden villages on the heavier clay soils in the western part are scattered among a patchwork quilt landscape of woodland, permanent grassland, hedgerows and wetlands. Traditional buildings are often made of brick, with local colour variations, and some flint towards the South Downs. Pre-18th-century buildings were predominantly timber framed and even later buildings are often weatherboarded. The rural character of most of the Low Weald now contrasts against modern, urban centres, most notably the area around Gatwick Airport in the centre of the NCA.

Roadside hedges with standard trees are characteristic of Low Weald and add to its wooded nature.

The landscape through time

The Weald is a geologically complex anticline; a dome of rocks folded after their deposition, with the oldest strata exposed at the centre in the High Weald as the top of the dome has been worn down by erosion. The folding was due to the effects of the Tertiary Alpine Orogeny (mountain-building episode). The area was not glaciated but was affected by periglacial erosion. The Low Weald is dominated by the Lower Cretaceous Weald Clay formation which largely forms an elongated horseshoe around the older rocks of the High Weald and is encircled by the Greensand Ridge. It is predominantly low lying, dominated by heavy clay soils, with thin bands of calcareous limestone (the fossil-rich Paludina beds), and beds of sandstone deposited by a river and estuary system flowing from the north, west and south. Weald clay consists of clays, silts and localised sands and limestones, marking increased marine dominance within the Weald with possible links to the North Sea Basin. Many sites such as clay pits excavated for the brick and tile industries yield well-preserved fossil insects, plants and reptiles and expose clear geological sections. The complex geology of the Weald gives rise to many habitats and land uses.

Human occupation dates from at least the Mesolithic, with heavy exploitation of the Low Weald by hunter-gatherer communities who constructed both semi-permanent and temporary camps, and there are important Mesolithic sites, including rock shelters. Evidence of woodland clearance has also been detected and by the Bronze Age farmer communities were making inroads into the Low Weald, clearing large areas. This increased during the Iron Age and Roman period with a network of Roman roads linking the area to London and the coast.

Oast house, Kent.

From at least Saxon times, livestock were driven to the Wealden forests to feast on acorns and beech masts or to the downland to graze on the higher pasture. Numerous north–south roads are a legacy of this traffic.

By the medieval period much of the Low Weald was being managed as a patchwork of assart fields and woodlands with dispersed manorial farms and market settlements, many of which developed into modern-day villages and hamlets.

There is evidence of iron working in the Weald for over 2,000 years. For two main periods, during the Roman occupation and in the Tudor and early Stuart era, the Weald was the main iron-producing region in Britain. The geology of sands and clays yielded iron ore and the stone and brick to build furnaces. The woodland provided the necessary charcoal fuel for smelting and numerous small streams supplied water power for the bellows and hammers of the forges and furnaces. Many ponds were created in the impervious clay in order to store additional water to supplement natural watercourses. At its peak at the end of the 16th century, the Weald supported around 100 forges and furnaces and the iron industry impacted on every aspect of life and the landscape. Large numbers of people were employed in digging ore, cutting wood, charcoal making and transporting raw materials and products. The legacy is still evident in the landscape of surviving hammer and furnace ponds, grand houses built by wealthy foundry owners and the remains of the coppiced woodland which was managed for the production of charcoal. It also continued to inspire research and art long after its demise and Kipling's lines in Puck's Song evoke the largely accurate impression of a densely wooded, relatively sparsely populated medieval landscape concealing an extensive industry on which the prosperity and political ambitions of England depended: "Out of the Weald, the secret Weald, Men sent in ancient years, The horse-shoes red at Flodden Field, The arrows at Poitiers!"

The geography, rivers to the channel and abundance of wood, particularly oak, also made the area vital for ship-building and there were often conflicts. In the late 16th century laws were passed preventing the setting up of any new ironworks in some parts and to preserve trees within 12 miles of the coast to protect the important Sussex ship-building industry. As coal replaced wood as fuel for furnaces during the Industrial Revolution, the iron industry moved north to the coalfields. The last furnace in the Weald closed in the early 19th century and ship-building also began a terminal decline as iron replaced wood. Much of the forest was left unmanaged or cut down for pasture or building. Agriculture again became the most lucrative industry. Livestock grazed the lush pasture, with cattle also used as draught animals on soils that were too heavy for horses. Today's red Sussex cattle descend from these hardy, manageable beasts.
The lighter soils in the east supported major suppliers of fruit and hops. Hop growing was on an industrial scale by the 19th century with manure from cattle important for fertilising hop gardens. Oast houses remain characteristic of this landscape, most having been converted to residential use as hop growing all but died out commercially in the Low Weald in the late 20th century.

The same geology that supported iron also supplied raw materials for brick and tile making which still continues. Excavations often reveal important geological strata and fossils. An example is Lower Dicker, famous for its Dickerware pots and bricks until the early 20th century. Its disused quarry is now a Site of Special Scientific Interest (SSSI) and a Geological Conservation Review site. Stone, including Bethersden 'Marble' and Horsham Stone, was also quarried and brick making was an important local industry. In addition to the ponds created to supply the iron industry these activities, together with the digging of marl to improve the heavier soils, have resulted in a landscape peppered with small ponds. Traditional buildings reflect the availability of local materials and are timber-framed or, from the late 18th century onwards, built with local bricks and tiles of varying hues of dark red to orange, often with weatherboarding. There is also use of flint towards the South Downs and sandstone locally.

The railway came to the Low Weald in the 1840s with the completion of the London to Brighton main line in 1841 and the Redhill to Tonbridge and Brighton to Hastings lines in 1846. However, the area was subject to less large-scale development during the 19th century than adjacent NCAs and it was not until the 1950s that the expansion of villages within the commuter belt really took off and urban centres, such as those around the Gatwick and Crawley area, began to form. Even today, the NCA retains much of its rural character with many small-scale villages surviving within a network of rural roads and densely wooded areas.

Ham Street Woods National Nature Reserve

Ecosystem Services

The Low Weald 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 Low Weald NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** Livestock were traditionally reared on the pasture and continue to be a major land use. Dairy farming is in decline but survives, particularly in a small area around Edenbridge in the centre of the NCA. Arable and horticultural farming remain important, particularly in the east.

- **Timber provision:** Despite the wooded nature of the NCA and the long history of wood supply, the area does not supply a large amount of timber for the modern market.

- **Water availability:** The area contains Arlington Reservoir which can store up to 8,300 million litres of water and was created in 1971. It supplies water to the Eastbourne, Hailsham, Polegate and Heathfield areas, while Bough Beech Reservoir was constructed in the 1960s and supplies 15 per cent of the water for Sutton and East Surrey Water.

- **Genetic diversity:** Some old and traditional orchards and remnants of the hop-growing industry survive and contain important local varieties that are now rarely available, such as Sussex Forge apple, named because of its association with the iron-working area around Crawley and East Grinstead.

Sussex cattle

The Sussex cattle breed was refined largely in the Low Weald during the early 19th century and the Sussex Herd Book Society was formed following a public meeting in Horsham to promote the breed. Descendants of these original herds still graze parts of the NCA. The area was also important in the development of the Southdown sheep breed.

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

- **Climate regulation:** Longstanding woodland is abundant in the Low Weald and is a good carbon store, as is the undisturbed soil beneath which has a higher carbon content. Similarly, its long ley and semi- and unimproved grasslands will tend to have higher soil carbon content than cultivated equivalents. Growing timber is good carbon sequestration, particularly in habitats such as wet woodland with rapid deposition.

- **Regulating water quality:** Water quality is particularly important in the reservoirs that provide water for the surrounding area. Buffering watercourses and reservoirs, thereby slowing the pathway of run-off, could have a significant impact, along with working with farmers and land managers both within the Low Weald and particularly on the higher ground and catchments in adjacent NCAs to promote good practice.

- **Regulating water flow:** Predominantly clayey flood plain soils with naturally high groundwater and the area's low-lying nature make many areas in the Low Weald susceptible to flooding.

- **Pest regulation:** The significant proportion of ancient woodland, particularly oak, makes this NCA especially vulnerable to introduced pests and diseases. Mature elm has been lost from most of the Low Weald with the exception of parts which fall within the Dutch Elm Disease Control Area in East Sussex.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** Oast houses are a distinctive feature in the east, though almost all have been converted to other uses, usually residential. Ditchling became a centre for artists and craftsmen with the foundation of the Guild of St Joseph and St Dominic by Eric Gill in the early 20th century.

- **Sense of history:** The Low Weald has a strong sense of being an anciently settled and farmed landscape, with farmsteads (often of medieval origin) set in landscapes also enclosed in the medieval period and successively reorganised. The landscape is influenced by remnants of the Wealden iron industry. There are many fine houses, many medieval in origin and often set within historic parkland, including Knepp Castle and Newick Park, as well as many smaller gardens and designed landscapes.

- **Tranquillity:** The Low Weald is a predominantly pastoral and wooded landscape that is still largely rural and relatively tranquil outside the main urban centres.

- **Recreation:** Recreation is supported by 3,974 km of public rights of way. Arlington Reservoir is an important resource for angling (as a trout fishery), birdwatching and walking. Bough Beech Reservoir also allows sailing at its southern end. The Wealdway runs through part of the NCA. The Cuckoo Trail follows 17 km of former railway line between Polegate and Heathfield. It is used by about 200,000 people a year and forms part of National Cycle Network Route 21. Commons such as Ditchling and Chailey are popular for recreational activities.

- **Biodiversity:** The 49-hectare site of Arlington Reservoir supports diverse habitats, with 173 recorded bird species and a wintering population of up to 10,000 wildfowl; it is also important for migrating osprey. Part of Bough Beech Reservoir is leased to Kent Wildlife Trust and forms a nature reserve.

The Low Weald is the most important area for spiked rampion in England and is among the top five NCAs for several other species such as chamomile and true fox-sedge.

The area is rated in the top ten NCAs for containing bullfinch and lesser-spotted woodpecker and its wooded character supports many rare species, including nightjar and notably woodland butterflies such as the wood white and moths such as the forester and scarce brown streak. It is also rated in the top twelve in terms of species richness by the Bat Conservation Trust and there are colonies of rare barbastelle and Bechstein's bats. The wet woodland also makes it important for fungi, mosses, liverworts and lichens.

- **Geodiversity:** The NCA is geologically important and contains 11 geological SSSI and 19 local sites. Geological features include Jurassic-Cretaceous stratigraphy sites notable for well-preserved fossils. For instance, Clock House Brick Works, Auclaye and Smokejack Clay Pit have all yielded well-preserved insects and Smokejack also yielded the dinosaurs iguanodon and baryonyx. Clay pits, such as those at Lower Dicker, excavated for the brick and tile industry often exposed clear geological sections illustrating varied lithologies, particularly sandstones and limestones, as well as fossil remains. Many of these sites are critical to our understanding of the complex Wealden geology.

  The shells of a particular variety of water snail were compressed into rock strata over around a million years to form fossilised limestone known as Bethersden Marble.

Sulphur tuft.

Statements of Environmental Opportunity

SEO 1: Protect, manage and significantly enhance the area's intricate and characteristic mix of semi-natural ancient woodlands, gill woodland, shaws, small field copses, hedgerows and individual trees to reduce habitat fragmentation and benefit biodiversity, while seeking to improve and encourage access for health and wellbeing and reinforce sense of local identity.

For example by:

- Working with partners and landowners to realise the Forest District potential.
- Re-introducing appropriate and traditional woodland management techniques, preserving both fallen and standing deadwood where appropriate for biodiversity value.
- Supporting initiatives such as the West Weald Landscape Project which focuses on Chiddingfold Forest and the internationally important ancient pasture woodlands of Ebernoe Common, promoting the integrated management of the landscape for biodiversity and people.
- Working with woodland owners, land managers and the silvicultural community to develop new markets and initiatives that realise the value and potential of high-quality hardwood and local wood fuel from new and existing woodlands.
- Identifying areas where the introduction of short rotation coppice could be used to link fragmented habitats and provide a source of fuel.
- Protecting the characteristic hedgerows with standard trees which give the area much of its intimate feel, considering replacement planting where needed.
- Further expanding broadleaved woodland on steeper slopes, especially within the catchments of the Arun, Adur, Beult and Medway, with species that reduce the risk and rate of soil erosion.
- Restoring and expanding characteristic woodland shaws, interlinking with hedgerows and copses by reinstating appropriate and traditional management, to enhance landscape, cultural heritage and biodiversity, especially where this reinforces ancient field patterns, improves habitat networks and/or helps to integrate new and existing development.
- Encouraging the targeted re-introduction and sustained implementation of traditional coppice management in woodlands that have been previously coppiced or newly planted for coppice where this is appropriate.
- Considering appropriate species for new plantings to maintain landscape structure, character and biodiversity in response to the impacts of climate change.
- Protecting ancient and veteran trees in parklands, hedgerows and fields.
- Monitoring and maintaining sustainable populations of potential problem species such as deer, squirrel and wild boar.
- Monitoring and responding to new and existing threats to woodland structure from pest and diseases such as Chalara and Phytophthora. Also monitoring and controlling non-native invasive species, particularly following periods of trauma such as loss of a key species through disease.

SEO 2: Conserve and enhance the distinctive historical aspects of the Low Weald landscape, including its important geological features and sites of heritage interest, particularly those associated with Wealden iron industry, enabling access, continued research, interpretation, understanding and enjoyment of the extensive and nationally significant resources.

For example by:

- Ensuring that earth science Sites of Special Scientific Interest (SSSI) and Local Geological Sites are included in the planning process and that geological conservation is integral to the development process.
- Clarifying site management needs to agreed standards for Local Geological Sites using management standards similar to those for SSSI.
- Maintaining the network of important earth science sites through supporting local geo-conservation groups.
- Engaging in the planning process to maintain views of rock exposures and natural landforms that illustrate the geological context of the area and, where appropriate, improving access to cuttings, quarries and other geological features to improve understanding and enjoyment of geodiversity.
- Encouraging the wider appreciation (among the public, minerals industry, scientific community, local authorities and conservation bodies) of the importance of Low Wealden geology and its link between scenery and habitat, through education and interpretation.
- Promoting responsible fossil collecting.
- Clearing bracken and other invasive growth to prevent damage to archaeological and geological sites.
- Working with local authorities, landowners, Areas of Outstanding Natural Beauty and interest groups to promote the unique historical assets of the Low Weald for the benefit of local communities and to boost tourism.
- Conserving and enhancing, through sustainable and sensitive new uses, the area's distinctive traditional farmsteads, including the dispersed plans which are highly characteristic of the Weald and its oasts, barns and other buildings.
- Using an understanding of the area's distinctive traditional architecture to inspire new development, including encouragement where appropriate of the use of traditional building materials, including local red brick, flint, clay tile and weatherboarding in new development and restorative work.
- Identifying and realising opportunities to enhance the setting and interpretation of heritage assets such as historic buildings and archaeological sites. Also working with local societies and interest groups to promote the appreciation and understanding of the area's historic sites and nationally important industrial heritage.
- Increasing the amount of surviving historic parkland that is protected by measures such as agri-environment schemes and historic parkland grants, and identifying smaller historic designed landscapes and seeking to preserve and enhance them where appropriate.

SEO 3: Work at a landscape scale to improve the quality, state and structure of all Wealden rivers, streams and standing waterbodies and their appropriate flood plains, taking account of water quality, water flow and hydraulic connection with the flood plain, while seeking to enhance biodiversity, historic features and recreation opportunities and reinforcing sense of place.

For example by:

- Working in partnership across sectors and National Character Area (NCA) boundaries to tackle the challenges associated with flood risk, pollution and low flows to safeguard surface water resources, especially those failing to meet Water Framework Directive objectives for good ecological status.
- Maintaining and restoring wetland landscapes associated with the streams and rivers, particularly the main rivers – the Arun, Adur, Beult and Medway – including maintenance and restoration of waterside pollards, lines of riparian trees, wet pasture and wet woodland.
- Identifying the requirement for research that improves our understanding of how to respond to and plan for climate change impacts and future consumer demands, and the interrelationships between supply and demand in adjoining NCAs, including the impacts of water availability on key biodiversity sites.
- Maintaining and restoring historic hammer and furnace ponds that are characteristic of the area for the benefit of wildlife and water management and inspiring sense of place. Also improving access and interpretation to increase understanding and enjoyment of these features.
- Buffering watercourses and reservoirs and restoring natural river geomorphology to improve water quality and reduce flood risk in settlements by regulating water flow.
- Drawing on best practice principles such as those established under catchment sensitive farming and building on and supporting existing stakeholder groups to help to deliver a good water environment across the Low Weald, benefiting biodiversity and local communities.
- Encouraging sustainable water use by homes and businesses supplied from catchments and promoting sustainable urban drainage systems.
- Controlling invasive non-native species, particularly along river banks, to reduce soil exposure and erosion of the bank.

SEO 4: Maintain the sustainable but productive pastoral landscape of the Low Weald, while expanding and connecting semi-natural habitats to benefit biodiversity, regulating soil and water quality by promoting good agricultural practice, and maintaining the extent and quality of unimproved permanent grassland and meadows. Restore degraded neutral grasslands to buffer sites and encourage pollinators and predators for pest regulation.

For example by:

- Supporting environmentally based agricultural grant systems; for example, whole farm plans, environmental and pollution controls, habitat creation and habitat management.
- Securing the protection of all remaining unimproved grassland as part of a working pastoral system and seeking to extend buffer zones around prime areas.
- Re-linking the fragmented landscape by restoring hedgerows and shaws and creating corridors using field margins, road verges and rivers to improve habitat connectivity, particularly where this can assist in regulating soil erosion and buffering of watercourses.
- Protecting traditional practices, including the longstanding associations of the fruit belt in Kent, maintaining a strong sense of place, for example maintaining and managing traditional orchards for heritage value, genetic diversity and local distinctiveness, including their poplar and alder shelterbelts.
- Using mechanisms such as agri-environment schemes to encourage the use of field margins, beetle banks and headlands in arable land, particularly in close proximity to food crops requiring pollination.
- Building on work to preserve surviving pockets of unimproved hay meadows through continuing to support measures such as agri-environment schemes and the Weald Meadows Initiative.[5]

Low Weald landscape with oast houses.

[5] www.highweald.org/look-after/our-projects/weald-meadows-initiative.html; www.highwealdlandscapetrust.org/weald-meadows-initiative.html

Additional opportunity:

1. Plan for the creation of high-quality blue and green space and green corridors to provide a framework for new and existing development in urban areas and along major transport routes for the enjoyment and wellbeing of communities and to enhance biodiversity.

For example by:

- Working to identify and maintain important views to elevated landforms outside the NCA such as the Wealden Greensand, the North and South Downs and the High Weald.
- Creating or safeguarding extensive areas of multifunctional green space within and surrounding towns and identified new development areas, including attractive new wetlands forming part of sustainable urban drainage systems and linking into the heart of urban areas as part of green infrastructure planning.
- Creating community allotments and potentially developing community orchards on the edges of urban areas.
- Managing and enhancing the provision and promotion of access across the area including supporting plans to extend cycle networks.
- Encouraging measures such as restoration and expansion of networks of hedgerows and shaws to minimise the effects of development and its associated infrastructure (including light, noise and air pollution) intruding on the rural character and the special qualities of adjacent protected landscapes.
- Ensuring that high-quality green infrastructure provision is integral to all development planning and encouraging improvement of the public transport network to reduce damage to rural roads and lanes.
- Promoting sustainable tourism and recreational activities to minimise impact on the environment, while helping to generate income and employment.
- Seeking to conserve areas with high levels of tranquillity and the settlement pattern of small, scattered villages and hamlets of this predominantly rural area.
- Encouraging detailed landscape assessment in advance of all significant development to identify ways of minimising impact on the rural character, the local community and the environment.

Supporting document 1: Key facts and data

Total area: 182,420 ha

1. Landscape and nature conservation designations

Three Areas of Outstanding Natural Beauty fall partially within the NCA boundary: Surrey Hills (6,264 ha), Kent Downs (2,273 ha) and High Weald (1,025 ha). 13,321 ha of the South Downs National Park also falls within the NCA.

More information about the protected landscape can be found at:
www.surreyhills.org/
www.kentdowns.org.uk/
www.highweald.org/
www.southdowns.gov.uk/

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	% of NCA
International	n/a	n/a	0	0
European	Special Protection Area (SPA)	n/a	0	0
	Special Area of Conservation (SAC)	Ebernoe Common SAC, The Mens SAC, Lewes Downs SAC	435	<1
National	National Nature Reserve (NNR)	Ham Street Woods NNR, Ebernoe Common NNR	170	<1
National	Site of Special Scientific Interest (SSSI)	A total of 44 sites wholly or partly within the NCA	2,657	1

Source: Natural England (2011)

Please note: (i) Designated areas may overlap, designations that span coastal areas/views below this line will not be included.

There are 381 Local sites in the Low Weald NCA covering 8,627 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: http://www.lnr.naturalengland.org.uk/Special/lnr/lnr_search.asp
- Maps showing locations of Statutory sites can be found at: http://magic.defra.gov.uk/website/magic/ – select 'Rural Designations Statutory'.

1.1.1 Condition of designated sites

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

SSSI condition category	Area (ha)	% of SSSI land in category condition
Unfavourable declining	67	3
Favourable	1,077	41
Unfavourable no change	29	1
Unfavourable recovering	1,483	56

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 outcrop of Weald Clay gives rise to a broad vale that is typically low lying, rarely exceeding more than 30- 40 m Above Ordnance Datum, with many areas as low as 15 m.

Source: Low Weald Countryside Character Area description

2.2 Landform and process

The Low Weald co-insides with the outcrop of Weald clay which forms a elongated horseshoe around the High Weald. It gives rise to a broad vale that is typically undulating. Localised deposits of limestone and sandstone form gentle ridges and high points throughout the area. The area is heavily dissected by river floodplains and many small, narrow and commonly sunken streams cut into the heavy clays forming flat low lying areas.

Source: Low Weald and Pevensey Natural Area Profile, Low Weald Countryside Character Area description

2.3 Bedrock geology

The Weald is a geologically complex anticline, a folded dome where the oldest rocks are exposed at the centre in the High Weald as the top has been worn down by erosion. The folding was due to the effects of the Alpine Orogeny (mountain-building episode) during the Tertiary. Here in the Low Weald, younger rocks, Cretaceous clays laid down in brackish lagoons and deltas are exposed. The strata here are notable for well-preserved fossils.

Source: British Geological Survey maps

2.4 Superficial deposits

Some alluvium and river terrace deposits along watercourses.

Source: British Geological Survey maps

2.5 Designated geological sites

Designation	Number of Sites
Geological Site of Special Scientific Interest (SSSI)	11
Mixed interest SSSI	0

There are 19 Local Geological Sites within the NCA.

Source: Natural England (2011)

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

2.6 Soils and Agricultural Land Classification

The area is dominated by heavy clay soils but with areas of lighter soils on the slightly higher ground. Slowly permeable, seasonally wet slightly acid but base-rich loamy and clayey soils cover 74 per cent of the NCA, with lesser amounts of loamy soils with naturally high groundwater, slightly acid loamy and clayey soils with impeded drainage, freely draining slightly acid loamy soils and loamy and clayey floodplain soils with naturally high groundwater.

Source: Low Weald Countryside Character Description, Low Weald and Pevensey Natural Area Profile, Natural England (2011).

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

Agricultural Land Classification	Area (ha)	% of NCA
Grade 1	<1	<1
Grade 2	6,792	4
Grade 3	126,415	69
Grade 4	38,451	21
Grade 5	0	0
Non-agricultural	5,994	3
Urban	4,767	3

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 name	Length (km)
Adur	42
Beult	38
Arun	32
Mole	24
Ouse	21
Medway	18
Cuckmere	16
Eden	13
East Stour	6

Source: Natural England (2010)

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

There are three main reservoirs within the area, Arlington, Bough Beech and Barcombe reservoirs.

Source: Natural England (2010)

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 109,452 ha, 60% of NCA.

Source: Natural England (2010)

3.3 Protected areas

To be completed in consultation with the Environment Agency (full document only).

3.4 Water Framework Directive

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

4. Trees and woodlands

4.1 Total Woodland Cover

The NCA contains 29,118 ha of woodland (16% of the total area), of which 14,193 ha (49%) is ancient woodland.

Source: Natural England (2010)

4.2 Distribution and size of woodland and trees in the landscape

The Low Weald is well-wooded. Broadleaved woodland is common and significant areas of semi-natural ancient woodland occur, particularly below the Wealden Greensand. The ancient character of many woods is reflected by their large coppice stools, banks and ditches. Oak is a prominent tree of the Low Weald and the woodland often has oak standards over hazel coppice. Areas of base rich soil on limestone outcrops support ash with field maple and hazel. In addition to these woodland types there are pockets of older coppice. Coppiced woodland varies between chestnut, hornbeam or hazel. Small tree groups frequently occur within the fields and as part of the hedgerow pattern, numerous mature standard trees can be seen dotted along the hedgerow. Often where hedgerows have vanished, lines of single mature trees remain.

Source: Low Weald Countryside Character Area description, Draft Historic Profile

4.3 Woodland types

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

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

Woodland type	Area (ha)	% of NCA
Broadleaved	24,184	13
Coniferous	3,726	2
Mixed	435	<1
Other	773	<1

Source: Forestry Commission (2011)

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

Woodland type	Area (ha)	% of NCA
Ancient semi-natural woodland	9,934	5
Ancient re-planted woodland (PAWS)	4,237	2

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Hedgerows, single mature trees and shaws are prominent boundary features. The Kentish low weald is traversed by numerous narrow lanes with broad verges and ditches, these are continuous with the drove roads of the North Downs.

Source: Low Weald Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

Fields are generally small and irregular, divided by a dense network of hedges and shaws that create a small-scale landscape, except where hedges have been removed.

Source: Low Weald 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

in 2009 grazing livestock farms accounted for 29 per cent of the total area. Cereals accounted for 14 per cent, horticulture 6 per cent, mixed 5 per cent, dairy 4 per cent, specialist poultry 2 per cent and pigs 1 per cent of farms. Farm types classed as 'other' accounted for 36 per cent. All types of farm show a decline in number between 2000 and 2009 apart from those registered as "other" (which increased by 88 to 771) and pig farms which remained stable.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Smaller farms (those up to 20 ha) show the sharpest decline in numbers between 2000 and 2009 with 140 being lost compared to 39 over 20 ha.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

2009: Total farm area = 118,897 ha; owned land = 83,074 ha
2000: Total farm area = 121,207 ha; owned land = 90,064 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

Grass and uncropped land is by far the greatest use at 71,603 ha in 2009 (having increased by around 5,000 ha since 2000) compared to a total of 34,317 ha for all crops and 1,581 ha for fruit.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

In 2009 there were 57,800 cattle (71,100 in 2000), 143,800 sheep (210,300 in 2000) and 12,900 pigs (14,100 in 2000).

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

There has been a small decrease in principal farmers from 2,957 in 2000 to 2,646 in 2009. This has gone in hand with a reduction in the number of full time farmers, part time workers, casual workers but an increase in salaried managers.

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

Woodland, including significant areas of semi natural ancient woodland, hedgerows, shaws and ancient trees are prominent across the NCA. Wood pasture sites such as Ebernoe Common are also notable along with fragments of unimproved grassland. Small streams, and rivers occur throughout with major rivers, notably the Arun, Adur, Beult and Medway crossing the area with their associated wetland habitats of wet grassland, wet woodland and marshes. The Adur in particular has extensive wetland habitats. Ponds frequently occur on the edges of fields and woodlands.

Source: Low Weald and Pevensey Natural Area Profile

7.2 UK Biodiversity Action Plan (BAP) priority habitats

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

information. More information about Biodiversity 2020 can be found at; www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/englandsbiodiversitystrategy2011.aspx.

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

UK BAP priority habitat	Area (ha)	% of NCA
Broadleaved mixed & yew woodland (Broad habitat)	15,728	9
Coastal & floodplain grazing marsh	1,141	1
Lowland heathland	155	<1
Lowland meadows	95	<1
Fens	36	<1
Lowland dry acid grassland	27	<1
Fens	15	<1
Lowland calcareous grassland	13	<1
Reedbeds	2	<1

Source: Natural England (2011)

7.3 Key species and assemblages of species

- Maps showing locations of UK BAP Priority Habitats are available at: http://magic.defra.gov.uk/website/magic/ – select 'Habitat Inventories'
- Maps showing locations of S41 species are available at: http://data.nbn.org.uk/

8. Settlement and development patterns

8.1 Settlement pattern

Small hamlets and dispersed, ancient farmsteads and farmstead clusters form the predominant element of the settlement pattern. There are some small villages and many are centred on greens or commons. Crawley is the major town of the area. There is urban and airport related development sprawl in the flat plain around Gatwick, and in the Horley- Crawley commuter settlements.

Source: Low Weald Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

The main settlements within the low weald are: Crawley; Horsham; Tonbridge; Haselmere; Burgess Hill and Hassocks. The total estimated population for this NCA (derived from ONS 2001 census data) is: 479,688.

Source: Low Weald Countryside Character Area description; Countryside Quality Counts (2003)

8.3 Local vernacular and building materials

The majority of rural buildings are traditional in character with the common use of local brick, weatherboarding and tile-hung buildings. Older houses are half-timbered. Black weather-boarded barns with half-hipped roofs are also common features. Bricks were widely used from the 17th century for houses and later for farm buildings. Thatch would have been widespread but it has almost wholly been replaced by plain clay tiles. In places the sandstone is capable of being split into slates – Horsham slates help create a sense of local distinctiveness. Oast houses are a characteristic building type. Relatively few oast houses survive unaltered, the majority having been converted to domestic use.

Source: Draft Historic Profile, Low Weald Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

There is evidence of occupation of the Low Weald since the Mesolithic period with settlement sites located across the Low Weald. Late Neolithic and bronze-age woodland clearance has also been detected. The area is crossed by a number of Roman roads with a few known villa sites. There is evidence for the Low Weald's industrial history of charcoal burning for iron and glass production. Stone, including Bethersden 'marble' was quarried and brick – making was an important local industry, along with digging for marl. Consequently ponds are a feature of the landscape. Oast houses provide evidence of past associations with the hop industry and are characteristic of the area. There is a high concentration of pre-1750 farmstead buildings and in the north part of the character area a major concentration of pre 1550 barns.

Source: Draft Historic Profile, Countryside Quality Counts (2003, Low Weald Countryside Character Area description

9.2 Designated historic assets

This NCA has the following historic designations:

- 21 Registered Parks and Gardens covering 892 ha
- 0 Registered Battlefield/s covering 0 ha
- 85 Scheduled Monuments
- 6,066 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

- 3 per cent of the NCA 5,801 ha is classified as being publically accessible.
- There are 3,974 km of Public Rights of Way at a density of 2.2 km per km2.
- There are 0 National Trails

Sources: Natural England (2010)

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

Access designation	Area (ha)	% of NCA
National Trust (Accessible all year)	653	<1
Common land	2,182	1
Country parks	200	<1
CROW Access Land (Section 4 and 16)	2,990	1
CROW Section 15	1,770	1
Village greens	58	<1
Doorstep greens	1	<1
Forestry Commission Walkers Welcome grants	1,728	1
Local Nature Reserves (LNR)	606	<1
Millennium greens	9	<1
Accessible National Nature Reserves (NNR)	171	<1
Agri-environment Scheme access	174	<1
Woods for People	3,045	17

Sources: Natural England (2011)

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

11. Experiential qualities

11.1 Tranquillity

Based on the CPRE map of Tranquillity (2006) The highest scores for tranquillity are away from the main transport corridors (namely the M23 and numerous A roads) and the major settlements (including Crawley, Horsham and Tonbridge) and tend to be associated with the more remote intimate small-scale landscape of woodlands, fields and hedgerows.

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

Tranquillity	Tranquillity Score
Highest value within NCA	48
Lowest value within NCA	-109
Mean value within NCA	-7

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 disturbance tends to be concentrated around major roads, particularly the M23 and A24 and the Gatwick/Crawley area. A breakdown of intrusion values for this NCA are detailed in the table over.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	18	49	52	34
Undisturbed	80	50	43	37
Urban	2	3	5	3

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are an increase by 40 per cent in the area classed as disturbed, up to nearly 60 per cent in 2007, and a decrease of 40 per cent, down to 40 per cent, of the undisturbed area.

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

12 Data sources

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

- Ramsar sites data, Natural England (data accessed in March 2011)
- Sites of Special Scientific Interest, Natural England (data accessed in March 2011)
- Detailed River Network, Environment Agency (2008)
- Source protection zones, Environment Agency (2005)
- Registered Common Land GIS data, Natural England (2004)
- Open Country GIS data, Natural England (2004)
- Public Rights of Way Density, Defra (2011)
- National Trails, Natural England (2006)
- National Tranquillity Mapping data, CPRE (2007)
- Intrusion map data, CPRE (2007)
- Registered Battlefields, English Heritage (2005)
- Record of Scheduled Monuments, English Heritage (2006)
- Registered Parks and Gardens, English Heritage (2006)
- World Heritage Sites, English Heritage (2006)
- Incorporates Historic Landscape Characterisation and work for preliminary Historic Farmstead Character Statements (English Heritage/Countryside Agency 2006)Detailed River Network, Environment Agency (2008)

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

Low Weald, West Sussex.

Supporting document 2: Landscape change

Recent changes and trends

Trees and woodlands

- The Countryside Quality Counts data reveals that the overall character of the area was maintained during the second assessment period (1998 to 2003), with a significant increase in the area of woodland covered by Woodland Grant Scheme agreements up from 19 per cent in 1999 to 23 per cent in 2003, alongside a significant increase in management agreements covering existing woodlands.

- Although native woodland has been mostly maintained, elm has been virtually lost due to disease beyond the parts which fall within the Dutch Elm Disease Control Area in East Sussex.

- Field trees, usually oak, are particularly characteristic in the western part of the NCA, but are now declining in both number and condition.

Boundary features

- There has been loss and decline of hedgerows and hedgerow trees, and consequential fragmentation of landscape structure, due to lack of management and farm diversification.

- There are nearly 1,500,000 m of boundary features in stewardship agreements and the majority (over 1,170,000) of this is for hedgerows with a further 162,000 for woodland.

Agriculture

- Countryside Quality Counts data reveal that the agricultural landscape was being maintained between 1998 and 2003, given that the reduction in grassland areas had slowed since the first assessment period.

- There is continuing creeping fragmentation of farmland, particularly around houses with conversion to gardens or pony paddocks, sometimes with conifer hedges.

- There has also been loss of traditional hop gardens, orchards and associated wind-break features. Newer orchards tend to be planted with dwarf trees.

- Overall, agriculture declined between 2000 and 2009. Worst hit was dairy, with a loss of 55 out of 139 farms, though cattle numbers only fell by 19 per cent, compared to 32 per cent fewer sheep. Land used for fruit production fell by 15 per cent during the same period.

Settlement and development

- While the Low Weald may be subject to a lower level of development pressure than some NCAs in south-east England, it is nevertheless within an area where demand for new building land is constant, particularly as most of it lies outside the adjacent protected landscapes and within commuting distance of London. Development pressure is focused mainly on the towns and the area on the boundary with the High Weald. New roads and road improvement schemes are also important issues which affect all habitats. There is a recognised need to maintain Gatwick Airport's importance as an international hub.

Semi-natural habitat

- Recent efforts to restore unimproved hay meadow, declining since the 1950s, include bringing some surviving pockets into Environmental Stewardship, including Marden Meadow SSSI.
- There are pressures on ancient woodland arising from past conversion to conifer plantations, damage through neglect, and/or damage through old consents for the working of clay pits.
- Riparian landscapes are under pressure from decline and neglect, including loss of farm ponds, as agricultural practices have changed and intensified. However, the area still ranks second, nationally in terms of pond density. There have been significant uptake of stewardship agreements for creating and restoration of ponds (especially large ponds) since 1999.
- Butterfly Conservation acquired Rowland Wood, an 80 ha wood next to its SSSI reserve at Park Corner Heath in 2010 and are replacing conifer plantations with broadleaf coppice and restoring heathland.

Historic features

- The area has a high rate of barn conversions on a unit area basis. About 51 per cent of listed historic farm buildings remain unconverted. About 90 per cent are intact structurally.
- Bracken and scrub are unchecked in many areas and are causing damage to geological exposures, prehistoric earthworks and other archaeological sites.
- Rural lanes have been damaged through inappropriate use by heavy vehicles.
- By 1995 it is estimated that 56 per cent of the area's extensive historic parkland (5 per cent of the NCA in 1918) had been lost. About 13 per cent of the remaining parkland is covered by a Historic Parkland Grant, and about 21 per cent is included within an agri-environmental scheme.
- Small grants have been made available to keep traditional buildings sound and useable making a vital contribution to both land management and landscape character.

Coast and rivers

- Legacy from past agricultural intensification within the NCA and upstream continues to contribute to diffuse pollution across the Low Weald causing unfavourable water conditions in some rivers, for example the River Beult.
- Increased abstraction for domestic and industrial use often leads to low flows in many of the area's rivers.
- The catchments of the rivers Arun and Western Rother, Medway and Eden and Beult are Priority Catchments falling significantly within the NCA under the Catchment Sensitive Farming Scheme (the East Rother and Walland Marsh and the Stour are Priority Catchment areas that fringe the eastern edge of the NCA).
- Many areas are covered by stewardship agreements to manage riverside habitats.
- Water vole have declined by around 90 per cent in the last 20 years, while otter, more or less extinct in the area since the 1970s, have recently started to return.

Minerals

- An extensive brick and tile industry developed in the clay vale during the 19th century and despite rationalisation it remains economically important today. Building sand is extracted from the narrow Lower Greensand outcrop close to the West Sussex boundary and Streat, near Plumpton in East Sussex.

Drivers of change

Climate change

- Oak is the principle tree of the Low Weald and veteran beech is also an important feature. Both could become threatened by increased prevalence of pests and disease, including Acute Oak Decline, as well as drought stress resulting from reduced water levels within clay soils. Increased storminess and drought could lead to important mature/veteran trees being more susceptible to wind throw and drought-stress. Chalara fraxinea has been identified in the area (particularly the east) and threatens ash populations.

- Changes in temperature resulting in warmer winters could alter the species composition of existing species-rich woodlands, shaws and hedgerows, which are currently composed of oak, ash, field maple and holly, favouring species with lower water demand such as hazel, field maple and hawthorn.

- Changes in precipitation cycles resulting in dryer summers and wetter winters could alter the flow regimes of the area's rivers. This could increase the 'flashiness' of flows with potential for more frequent winter flooding and summer drought.

- Hotter summers and increases in temperatures could result in increased demands for irrigation and domestic uses. Pastures will be vulnerable to summer drought and therefore it is possible that set-aside will be seen more frequently in the landscape as a means of allowing pasture to recover from dry summers.

- Climate change may make some crops unviable and allow others, such as vines which already exist in the region, to be grown.

- Low Weald, in common with other NCAs in south east England is particularly susceptible to colonisation by currently non-native migratory species, especially flying invertebrates. Thermal stress will also impact on native species.

Other key drivers

- Crawley and Reigate are identified as regional hubs and centres of significant change, with around 15,000 new homes planned by 2026. There is also a recognised need to maintain the importance of Gatwick Airport as an international gateway, along with links to London and the South Coast. Around 13,000 new homes are planned in Horsham and 9,000 within Tonbridge and Malling and significant growth is also planned in areas just outside the NCA such as Ashford and Guildford and the area is also under increasing pressure as a location for renewable energy schemes.

- Based on an analysis carried out in 1995 this NCA was identified as an 'outstanding' priority for woodland conservation, particularly in relation to coppice restoration and is also identified as a potential 'Forest District'.[6]

- Increased abstraction to meet industrial and domestic demands, has decreased the amount of water in rivers as well as ground water reserves. This has had adverse effects on the river habitat itself as well as on damp grassland and woodlands in the flood plains.

[6] *Preliminary Nature Conservation Objectives for Natural Areas – Woodland and Forestry*, Reid, C.M. and Kirby, K.J., English Nature Research Report 239 (1997)

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.

Hornbeam, Low Weald.

Statement of Environmental Opportunity	Ecosystem service																		
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place / Inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Protect, manage and significantly enhance the area's intricate and characteristic mix of semi-natural ancient woodlands, gill woodland, shaws, small field copses, hedgerows and individual trees to reduce habitat fragmentation and benefit biodiversity, while seeking to improve and encourage access for health and wellbeing and reinforce sense of local identity.	↔ ***	↑ **	↔ **	↗ **	↑ **	↑ **	↑ **	↑ **	↑ *	↑ ***	↑ ***	↗ *	***	↑ ***	↑ ***	↗ **	↗ *	↑ ***	↔ **
SEO 2: Conserve and enhance the distinctive historical aspects of the Low Weald landscape, including its important geological features and sites of heritage interest, particularly those associated with Wealden iron industry, enabling access, continued research, interpretation, understanding and enjoyment of the extensive and nationally significant resources.	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	***	↑ ***	↑ ***	↔ ***	↑ ***	↔ ***	↑ ***
SEO 3: Work at a landscape scale to improve the quality, state and structure of all Wealden rivers, streams and standing waterbodies and their appropriate flood plains, taking account of water quality, water flow and hydraulic connection with the flood plain, while seeking to enhance biodiversity, historic features and recreation opportunities and reinforcing sense of place.	↔ **	↔ *	↗ ***	↗ *	↗ ***	↑ ***	↑ **	↑ **	↑ **	↑ **	↔ **	↗ *	***	↑ ***	↑ ***	↑ ***	↑ ***	↑ ***	↔ **
SEO 4: Maintain the sustainable but productive pastoral landscape of the Low Weald, while expanding and connecting semi-natural habitats to benefit biodiversity, regulating soil and water quality by promoting good agricultural practice, and maintaining the extent and quality of unimproved permanent grassland and meadows. Restore degraded neutral grasslands to buffer sites and encourage pollinators and predators for pest regulation.	↗ *	↔ ***	↔ **	↑ ***	↔ ***	↗ **	↑ **	↑ ***	↑ ***	↑ ***	↑ ***	↑ ***	***	↑ ***	↑ ***	↗ **	↗ **	↑ ***	↔ ***

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

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

Landscape attributes

Landscape attribute	Justification for selection
An intricate mix of woodlands including extensive broadleaved oak over hazel or hornbeam coppice, shaws, small field copses and tree groups, and lines of riparian trees along watercourses.	■ The Low Weald's woodlands, shaws and hedgerows with standard trees combine to create a densely wooded feel, giving the area its character and linking it with neighbouring High Weald. ■ It is an important habitat for numerous species, including rare bats. Dead wood is essential for many of the NCA's key species such as the lesser-spotted woodpecker and a range of invertebrates. ■ Gill woodland creates a rare damp microclimate essential for rare species such as mosses and liverworts. ■ Its ancient woodland is rich in rarities such as spiked rampion, coralroot, small-leaved lime and wild service tree along with more familiar bluebell, primrose and ransoms. ■ The area contains historic sites associated with the Wealden iron industry, many of which go unnoticed in dense woodland.
An abundance of ponds and small stream valleys.	■ Many surviving ponds left by Wealden iron industry. ■ Clay soil means that ponds formed easily but many have disappeared or are in poor state after abandonment with demise of the iron industry and provision of piped water for livestock. ■ St Leonards Park Ponds, Shillinglee Lake and Vann Lake are examples of ecologically valuable large waterbodies, but smaller ponds are ubiquitous in the Low Weald. ■ Many villages also have well-maintained village ponds. ■ A network of small, narrow and commonly sunken streams cut into the heavy clays, often lined with vegetation, adds to the wet and woody character.
Broad low-lying gently undulating clay vales with outcrops of limestone or sandstone providing local variation with many clay and sand pits.	■ Geological exposures revealing characteristic features and many important palaeontological finds. ■ Localised deposits of limestone and sandstone form gentle ridges and high points throughout the Low Weald. ■ Arable farming on the lighter soils of higher ground, particularly in Kent, has led to a sparser hedge pattern with fewer trees in contrast to the characteristic well-wooded pastoral appearance of most of the Low Weald.

Landscape attribute	Justification for selection
High density of pre-1700 farmsteads and other buildings plus historic designed landscapes and parkland.	■ A sense of past affluence is expressed in the remaining historic parks and gardens and the many fine buildings that often accompany them. ■ Some of the parkland is in positive management through grant funding and agri-environment payments. ■ Oast houses are a characteristic element of the landscape to the east of the area. Most have been converted to other uses although their form remains distinctive. ■ The use of locally sourced building materials in farmsteads, principally weather-boarding on barns (black-stained since the early twentieth century), tile hung first floors and red-orange locally derived bricks, reinforce the relationship between the underlying geology and the historical occupation settlement and agricultural uses of the area. ■ A high density of historic farmsteads retaining 80 per cent of their original character and nearly two-thirds retaining at least 50 per cent of their original form.
A largely pastoral landscape with generally small and irregular fields divided by a dense network of hedgerows and shaws, often remnants of ancient woodland with slightly larger and more regular fields on higher ground and areas of lighter soils.	■ The dense network of species-rich hedgerows and shaws (wider field boundaries or linear woods) throughout the Low Weald create an intimate, small-scale enclosed landscape important for ecological connectivity. ■ The small-scale, irregular pastoral fields create a 'patchwork quilt' effect. There is a more typically productive, arable landscape with larger, more regular fields on the lighter soils, particularly on higher ground in the east. ■ Hedges often follow the line of medieval bank and ditch boundaries. An area of co-axial field systems to the south-west of Horsham is believed to be of Roman origin. ■ In some cases, hedgerows and shaws provide a link or 'wildlife corridor' between fragmented areas of semi-natural habitat within the agricultural landscape. ■ Hedgerows are often tall and standard trees, typically oak, are a particular feature, adding to the intimate, wooded feel of the NCA. The drier, mainly arable land on higher ground contrasts with the lush, wetter pasture which dominates most of the NCA.

Landscape attribute	Justification for selection
Gill woodlands are a particular feature of Low Weald.	■ Gill woodlands have their own associated group of plant species more typical of woodlands found to the west of the British Isles, and the moss, liverwort and lichen communities in particular are likely to be of international importance. ■ This habitat is extremely rare in south-east England. ■ Gill woodlands often appear as tranquil, 'wild' places with a strong sense of antiquity.
Areas of remnant heathland and common land.	■ Surviving areas of heath and common land often provide open public access to the countryside. ■ Areas of scarce lowland heath, notably at Ditchling and Chailey are important breeding sites for birds such as nightjar and stonechat and large variety of butterflies including rare species such as pearl-bordered fritillary. ■ There has been much loss of heathland on the wooded plateau associated with conifer plantations.
Distinctive pattern of north-south orientated routeways and lanes.	■ Traditionally believed to be droveways along which stock was moved between villages and grazing on higher ground or forests. ■ Verged, ditched and hedged rural lanes are characteristic and provide valuable networks for linking habitat sites.
Rivers and water bodies.	■ Most of the major rivers south of London meander through the lush pasture and woodland of Low Weald for part of their course. ■ Rivers and streams are often overhung by willows and alder and vibrant with damselflies and dragonflies in summer. ■ The Wey and Arun Canal also falls partly within the NCA and is currently being restored. ■ Many catchments are under stewardship to buffer banks and restore rivers to their natural geomorphology, creating a more harmonious landscape. ■ The NCA offers significant potential for restoration and creation of wetlands. ■ A once common sight, water voles have declined by around 90 per cent per cent in the last 20 years.

Landscape opportunities

- Plan new landscapes within and around predicted growth areas across the region, especially around Ashford, Crawley, Horsham and Tonbridge, by encouraging the incorporation of high quality green infrastructure and buffering of zones drawing on the existing strong landscape pattern for example, the incorporation, creation and restoration of traditional shaws and meadows within new development

- This NCA is a potential 'Forest District' as a result of the identified opportunities to create an area of woodland over 5,000 ha covering at least 30 per cent of the area through 'connecting' existing woodlands.[7]

- Numerous different river catchments make up Low Weald, with localised flood risks associated with most. The respective catchment flood management plans predominantly identify the storage of flood waters as a key measure to both alleviate flooding so opportunities exist to reinforce the riparian character of the NCA by restoring natural river geomorphology and re-linking watercourses to their floodplains by extending areas such as wet meadow and woodland.

- As the nationally significant earth science and industrial archaeological resources are currently under-utilised there are opportunities to promote both by encouraging research and appreciation by enhancing access and interpretation, highlighting the link between the huge impact of the geology and industry and how it has formed the landscape we see today.

Ham Street Woods National Nature Reserve.

[7] *Preliminary Nature Conservation Objectives for Natural Areas – Woodland and Forestry*, Reid, C.M. and Kirby, K.J., English Nature Research Report 239 (1997)

Ecosystem service analysis

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

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

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Mixed farming Heavy clay soils Orchards Rivers Vineyards	Largely pastoral owing to heavy clay soils; more than two-thirds of the area classified as Grade 3 agricultural land. Lighter soils on higher ground allow more mixed farming, characterised by lowland cattle and sheep, dairy and the production of cereals. More arable and horticulture to the east. The rivers provide important spawning grounds for sea trout.	Regional	Dairy farming has declined markedly but livestock numbers have not fallen proportionally as land is grazed by beef cattle and sheep. In the east, hop growing has all but died out. Fruit growing continues but has been scaled-back. New orchards tend to be planted with dwarf trees. In some areas new crops such as vines are flourishing due to effects of climate change.	There are opportunities to use measures such as agri-environment schemes to manage the agricultural landscape to retain its distinctive character and productivity, while improving its contribution to biodiversity and protection of vulnerable soils and historical evidence, for example by restoring boundaries such as shaws and hedgerows, returning arable land to pasture where appropriate and creating field margins to buffer fields and improve connectivity.	**Food provision** **Biodiversity** **Genetic diversity** **Regulating soil quality** **Sense of place/ inspiration** **Sense of history** **Regulating water quality**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Woodland Conifer plantations	Densely wooded with around 29, 000 ha of woodland covering 16 per cent of the NCA, over half of which is ancient. Mostly broadleaved, often remnant coppice. Oaks, often veteran, are significant species in woods, hedgerows and fields. Some conifer plantations.	Regional	Not much commercial timber production considering wooded nature but there is increasing interest in locally-sourced hardwood for both high-end timber and woodfuel supplies. Care needs to be taken to assess traffic impact and balance timber production potential with protection of rural roads and lanes. Dead wood also needs preserving in some areas for biodiversity value and its role in the nutrient cycle and soil formation.	Low Weald has been identified as an 'outstanding' priority for woodland conservation, particularly in relation to coppice restoration. Positive and sensitive management of existing woodlands to increase the commercial production of quality hardwood timber could benefit biodiversity, woodland structure and the local economy. Extending the area of broadleaved woodland would create new and sustainable sources of timber on sites less sensitive than many existing woodland areas, further supporting the market for quality hardwood timber. Felling of conifer plantations on former ancient woodland sites would provide a one-off source of timber and replanting with appropriate native broadleaved species.	**Timber provision** **Climate change** **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
Water availability	Reservoirs Rivers	There are no significant aquifers in Low Weald, though it is next to the Brighton chalk aquifer. Arlington and Bough Beech reservoirs supply around 350,000 households (water company websites). There is 'no water available' from the Ouse catchment in the south, while there is 'water available' from the Arun and the Adur catchments.[8] The Medway is 'over licensed'[9] while the Beult, has 'no water available'.	Regional	A lot of water in the east is used for agriculture and farmers have overcome summer water shortages through the construction of winter storage reservoirs. Water abstracted from the Adur catchment is mainly used for public water supply and relies on surface waters. Summer flows are unable to support high levels of abstraction so flows are supported by augmentation releases from Ardingly reservoir (outside of the NCA). Water is pumped from a downstream point into the Bough Beech Reservoir located in the upper parts of the catchment to supply Sevenoaks - around 100,000 people.[10] Arlington Reservoir is filled by the River Cuckmere and supplies around 250,000 people in Eastbourne, Polegate, Hailsham and Heathfield areas.[11] Pressure from new development and rising household demand is increasing the need for water, with resources finely balanced between meeting the demands of existing abstractions and the need to protect river flows.	Encourage promotion of sustainable water use by homes and businesses supplied from the catchments. Measures to find additional storage for seasonal flood waters in Low Weald may present opportunities for increasing water provision. Ensure that future development addresses water resource planning and encompasses the highest standards for water efficiency and that sustainable urban drainage systems are incorporated.	**Water availability** **Biodiversity** **Recreation** **Regulating water quality** **Regulating water flow**

[8] *The Adur and Ouse Catchment Abstraction Management Strategy*, Environment Agency (2013; URL: http://publications.environment-agency.gov.uk/pdf/GESO0305BVIG-E-E.pdf)

[9] *The Medway Catchment Abstraction Management Strategy*, Environment Agency (2013; URL: http://publications.environment-agency.gov.uk/pdf/GESO0405BNZJ-E-E.pdf)

[10] Sutton and East Surrey Water website (www.waterplc.com/index.asp)

[11] South East Water website (www.southeastwater.co.uk/)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Genetic diversity	Orchards Remnant hop gardens Sussex cattle Southdown sheep	There are traditional orchards surviving. Some remnants of the hop growing industry in Kent exist. Red Sussex cattle are still reared on farms in Low Weald. Southdown sheep are still bred in Low Weald.	National	Historically the area was important for growing hops with the Golding variety (still popular and source of many varieties across the world) was developed in Low Weald. Very little, if any, commercial hop growing exists now but the surviving plants provide an essential gene pool of local varieties. Low Weald was a major producer of fruit. Many apple varieties bear names reflecting their association with the area such as the "Crawley Beauty" which was identified in a garden effectively now under Gatwick Airport and "Forge" which, as its name suggests, was popular with those employed in the iron industry, being a particularly versatile cottage garden variety favoured for cider-making. Fruit production has declined but remains an important industry, particularly on the lighter soils in the east. The Sussex cattle breed was refined in Low Weald, notably by the Child family around Arlington in the 18th and early 19th centuries. The Sussex Herd Book Society was formed after a public meeting in Horsham in 1878. These cattle were used as much for ploughing and pulling carts as beef until the early 20th century as they could cope with heavy clay soils better than horses. Today the breed is valued for its docility and hardiness, making it popular for conservation grazing. **Continued over...**	Support brewers and growers to exploit the resurgence in interest in traditional ales, local produce and current research into new hop varieties to revive the hop industry. Initiatives to promote local, historical varieties of fruit should be encouraged. Promote creation or restoration of community orchards as part of quality green infrastructure and recreation provision in new development. Encourage use of Sussex cattle for conservation grazing locally and commercial beef production, supporting local marketing initiatives which promote its local and heritage qualities.	**Genetic diversity** **Food production** **Pollination** **Sense of place/ inspiration** **Sense of history** **Recreation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Genetic diversity continued				**...continued from previous.** Although Southdown sheep are synonymous with grazing the South Downs, Low Weald farms were important for the development of the breed during the 19th century and the area still has several pedigree flocks.		
Biomass energy	Woodland Wet woodland	Woodland covers 16 per cent of the NCA and provides a source of local woodfuel. Willow grows well. Plantings of miscanthus and short rotation coppice are currently rare within the NCA.	Regional	Overall the potential yield for short rotation coppice is identified as medium and that for miscanthus as high. Low undulating topography will help to assimilate biomass crops into the landscape while the characteristic pattern of small fields with dense boundaries will visually enclose them. Care should be taken to avoid planting on higher ground and in areas where semi-natural habitat or heritage assets may be damaged. There are a number of initiatives promoting sustainable local woodfuel.	The existing pattern of mixed types of woodland, including coppice, has potential to accommodate some short rotation coppice. Care should be taken to maintain the balance between woodland and other land uses and avoid over-planting which could adversely affect character. Low Weald is identified as an 'outstanding' priority for woodland conservation, particularly in relation to coppice restoration. There are opportunities for increasing provision of woodfuel by Increasing the area of native woodland, improving management of existing woodlands and supporting initiatives to explore and promote local markets for sustainable woodfuel. **Continued over...**	**Biomass energy** **Biodiversity** **Sense of place/ inspiration**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biomass energy continued					**...continued from previous.** Low Weald is identified as a potential "Forest District" so there is enthusiasm for creation of woodland and this presents opportunities for increased provision of woodfuel, including reinstating traditional coppice management to produce wood fuel in appropriate locations for local use. Some dead wood needs to be retained in situ for biodiversity value.	
Climate regulation	Woodland Hedgerows and shaws Wet woodland Semi-natural wetland habitats Gill woodland	Nearly all of the soil in the NCA has low carbon content at 0 to 5 per cent. Some of the loamy and clayey flood plain soils with naturally high groundwater may be peaty at depth or include small areas of peaty topsoil, providing a small store of carbon. The high coverage of woodland throughout the NCA contributes to the sequestration and storage of carbon both in the organic-rich woodland soils and in the growing and standing timber.	Regional	Maintaining areas of permanent pasture in flood plains is likely to help preserve carbon-rich soils. Regular and repeated cultivation will result in a loss of carbon from all soils. Maintaining areas of ancient semi-natural woodland with minimal intervention will help protect carbon-rich woodland soils and the stored carbon in standing and fallen trees. Expanding and extending the area of woodland will increase carbon sequestration rates and long-term carbon storage across the area.	Significant potential for the restoration and creation of wetlands within the NCA is identified by the Wetland Vision.[12] Carbon sequestration can be increased by increasing soil organic matter on cultivated soil and by reducing the frequency or area of cultivation.	**Climate regulation** **Biodiversity** **Recreation** **Tranquillity** **Regulating water flow** **Regulating water quality**

[12] www.wetlandvision.org.uk/

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Rivers Soils Reservoirs Woodland Wet meadows and riverside vegetation	60 per cent of the area is within a nitrate vulnerable zone. Many rivers are failing to meet Water Framework Directive targets. The River Mole is classed as having 'poor' ecological status, while the Medway and Beult are classed as having stretches of both 'moderate' and 'poor' ecological potential. In the south, the Cuckmere, the Ouse, the Adur and the Arun are all classed as having predominantly either a 'moderate' or 'poor' ecological status and potential. Where assessed, most rivers have "good" chemical status, except for a small stretch of the Ouse and a slightly longer stretch of the Arun, which are classed as 'failing to achieve good chemical status'. [13] Defra catchment priorities identified under the England Catchment Sensitive Farming Delivery initiative (www.defra.gov.uk/foodfarm/landmanage/water/csf/documents/catchment-priorities.pdf)	Regional	The Arun and Western Rother, Stour, Medway and Eden and the Beult are priority catchments under the catchment sensitive farming scheme.[13] Legacy from past agricultural intensification within the NCA and upstream continues to contribute to diffuse pollution. Fewer livestock and more responsible use of pesticides and fertilizer in the last 20 years has reduced pollution, though run-off from silage and slurry stores and soil wash from cattle poaching, particularly around gateways and watercourses, can be a problem in some areas. Sediment, pesticide and nitrate pollution often originates in adjacent, higher land outside the NCA. Water quality is particularly important in the reservoirs that provide water for the surrounding areas. Poor water quality issues exacerbated by increased abstraction, particularly during periods of low flow are likely to worsen with climate change and rises in population in Low Weald and adjacent NCAs due to proposed new development. Non-native invasive species are present in most watercourses.	Work with farmers both in Low Weald and in adjacent NCAs to manage farmland under the principles established under the England Catchment Sensitive Farming Delivery Initiative, such as improved drainage, hard bases for livestock feeders and gateways, roofing of manure stores, better pesticide treatment and providing alternative drinking sources to keep livestock away from watercourses. Work with land managers to buffer watercourses and reservoirs by building up vegetation, including woodland on banks to slow the pathway of run-off to improve water quality, regulate soil erosion and reduce subsequent sedimentation. Opportunities include landscape-scale improvements in soil management and an expansion of permanent grassland and wetland habitats adjacent to watercourses and in flood plains, such as through stewardship schemes which have already been introduced around many watercourses. **Continued over...**	**Regulating water quality** **Regulating water flow** **Regulating soil erosion** **Regulating soil quality** **Biodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality continued					**...continued from previous.** Promote responsible use of water by domestic and business users and ensure new development includes sustainable urban drainage systems. Work to eradicate non-native invasive species, particularly along riverbanks and encourage the establishment of native vegetation to reduce soil exposure. Promote awareness of the importance of biosecurity, particularly in areas of heavy public usage, to prevent spread.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Rivers Extensive grazing on meadows and permanent grassland in flood plains Wet woodland Artificial flood water storage structure and flood defences	Drainage is poor throughout the NCA due to the underlying impermeable Wealden clay and low-lying nature. Flooding occurs in many areas and is a particular problem in well-populated areas such as around Hailsham, Lewes and Tonbridge.[14] Surface water flooding is often occurs as a result of under capacity in the local drainage system and/or blockages within culverts or drains. There is significant flood risk in Lewes associated with the River Ouse as a result of surface water, urban drainage and groundwater flooding. There is currently a relatively low risk of river flooding from the Adur, although a combination of surface water flooding, urban drainage problems and under capacity of local streams causes localised areas of combined fluvial and urban flooding. There is low to moderate flooding along the River Mole. The confluence of the Medway and the Beult has a high flood risk affecting local villages, while there is also significant risk of flooding in Tonbridge. The River Beult catchment has a relatively low gradient and has fluvial flood risk from typically frequent but less severe flood events around Smarden and Staplehurst. During high flow, major attenuation of flood waters occurs at the Leigh flood storage reservoir and upstream of Tonbridge on the Medway flood plain (outside of the NCA) which helps prevent flooding in this section of the NCA.[15]	Regional	Strategies to address flooding risk around Hailsham include the development of a Surface Water Management Plan (SWMP), while in the wider Cuckmere catchment the Catchment Flood Management Plan identifies the potential to develop strategies for river channel restoration and naturalisation. The Ouse Catchment Flood Management Plan[16] identifies opportunities to store water or manage run-off to reduce flood risk, including use of agri-environment and woodland schemes to encourage change in land use. The River Mole Catchment Flood Management plans seek to maintain and improve the capacity of the flood plain to store water. The Crawley area in the Upper Mole catchment is identified as an area of opportunity to store water to reduce flood risk.[17] The area's permanent, particularly rough grassland helps reduce cross-land flows of water and has greater water infiltration properties, as do its shaws, hedgerows and woodlands.	Work with farmers and land managers to identify where there is scope for mitigating existing flood risk through a combination of measures including expanding and managing areas of semi-natural habitats that help to reduce cross-land water flows and have increased water infiltration properties. Some localised flood risks may be reduced by promotion of sustainable urban drainage systems, particularly where hard surface water run-off is the major problem, for example at Horsham. Avoid inappropriate development in flood risk areas and minimise runoff from new development by integrating water storage features in the form of semi-natural habitats into new developments. Work with farmers and land managers to explore potential within the Adur and Arun catchments for the storage of flood waters to reduce flood risk downstream,[18] with a Land Management Plan to identify possible changes in land use and land management practices throughout the Arun catchment. This would aim to reduce run-off from surrounding countryside, to reduce soil erosion and achieve local flood risk benefits.	**Regulating water flow** **Regulating soil erosion** **Biodiversity** **Regulating water quality**

[14] *Cuckmere and Sussex Havens Catchment Flood Management Plan*, Environment Agency (2009; URL: http://publications.environment-agency.gov.uk/pdf/GESO1008BOWH-e-e.pdf)

[15] River Medway Catchment Flood Management Plan, Environment Agency (2009; URL: http://www.environment-agency.gov.uk/research/planning/127387.aspx)

[16] River Ouse Catchment Flood Management Plan http://publications.environment-agency.gov.uk/pdf/GESO1008BOWG-e-e.pdf

[17] *Thames, Arun and Western Streams, Adur, Ouse, Cuckmere and Sussex Havens, Medway, & Stour Catchment Flood Management Plans*, December 2009 (Environment Agency)

[18] *River Adur Catchment Flood Management Plan and Arun & Western Streams Catchment Flood Management Plan*, Environment Agency (2009; URL: http://www.environment-agency.gov.uk/research/planning/127387.aspx)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Soils Permanent grassland Rivers Woodland	There are 5 main soilscape types in this NCA; slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, covering 74 per cent of the NCA; loamy soils with naturally high groundwater 8 per cent; slightly acid loamy and clayey soils with impeded drainage 8 per cent; freely draining slightly acid loamy soils 4 per cent; and loamy and clayey flood plain soils with naturally high groundwater 3 per cent.	Local	The majority of soils within the area and particularly the slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils may suffer compaction and/or capping as they are easily damaged when wet, which in turn may lead to increasingly poor water infiltration and diffuse pollution as a result of surface water run-off.	Encourage extensive grazing and best practice in soil management, particularly in areas prone to flooding, to reduce compaction and capping and increase water infiltration rates. Opportunities to increase the efficacy of this service include landscape-scale improvements in soil management and more informed nutrient management including the application of Nitrate Vulnerable Zone guidelines. Encourage agricultural practices that retain permanent cover and build up organic matter on cultivated land, especially on free draining loamy soils in the east.	**Regulating soil quality** **Regulating soil erosion** **Regulating water quality**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Woodland, hedgerows and shaws Farmland Clay soils	The vast majority of the area's soils, the seasonally wet base-rich soils and the flood plain soils, covering 77 per cent of the NCA, have a low risk of soil erosion. The loamy soils with naturally high groundwater are also generally at low risk of soil erosion except where coarser textured variants occur on sloping or uneven ground. Erosion is a problem on the more undulating ground around Edenbridge where sandstone meets clay.	Local	Many of the slightly acid loamy and clayey soils with impeded drainage (covering 8 per cent) are prone to compaction and capping/slaking, leading to an increased risk of erosion by surface water run-off, especially on steeper slopes. The freely draining slightly acid loamy soils (covering 4 per cent) have enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, exacerbated where organic matter levels are low after continuous arable cultivation or where soils are compacted. There is also the potential for wind erosion on some coarse textured cultivated variants. Maize growing for fodder is widespread and can result in increased risk of soil erosion where not properly managed.	Opportunities exist to restore hedgerows, shaws and buffer farmland to control velocity of cross-land water flows to reduce erosion risks. Improvement of agricultural practices in some areas can also reduce problems of compaction. Stewardship has been introduced around many watercourses and this can be extended to reduce erosion risks. Increase organic matter content to improve structure and cohesion. Reduce cultivation where appropriate. Extensive grazing regimes to minimise localised compaction.	**Regulating soil erosion** **Biodiversity** **Regulating soil quality** **Regulating water quality** **Regulating water flow**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Grassland Meadows Orchards Gardens Parkland Heathland	Fruit-growing is particularly important in the east of the NCA and relies heavily on supply of pollinators. There are some areas of heathland, mainly on commons. Connectivity of semi-natural habitats, particularly the network of woodlands, shaws and hedgerows and the multiple watercourses, contribute to the movement of pollinators around the area.	Local	In the productive eastern area, orchards and soft fruit pollinators are critical for the future of insect dependent crops and increases in this service may be required in order to provide greater options for future cropping. Fragmentation of the landscape due to land use change and development could lead to isolation of habitats.	There are opportunities to enhance the network and connectivity of suitable habitats in the agricultural landscape by creating conservation headlands, arable field margins and meadows. This could have a beneficial effect on biodiversity generally by linking and creating a network of habitats and provide foraging, resting and breeding sites for pollinators. Encourage nectar rich planting in gardens and public spaces.	**Pollination** **Biodiversity** **Food production**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pest regulation	Woodland Farmland Hedgerows and verges Parkland Orchards Heathland and commons Rivers Ponds	The spread of semi-natural habitats throughout the agricultural landscape of this NCA, including field margins, shaws, hedgerows and ponds will support species that will aid pest regulation. Oak is characteristic of the area a tree species noted for supporting a large number of invertebrates, a number of which are predatory. The notable bat populations within the area also contribute to pest regulation. Mature elm has been lost from most of the Low Weald with the exception of parts which fall within the Dutch Elm Disease Control Area in east Sussex.	Local	Fragmentation and disturbance of semi-natural habitats will decrease the ability of predatory species to move within the farmed landscape. Increasing diversity in species and structure of field margins will increase the ability for these areas to support populations of pest regulating species such as invertebrates, birds and mammals. There is scope to improve the condition and extent of semi-natural habitat across the area. Linking semi-natural habitat to provide a sustainable functional network can help support sustainable populations of pest regulating species and enable them to move around.	Work with land owners, farmers and the local community to re-link the fragmented landscape by restoring hedgerows and shaws and creating corridors using field margins, road verges and rivers to allow predator species to move around. Work in partnership to maintain and expand the area of semi-natural habitats, including the restoration of ponds, throughout the NCA to provide a range of niches to support pest regulating species including invertebrates, birds and mammals. Maximise the effectiveness of mechanisms such as agri-environment schemes, by 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.	**Pest regulation** **Biodiversity** **Food production** **Regulating water quality** **Pollination**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place / inspiration	Woodland Wood pasture Gill woodland Hedgerows Orchards Hop fields Traditional buildings Geology	Traditional villages, often formed from buildings in a distinct local vernacular architecture, surrounded by woodland are a feature of the landscape, as are the characteristic gill woodlands and views to the high ground of adjacent NCAs. The historical land uses of wood pasture, orchards and hop yards, although declining in number and area, remain a distinctive and characteristic element of the landscape. There are many geological sites of national importance. Nearly 10,000 ha of parts of adjacent AONBs (High Weald, Kent Downs and Surrey Hills), along with over 13,000 ha of the South Downs National Park fall within the NCA.	Local	The abundance of ancient woodland, shaws and hedgerows and the wildlife they support give the area an intimate, rural character, despite a growing population, numerous major transport routes and the large urban complex around Gatwick Airport and Crawley. Charles Darwin was inspired by the geological strata of the Weald and used it in his original estimates for Origin of Species. Ditchling became a centre for exponents of the Arts and Crafts Movement with the foundation of the Guild of St Joseph and St Dominic by Eric Gill in the early 20th century. The Guild folded in 1989. The protected landscapes within Low Weald contribute significantly to the sense of place and reflect the high quality of the surrounding landscape. It can make areas outside these boundaries a focus for development pressures which would be considered inappropriate within protected landscapes.	Restoring and creating where appropriate hedgerows, shaws and areas of woodland within existing and new developments can help maintain boundaries and protect the characteristic wooded feel of the area. Traditional landscape elements formed by orchards and hop gardens, their characteristic tall shelter hedges should be preserved to maintain the distinctive character of the eastern part of the NCA. Support the protection of heritage assets such as traditional farmsteads and historic oast houses from inappropriate conversion where they make significant positive contribution to the landscape. Ensure that new development does not intrude upon the essential character of the surrounding protected landscapes.	**Sense of place/ inspiration** **Sense of history** **Recreation** **Geodiversity** **Biodiversity** **Tranquillity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Twenty-one registered historic parks and gardens, 85 scheduled monuments and 6,066 listed buildings Historic field patterns and boundaries. Ancient woodland Traditional villages Oast houses and other traditional farm buildings Industrial heritage sites Ancient woodland and veteran trees Gardens and other designed landscapes	There are manor houses, often medieval in origin and smaller historic designed landscapes in the grounds of country houses. The area is rich in industrial archaeological sites, particularly relating to the Wealden iron industry. The landscape is essentially medieval in structure with generally small fields, hedgerow boundaries, woodland peppered with farmsteads, small hamlets and villages. Much of the woodland is ancient and veteran trees are a feature of parklands, villages and isolated in fields.	National	Twenty-one registered parks and gardens fall within the NCA. Though many of these are centred in adjacent NCAs, Low Weald contains large parts of important estates which are a legacy of the wealth created during the iron boom in the Tudor period, for example Hever Castle. Archaeological sites and heritage assets often lie under woodland and many are still to be discovered, therefore any management or development needs to take account of the possibility of concealed sites. Bracken and scrub are unchecked in many areas, causing damage to prehistoric earthworks and other archaeological sites. The area's historic sites, particularly the association with the Wealden Iron Industry, are perhaps less well appreciated than in neighbouring High Weald. Strong sense of being an anciently settled and farmed landscape, with farmsteads (often of medieval origin) set in landscapes also enclosed in the medieval period and successively reorganised. The historical pattern of field enclosure and assarting from woodland remains mostly intact. **Continued over...**	Opportunities to enhance the setting and interpretation of heritage assets should be identified and realised. Also work with local societies and interest groups to promote the appreciation and understanding of the area's historic sites and nationally important industrial heritage. Encourage preservation of historic buildings and the use of traditional building materials such as locally produced bricks and tiles and stone from local quarries in their conservation. Unconverted oast houses, with surviving hop industry equipment, are extremely rare and efforts to protect them intact should be supported. Encourage protection of characteristic field patterns and boundary features.	**Sense of history** **Sense of place/ inspiration** **Geodiversity** **Recreation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history continued				**...continued from previous.** Although hop growing has now all but died out as a commercial enterprise, its mark on the landscape remains evident, most obviously in the oast houses of Kent and Sussex which have mostly been converted to other uses. Low Weald has the highest survival rate of listed, traditional farm buildings in the south east and a high density of pre-1700 timber-framed buildings. Examples of vernacular buildings using local materials such as local brick and tile, flint in areas near the South Downs and Horsham stone are common across the area. Bayleaf Farm was removed during the construction of Bough Beech reservoir and reconstructed at the Weald and Downland Museum in Singleton and is a fine example of a medieval Wealden farmhouse.		

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Woodland Villages Parkland	The area is densely wooded. Five per cent of the area is classed as urban and 52 per cent 'disturbed' according to CPRE tranquillity mapping.[19]	Local	Development pressure has increased the spread of noise and light pollution from roads, notably the M23 and A24, and urban areas, particularly around Gatwick Airport. The area retains much of its rural and tranquil nature in increasingly isolated pockets with small villages nestled amongst woodland and the farmed landscape.	There are opportunities to retain the remaining sense of tranquillity on woodland and agricultural land by protecting them from inappropriate development and protecting small villages from light and noise pollution by buffering through the use of woodland and shaws. Ensure that adequate green infrastructure provision is integral to all development planning and encourage improvement of the public transport network to reduce disturbance on rural roads and lanes.	**Tranquillity** **Biodiversity** **Sense of place/ inspiration**

[19] CPRE Intrusion Map, (2007)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation	Rights of way Open access land Reservoirs 2 NNRs Rivers Cycle trails Canal Country park	Recreation is supported by the area's 3,974 km rights of way network with links to the North and South Downs National Trails. The Wealdway, a long-distance (80 miles) footpath between Gravesend and Eastbourne, crosses Low Weald in the north and south. Open access land totals just over 1,930 ha (around 1 per cent of the NCA). National Cycle Network Route 21 runs through the NCA. Arlington and Bough Beech reservoirs are important recreational resources within the NCA supporting activities such as birdwatching and angling. Ditchling Common is a country park, popular for recreational activities such as walking and picnicking.	Regional	The area is essentially rural in nature but contains areas of dense urban settlement, notably around Gatwick and Crawley. It is also within easy reach for large centres of urban population such as Medway, Brighton and Hove and South London.	Ensure access balances recreational enjoyment, with the protection of geological and historical features as well as biodiversity. Promote sustainable tourism and recreational activities to minimise impact on the environment, while helping to generate income and employment. Work with partners such as local authorities and health boards make the most of opportunities for improving wellbeing of local communities through promoting use of the rights of way network, connecting green spaces, commons, parkland and accessible woodland. The need to increase wetland areas for flood management may create opportunities for recreation. Likewise restoration projects such as that on the Wey and Arun Canal will present additional recreational facilities. Rights of way and open access throughout the area should be enhanced in line with the local Rights of Way Improvement Plan, particularly where improving links to the Wealdway and North and South Downs National Trails. Plans to extend cycle networks should be encouraged and supported.	**Recreation** **Sense of history** **Sense of place/ inspiration** **Biodiversity** **Geodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	3 SAC 2,700ha is designated as SSSI 2 NNRs BAP priority habitats cover 9 per cent of the NCA Rated in top 10 NCAs for several species Woodland, wood pasture and parkland Ponds, rivers and reservoirs	The Mens and Ebernoe Common are designated SACs for their broadleaved woodland (specifically beech) on acid soil, a favoured habitat for barbastelle bats. Ebernoe is also important for Bechstein's bats. Just under 5 ha of the orchid-rich chalk grassland of Lewes Downs SAC falls within the NCA Ebernoe Common is also a NNR. It is a large wooded common with over 400 species of fungi and 375 species of plant and a breeding site for birds such as hawfinch and nightingale. Ham Street Woods is also a NNR. This is typical of the ancient woodland that once covered the Weald and is broadleaved woodland supporting outstanding bird and invertebrate communities. More than half the priority habitat is wet woodland. Low Weald is densely wooded and a high proportion of this is ancient. The area is rated second nationally for density of ponds. Most of the main rivers south of the Thames flow through Low Weald for part of their course. Knepp Castle embarked on its rewilding project in 2001[20]	National	Low Weald is densely wooded and supports a wide range of priority species, notably bullfinch and lesser-spotted woodpecker bats and invertebrates such as pearl-bordered fritillary and wood white butterflies and several rare moths. It is the top NCA for spiked rampion and in the top five for five other vascular plant species. It also contains important sites for rare lichens, bryophytes and fungi. As the area is important for species such as lesser spotted woodpecker and many invertebrates that rely on dead wood, any woodland management programme needs to ensure that this is preserved in key areas. It is identified as a potential "Forest District" so huge benefits can be achieved by linking existing woodland to create 30 per cent woodland cover over an area of 5,000 ha. Much woodland is ancient and its characteristic gill woodland is a rare habitat in SE England. Woodland ponds are often legacies of the iron industry. Many are in poor condition through lack of management and siltation due to low flows or over-abstraction. There has been significant uptake of stewardship agreements for restoration and creation of ponds since 1999. **Continued over...**	Enhance or reinstate woodland management, including restoration of rides and glades where appropriate, and restore plantations on ancient woodland sites to native woodland. Ensure planned development includes high quality green and blue infrastructure that benefits well-being and access to nature of local communities as well as enhancing biodiversity. Protect the area's historic parkland and wood pasture sites, for example by supporting initiatives such as the Western Weald Project. Support creation and restoration of ponds, particularly those with high biodiversity or historical interest. Restore meadows and create margins to fields and roads to buffer farmland and rivers watercourses and continuing to support projects such as the Weald Meadows Initiative. Work with partners and land managers to identify, monitor and control non-native invasive species and diseases.	**Biodiversity** **Sense of place/ inspiration** **Tranquillity** **Biomass energy** **Recreation** **Regulating soil quality** **Regulating water quality** **Regulating water flow**

[20] www.knepp.co.uk/

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity continued				**...continued from previous.** Several rivers are within Priority Catchment s with legacy pollution from past intensive farming, sediment and nitrates, fouling from slurry and damage to riverbanks by livestock particular areas of concern, both within the NCA and upstream. The rivers provide important spawning grounds for sea trout. Unimproved hay meadows have been declining since the 1950s due to development and changes in farming practices and development. Some surviving pockets have been brought into environmental stewardship in recent years. Low Weald, in common with other NCAs in south east England is particularly susceptible to colonisation by currently non-native migratory species, especially flying invertebrates. Thermal stress will also impact on native species.		

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Clay Sandstone outcrops Quarries and brickworks Locally sourced building materials 11 geological SSSI 19 local geological sites	Claypits excavated for the brick and tile industry often exposed clear geological sections as well as fossil remains. Numerous quarry sites display clear geological sections of Weald Clay and Upper Cretaceous Chalk with notable fossil remains. Some of the geological SSSI are in unfavourable declining condition.	National	Low Weald geological sites lie within the Weald Clay Groups and provide detailed coverage of the varied lithologies, particularly sandstone and limestone, in this unit. Low Weald has a complex geology and has many sites of national significance including 11 geological SSSI and 19 local geological sites. Geological features include Jurassic-Cretaceous stratigraphy sites notable for well preserved fossils including insects, plants, fish and reptiles. The SSSI of Auclaye, Clock House Brickworks and Smokejack Clay Pit have yielded well-preserved insect fossils. Smokejack Clay Pit also yielded dinosaurs Iguanodon and Baryonyx. Many sites, including notable SSSI, are threatened by encroachment of scrub and bracken and have poor access. There have also been problems with irresponsible fossil-hunting.	Promote use of locally sourced building materials as an expression of local geodiversity Maintain and enhance earth science features by seeking to enhance existing exposures and agreeing conservation sections in active and disused quarries. Improve access to and promote use of geological sites to improve understanding and appreciation of this important educational resource. Encourage on-site interpretation such as sign boarding, trail guides and leaflets. Encouraging assessment of the educational and research value of new sites. Ensure that the importance and sensitivity of earth science SSSI and local geological sites are recognised in the planning process and that geological conservation is integral to the development process. Clarify site management needs to agreed standards for local geological sites using standards similar to those for SSSI. Promote responsible fossil collecting.	**Geodiversity** **Recreation** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Very diverse geology Soils and geo-morphology SSSI Local Geological Sites Local building stones Local industrial mining/ quarrying heritage	35 geological SSSI 9 mixed SSSI 159 Local Geological Sites Very diverse geology with rocks from six geological periods each characterised by different rock types, which in turn determine the shape, vegetation and economic use of the landscapes. Geology has been a key influence on industry and settlement patterns. The wide variety of building stones and clay products influence local character. This is a classic area associated with early scientific work which continues today.	National	Geological sites including SSSI and Regionally Important Geological and Geomorphological Sites (RIGS) will sometimes need active management to maintain their value, such as controlling vegetation and tree growth. Sites which are well used for education and study may need active monitoring and liaison to ensure that damage, either deliberate or accidental, does not occur. Ensuring a supply of local stone is available to reinforce sense of place and history could have a negative impact on the landscape character if not managed sensitively.	Seek to improve the condition of geological sites and raise public awareness of geology, soils and geomorphology and its influences on landscape and human activity. Encourage the continued use of local stone in buildings to build on the sense of place and history. Use micro quarries to provide small amounts of local distinctive building stone for conservation and even facing new builds in order to keep the character of a particular village/settlement. Encourage the public awareness of the past industrial heritage of the mining/quarrying.	**Geodiversity** **Sense of place / inspiration** **Sense of history** **Recreation** **Water availability**

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