National Character Area profile:

146. Vale of Taunton and Quantock Fringes

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Introduction

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

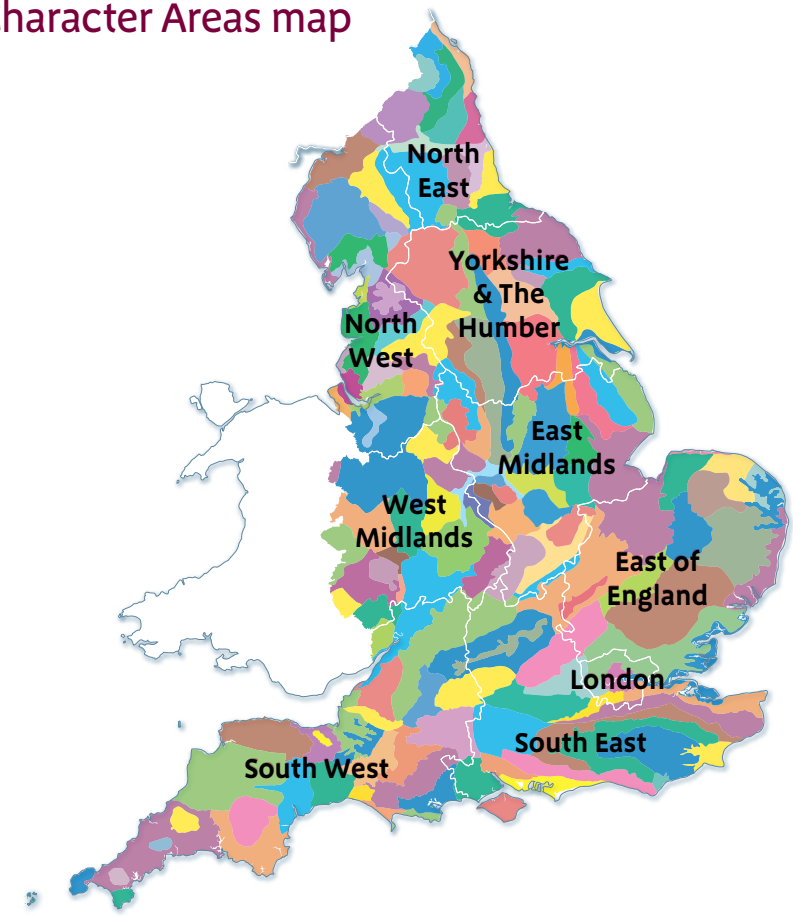
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

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

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

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

National Character Areas map



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

Summary

The Vale of Taunton and Quantock Fringes National Character Area (NCA) lies between the Brendon Hills on the edge of Exmoor to the west and the Somerset Levels and Moors to the east. It overlooks the Bristol Channel to the north and the Blackdown Hills Area of Outstanding Natural Beauty (AONB) to the south, and encircles the Quantock Hills AONB. The steep, moorland-topped character of the Quantock Hills and the Brendon Hills and the open character of the clay levels contrast with this area's lush pastoral character. Panoramic views are gained from these hills across the vale to the coast and are an ecological link between these two areas of moorland. Within the overall character there is considerable variety, united by its lowland mixed farming landscape, with dense hedges, sparse woodland, red soils and settlement pattern.

The area is densely settled with a largely dispersed pattern of hamlets and scattered farmsteads linked by sunken winding lanes. The exceptions are the towns of Taunton, Wellington, Minehead, Williton and Watchet. Taunton and Wellington lie along the M5 corridor; these towns are undergoing considerable expansion and development owing to this main transport route, with associated development along the M5 itself.

Farming has defined this area from the earliest bronze-age settlements. Irregular, medium-sized fields are generally bounded by thick hedges and represent all stages of enclosure. The fertile soils support a mixed farming economy, and traditionally each farm had a cider orchard, although these are gradually being lost. Many manors and parklands are located along the fringes of the Quantock Hills. Dating from at least the 16th century, they provide evidence of the prosperity of the area. Hestercombe House, one such fine example, is also designated as a Special Area of Conservation (SAC) for its lesser horseshoe bats.

Mixed farming systems are the dominant land use. Semi-natural habitats are mostly fragmented. Small patches of limestone and neutral grasslands, small woodlands, hedgerows, rivers and pollarded trees, coastal and flood plain grazing marsh, maritime cliff and slope, intertidal sand and mudflats, fen, marsh and wetland habitats, vegetated shingle and coastal salt marsh are found. At the coast, habitats are more contiguous and interest extends out to sea with extensive areas of mudflats which form part of the Severn Estuary SAC. Bridgwater Bay is designated as a Site of Special Scientific Interest and National Nature Reserve for its succession of coastal habitats and the internationally and nationally important populations of overwintering, passage and migrant waders and waterfowl. The wave-cut platforms between Hinkley Point and Watchet create a significant rock reef system inhabited by a wide range of marine invertebrates. The coastal geology of the NCA is outstanding and is known as Somerset's Jurassic Coast; rich in fossils, it is a dynamic coastline which has played an important role in our understanding of geology. The rivers Tone and Parrett flow through the NCA, into the adjacent Somerset Levels and Moors NCA, Hinkley Point nuclear power station lies on the far eastern edge of the NCA, prominent in sweeping coastal views.

Click map to enlarge; click again to reduce

Statements of Environmental Opportunities:

- **SEO 1:** Conserve and promote the geology and geodiversity of the Vale of Taunton and Quantock Fringes, including the Jurassic Coast, the suite of national and local geological sites and the distinctive relationship between geology, coastal geomorphology, soils, landform and land use, promoting opportunities for recreation in the area and interpretation of its unique features.

- **SEO 2:** Protect, manage and enhance the distinctive farmed landscape, while creating a balance of productive mixed farmland and diversity of habitats and associated species. Create and enhance connecting corridors of hedgerows, orchards, calcareous and flood plain grazing marsh, small woodlands, and hedgerow and riverside trees, and manage parkland and other including intertidal salt marsh and mudflats for their contribution to sense of place, and their positive role in reducing soil erosion, enhancing water quality and managing coastal erosion. Promote connecting corridor linkage with the Blackdown Hills, Exmoor and the Quantock Hills.

- **SEO 3:** Protect and manage the area's historic environment including its rich heritage of hill forts, Roman remains, ridge and furrow, manor houses and vernacular architecture, parkland and distinctive field patterns, engaging both visitors and local communities in understanding how the interaction of human and natural factors has shaped the farmed landscape of today.

- **SEO 4:** Safeguard and manage soil and water resources, notably the rivers Tone and Parrett, as part of the wider Somerset Levels and Moors priority catchment and at the coast, working with naturally functioning hydrological processes to maintain water quality and regulate supply; reduce flooding; and manage land to reduce soil erosion and water pollution and to retain and capture carbon.

Hestercombe House. An example of one of the area's fine manor houses built on the back of wealth generated by prosperous farming here. The area around the house is also designated an SAC for its lesser horseshoe bat population.

Description

Physical and functional links to other National Character Areas

The Vale of Taunton and Quantock Fringes National Character Area (NCA) lies between Exmoor NCA in the west, the Somerset Levels and Moors NCA in the east and the Blackdowns NCA to the south. It wholly encircles the Quantock Hills NCA. It provides an ecological link between the upland habitats of both Exmoor and the Quantock Hills, and links these uplands with the Bristol Channel which bounds the NCA to the north.

There are strong visual links across the coastal landscapes of Bridgwater Bay to Exmoor in the west and the Somerset Levels and Moors to the east. Views from these upland NCAs across the area to the coast are also significant. The NCA overlooks the Bristol Channel to the north and the wooded Blackdown Hills Area of Outstanding Natural Beauty (AONB) to the south.

The southern part of the vale is drained by the River Tone and its tributaries. The River Tone rises in the Brendon Hills and is dammed at Clatworthy Reservoir. The reservoir outfall continues east through Taunton and finally through Curry and Hay Moors Site of Special Scientific Interest (SSSI) in the Somerset Levels and Moors NCA where it joins the River Parrett. To the north, Doniford Stream, fed by tributaries arising in the Quantock Hills NCA and Brendon Hills, drains into the sea at Doniford Bay. To the east, many streams drain off the Quantock dip slopes and flow east across the area into the River Parrett in the Somerset Levels and Moors NCA. The River Brue catchment also extends to the east of the NCA into the Somerset Levels and Moors NCA and forms part of the Somerset Levels and Moors priority catchment.

Coastal and intertidal habitats within the NCA such as mudflats form part of the wider Bridgwater Bay SSSI and Severn Estuary Special Area of Conservation (SAC) and Special Protection Area (SPA). The coastline falls within the Hartland Point to Anchor Head sediment cell and the Minehead and Brean Down sediment sub-cell, which links this NCA with the Somerset Levels and Moors NCA and Exmoor NCA by physical coastal geomorphological processes. The dominant sediment transport direction is from east to west, with wave action causing seasonal offshore and onshore movement. The coastline of the NCA is generally exposed and it is particularly affected by westerly and north-westerly gales.

The M5 cuts through the south-eastern edge of the NCA while the A39, A38, A358 and A3259 connect the north and south of the NCA by way of Taunton and Bridgwater.

St. Etheldreda (also known as St. Audries) near West Quantoxhead village, is a typical sandstone-built church with a perpendicular tower; a prominent and characteristic feature of the small settlements and hamlets of the area.

Key characteristics

- The topography can be divided into four distinct areas: the flood plain; a gentle low vale underlain by Triassic mudstones; a more elevated, undulating vale underlain by Devonian slates and sandstones as well as Triassic sandstones and mudstones; and the open, wind-swept cliffed coast underlain by Triassic mudstones, Jurassic mudstones and limestones and a small section of Pleistocene gravels.
- Open and wind-swept coast with low cliffs, mudflats and wave-cut platforms in mudstones and limestones. The often spectacularly folded and faulted Triassic and Jurassic mudstones and limestones that are visible on the extensive shore platforms and the cliffs are renowned for their fossils, and are of international importance for their stratigraphy.
- A number of tree-lined streams and rivers wind through the area. The River Tone and its tributaries drain the area to the south, while in the north Doniford Stream, fed by tributaries arising from the Quantocks and Brendon Hills, drains into the sea at Watchet. To the east many streams drain off the Quantock dip slopes and flow into the River Parrett. The Bridgwater and Taunton Canal runs across the south of the area.
- Woodland cover is generally low, at 6 per cent, although the area has a wooded feel as there are many hedgerow trees (such as oak), orchards, remnants of parkland, small woodlands with ash and oak and bankside trees such as alder and, rarely, black poplar.
- The area was once characterised by cider apple orchards. Few old orchards survive and are scattered throughout the area, particularly in the south. Modern bush orchards are being planted.
- Lowland mixed farming landscape, with dense hedgerows enclosing rectilinear fields. Permanent grassland characterises the flood plain with arable, pasture, market gardening and orchards in the vales and pasture and arable on more undulating ground.
- Scattered patches of floristically rich lowland meadow and limestone grasslands characterised by lesser knapweed, field scabious, milkwort and thyme; coastal and flood plain grazing marsh; intertidal sand and mudflats; parkland; maritime cliff and slope; and small patches of heath, fen and marsh.
- Scattered settlements of farmsteads, hamlets and villages linked by sunken winding lanes. Distinctive gentry architecture with parkland, local vernacular of red sandstone buildings and prominent Perpendicular church towers to the west and south, and grey Lias along the coast and to the east.
- Sweeping views from the coast across the bay to Wales; to Hinkley Point power station in the east; and to Minehead in the west. Exmoor, the Blackdown Hills and the Quantock Hills provide a backdrop to the area and expansive views from these uplands emphasise the lush pastoral nature of this area.
- The M5 motorway runs east–west (as does the main rail line), linking several of the larger towns, including Taunton and Wellington. Incremental development and industrialisation from the towns are evident, especially adjacent to the motorway.

Vale of Taunton and Quantock Fringes today

The Vale of Taunton and Quantock Fringes NCA extends from the foot of the northern scarp of the Blackdown Hills in the south to the Bristol Channel coast in the north. It lies between Exmoor to the west and the Somerset Levels and Moors to the east, and wholly encircles the Quantock Hills AONB. The steep, moorland-topped character of the Brendon and Quantock Hills and the open character of the clay Levels contrast with and emphasise this NCA's lush pastoral character. There are four distinct topographies across the NCA: the flood plain; a gentle low vale; a more elevated, undulating vale; and the open coast to the north. Within the overall character there is considerable variety, unified by settlement patterns, building materials, red soils and the NCA's rural character.

The gentle, low-lying parts of the vale are mainly underlain by the Triassic Mercia Mudstone, while the more pronouncedly undulating high vale is underlain by Devonian slates and Triassic sandstones, producing light, freely draining soils. Calcareous clay and stagnogley soils are more common where mudstones and clays occur. Along the coast north of the A39 is a belt of rolling, open landscape, with few scattered trees and small villages. Surrounded by rectilinear field patterns, the landscape is broken up by blocks of low-lying wet pasture where meandering streams meet the coast; the land ends in low cliffs consisting of locally folded and faulted Triassic mudstones and limestones, and the mudstones and limestones of the early Jurassic Blue Lias formation. Minehead, Watchet and Williton are the main settlements. The coastline feels remote and exposed with views across expanses of mudflats to the Welsh coast and Hinkley Point power station in the east. It is designated as an SSSI for its Triassic, Jurassic and Pleistocene geology, as well as for the geomorphology of this coast.

Taunton and Wellington sit in the low-lying Tone Valley, a flat, open landscape similar in character to the nearby Somerset Levels. Hawthorn hedges enclose the large pastures. Pollarded willow, black poplar and alder line streams and ditches, and otter hunt in the rivers.

The vale has a patchwork of arable, pasture, market gardening and orchards and small woodlands on slightly higher ground. Hedgerows are lush with a rich variety of shrub and tree species, often dominated by hazel, dogwood, holly and blackthorn. Small villages and larger hamlets were often the centres of small manors, represented today by manor houses.

An orchard near Bishop's Lydeard. Orchards are particularly common in the southern half of the NCA and are benefiting from a renaissance in cider consumption with new orchards being planted, ensuring they remain a key part of the landscape.

As the land rises towards the uplands, there are the more steeply undulating hills and valleys of the high vale. Lighter, more freely draining soils are formed from the underlying mudstones and sandstones. Here, green pastures are mixed with cereal crops within small and medium-sized fields enclosed by thick hedgerows with many hedgerow trees; hill tops are also wooded.

The south is drained by the River Tone and its tributaries. The River Tone and the south-eastern part of this NCA around Taunton fall within the Somerset Levels and Moors priority catchment. To the west the streams are typically steep and fast flowing, draining from Exmoor and the Quantocks to the sea. To the east, streams drain off the Quantocks and flow into the River Parrett, part of the River Brue priority catchment. Mudstones, sandstone and shale strata in the north of the area are important locally for small-scale private groundwater supplies. Two major reservoirs at Hawkridge and Durleigh lie to the east. The navigable 23-kilometre Bridgwater and Taunton Canal is fed by water from the River Tone and supplies drinking water to Bridgwater.

This landscape has provided the framework for farming and settlement over millennia. The present pattern of rural settlement includes small villages, many of which developed as market centres, and a high density of dispersed hamlets and farmsteads dating from late in the first millennium ad; for example, small hamlets and larger settlements are set within landscapes of woodland and field systems, which often reflect their medieval origins. This overlies earlier patterns of settlement: iron-age hill forts are the most evident and can be seen at Norton Fitzwarren, Cannington and Watchet. Red sandstone buildings and Perpendicular-style church towers of Triassic sandstone are typical in the west, and grey Lias to the east. Medieval and later gentry houses and associated parkland are concentrated on the fringes of the Quantocks, for example Hestercombe and Nynehead. Main settlements include Wellington, Taunton, the western edge of Bridgwater, all of which expanded as industrial settlements from medieval cores, and the Victorian resort of Minehead. This distinctive pattern of rural settlement relates to a complex pattern of enclosed farmland, ranging from large arable fields with large farmsteads in the Tone Valley to ancient enclosures to the west, and some rare surviving blocks of formerly extensive common land. Stock farming has been of considerable importance from at least the 16th century, and now dairy and beef production with associated grazing is found across much of the area, alongside some lamb and pork production. Arable farming is largely for cereals to the north and along the coastline, with some market gardening in the south on the lower-lying land.

Woodland cover is low at only 6 per cent of landcover, although there is a wooded feel owing to the many hedgerows, woodlands of oak and ash and riverside alder and black poplar. Cider apple orchards supporting a thriving local cider industry were traditionally characteristic, with many locally distinctive apple varieties. Those traditional orchards that survive are scattered and at risk of further decline owing to lack of management and replacement with modern bush orchards, which can display different characteristics to the more extensively managed traditional orchards. More uniform planting and planting of modern varieties mean that there is both a change in character and a reduction in the extent of orchards in the area.

Semi-natural habitats are scattered and fragmented, having once been an integral part of how the landscape was farmed and exploited. The coastal fringes are richer with pockets of woodland, lowland calcareous grassland, neutral grasslands, lowland meadows, and maritime cliff and slope. Mudflats

are extensive and the eastern fringe of the NCA falls within the Severn Estuary SAC, important for overwintering waders and wildfowl such as wigeon, curlew and teal. The wave-cut platforms between Hinkley Point and Watchet create a significant rock reef system inhabited by a wide range of marine invertebrates. Exmoor Heaths SAC, Exmoor and Quantock Oakwoods SAC and Holme Moor and Clean Moor SAC all extend into the Vale of Taunton and Quantock Fringes NCA. Hestercombe House SAC is designated for lesser horseshoe bats. The rest of the NCA has scattered remnants of lowland meadow, coastal and flood plain grazing marsh, woodland and heath at the fringes, and parkland.

Hinkley Point nuclear power station sits on the north-eastern coastal edge of the NCA. Planning permission has been given for Hinkley Point C, which will replace the current Hinkley Point B reactor. Infrastructure work is under way.

Some 1 per cent of the NCA is within the Exmoor National Park; 5 per cent in the Quantock Hills AONB; and less than 1 per cent in the Blackdown Hills AONB. The lush pastoral landscape provides a strong ecological and visual link with these uplands.

There is an extensive network of public rights of way and trails, for example the Coleridge Way, and 2 km of the South West Coast Path National Trail extends to Minehead. Proposals for improved public access along a 90-kilometre stretch of the Somerset coast between Brean Down and Minehead were put forward in 2013. The northern coastline is popular with locals and visitors for the recreational opportunities it offers. Tourism infrastructure and caravan site development are influencing the character of the coast, although it retains a relatively undeveloped feel along much of its length.

A network of winding narrow sunken lanes link settlements. The M5 corridor and national rail line cut west–east along the bottom edge of this NCA. Locally dominant, the M5 influences the development of Taunton and Wellington; the industrial and commercial developments at their edges extend over a wide area.

Lesser horseshoe bats are found roosting at Hestercombe House and use the network of hedgerows and other semi-natural habitat as hunting grounds.

The landscape through time

The area is largely underlain by rocks of Triassic and Jurassic age. The Triassic Mercia Mudstone formation underlies the central low-lying part of the vale and extends to the coast. Much of the coastal strip, particularly east of Watchet, is underlain by the mudstones and limestones of the Lower Jurassic Lias Group. The Mercia mudstones were formed under arid conditions, probably in intermittent lakes, but provide evidence of increasing brackish and marine influences with time until, with the deposition of the Lias, fully marine conditions predominated.

The margins of the vale, in the vicinity of the Quantocks and Brendon Hills, are underlain by Devonian sandstones and slates, the latter having been deposited in a marine environment, and the former on an alluvial plain. The Permian and Triassic sandstones and conglomerates that outcrop on the flanks of the Brendon Hills were deposited in alluvial fans and river channels on an alluvial plain; this evolved into an extensive but ephemeral lake and playa, represented by the Mercia Mudstone. The upper part of the Mercia Mudstone contains evidence of having been formed on the coast of an arid coastal plain (sabkha) and under a shallow sea which, during the latest Triassic and early Jurassic, became progressively deeper and connected with open sea.

The coast between Blue Anchor and Lilstock forms a large part of Somerset's Jurassic Coast and is designated as a geological SSSI for its nationally and internationally important geological exposures which complement parts of the geology of the Dorset and East Devon Coast World Heritage Site; and for its geomorphology. Fossil sea shells, including ammonites and bivalves, concentrations of brachiopods and other invertebrates, ichthyosaurs and plesiosaurs are found here. The many-layered cliffs are composed of alternating bands of limestone and shale, the latter eroding more rapidly than limestone, thereby leaving distinctive ridges and benches of limestone. The cliff at Quantoxhead is identified as a globally agreed reference point within the geological time scale. This 'Global Boundary Stratotype Section and Point' marks an internationally agreed division between two intervals of time of the early Jurassic.

Visible evidence for prehistoric settlement is scarce and confined to the edges of the higher ground adjacent to Exmoor and the Quantock Hills, although aerial survey is revealing increasing evidence for a pattern of scattered farmsteads and their associated fields. There are many cropmark enclosures which probably represent prehistoric settlement, and recent excavations around Taunton and Hinkley Point have found further evidence for prehistoric occupation. Prehistoric hill forts are found at Norton Fitzwarren, Watchet (Daw's Castle), Bathealton, Orchard Portman and Cannington. Cannington was a significant centre into the early Saxon era, and is the suggested location for the Battle of Cynwit in 878 when Viking raiders attempted to overcome the Anglo-Saxons and were defeated. All this is overlain by the present pattern of settlement which dates from late in the first millennium ad and is distinctive for its high density of dispersed farmsteads and hamlets, providing a striking contrast to the areas bordering the Vale of Taunton to the east. Nucleated villages such as Bishops Lydeard, Milverton and Bradford-on-Tone often developed as market centres. There is some evidence for possible continuity of settlement, for example at Cannington.

Taunton, 'Town on the River Tone' or 'Tone Town', also has early origins.

Remains of a Roman farm and a Romano-British village have been found and it was of considerable importance to Saxons with a burh (a defended fort) and later its own mint. The town rapidly developed around the castle from about the 12th century.

During the medieval period the whole area became quite densely populated, the frequent '-ton' place names representing Saxon farmsteads. Farmsteads and hamlets worked strip fields and common pastures which were intermittently cultivated. A large area around Taunton was part of the Bishop of Winchester's prosperous manor. Open fields probably persisted longest on the bishop's estates and on the coastal strip. Most strip fields in the area were enclosed by thick hedgerows, managed as a source of timber, by the 18th century. However, the once extensive common pastures around the edges of the vale and on the flood plains were enclosed more gradually. Some remained open until 18th- and 19th-century Parliamentary enclosure and a few may still be seen today, for example Ash Priors Common. Ridge and furrow from this period remains visible today as do watermeadows on the southern and western Quantock fringes.

The establishment of new farmsteads in newly enclosed fields from the 14th century added to the high density of rural settlement in this area. The prosperity of the landscape in the post-medieval period is evident from the manors established in the 15th and 16th centuries including Halsway Manor, Hatch Beauchamp and Poundisford Park. Many hamlets developed from these manorial centres. Taunton and Wellington thrived on the back of the wool trade, although this declined from the late 18th century with the increasing dominance of mills in the North. Later mansions and ornamental gardens are also notable features, for example the late-18th-century Hestercombe Park and 19th-century Nynehead Court.

The Brendon Hills to the west of the NCA were important for minerals such as iron ore. Watchet, lying on Bridgwater Bay with easy access to the River Severn for onward shipping, developed to support this industry. A new port and harbour constructed in 1708 supported the area's agriculture, exporting grain and importing livestock from Wales for fattening up. Iron export to Newport peaked in the 19th century. The port remained important for the export of car parts until the mid-1960s when it went into terminal decline.

The Vale of Taunton was, until recent times, a major cider apple growing area with many local varieties. At one time almost every farm had a cider press and every community a cider house. Places reflect this history in their names: Orchard Portman near Taunton was named 'Orceard' as long ago as 854 ad. Many of these orchards have now been lost as they became less profitable through lack of management followed by removal with the subsequent loss of local apple varieties.

Transport networks were improved by the arrival of the Grand Western Canal in Taunton in 1839. This section was closed in 1867 and only a footpath marks its former route to Tiverton, although much of the canal infrastructure remains. The Bridgwater and Taunton Canal opened in 1827, linked to the seaport by the Bridgwater Dock which was opened in 1841 and is still in use today. In the Second World War the canal formed part of the Taunton Stop Line, designed to prevent the advance of a German invasion; pillboxes and other defensive features can still be seen along its length. From 1962 the canal was used for the transport of potable water for Bridgwater.

Two railways crossed the area and terminated at Watchet from the mid-1860s. The West Somerset Mineral Railway, which transported minerals from the

Brendon Hills to Watchet, closed in 1898. The West Somerset Railway ran from Bristol and Exeter, opening in Taunton in 1842. This was extended in 1874 to reach Minehead and remained active until 1971. It has since reopened as a heritage railway along part of its route, from Bishops Lydeard to Minehead.

Until the 1950s the area remained agriculturally diverse as a result of fluctuating agricultural markets. Field patterns remained largely irregular with thick, often unmanaged hedgerows, which also gave rise to many of the hedgerow trees seen today. As elsewhere, the period after the Second World War saw increased agricultural mechanisation and intensification alongside a move to more arable production, the removal of some hedgerows to make larger and more regular fields, and a loss of orchards, small woodlands and already fragmented common land. Elms were common in the low vale and at the coast. The loss of elms from the landscape because of Dutch elm disease in the late 1960s and early 1970s has been significant here with few replacements for mature trees. Some smaller specimens remain in hedgerows at the coast.

The M5 motorway corridor, which passes through the south-east edge of the NCA and exerts a strong influence over much of the southern part of the Vale of Taunton.

Major development since the Second World War has introduced new elements into the landscape including mineral extraction, industrial development, and the construction of roads and power lines. Since its construction in the late 1960s and early 1970s, the M5 motorway has had a significant impact on the southern part of the area. A number of industrial developments and facilities have been built in association with the motorway within the NCA, particularly along the Taunton fringes. In 1957 the construction began of Hinkley Point A nuclear power station at the north-eastern edge of the area. Subsequently Hinkley Point B was constructed. Hinkley Point A has stopped operating and Hinkley Point B is now reaching the end of its life. Planning permission has been given for a further two reactors, to be known as Hinkley Point C. This forms a prominent feature on the coast and in views from the Quantock Hills AONB. Mitigation works, landscaping, tree planting and habitat improvement, required for the planning permission, are being put in place.

The poets Wordsworth and Coleridge frequented the area. Coleridge wrote The Rime of the Ancient Mariner while travelling through Watchet, and Shurton Bars, to the west of Hinkley Point, inspired his poem to his fiancée *Lines Written at Shurton Bars*.

Ecosystem services

The Vale of Taunton and Quantock Fringes 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 Vale of Taunton and Quantock Fringes NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** The mild climate, good growing conditions and fertile soils mean that this is an area long associated with food production, with mixed farming, primarily meat production, dairy and arable. Dairying and sheep and cattle grazing are most common although there has been a small reduction in livestock numbers with a subsequent decline in grazed area. Arable and miscanthus production have increased slightly. Some 7 per cent, 23 per cent and 60 per cent of soils are classified as Grade 1, 2 and 3 respectively. Traditional cider apple orchards were characteristic although now only remnants remain alongside modern bush orchards.

- **Biomass energy:** Good growing conditions and fertile, versatile soils mean that short rotation coppice and miscanthus could be grown for biomass in this area. Miscanthus is already established in some parts of the NCA, although it tends to be utilised for animal bedding. The existing woodland cover and the large number of hedgerow trees and dense hedgerow network offer potential for small-scale biomass production, reinstating a medieval practice. Biodiversity, agricultural productivity and archaeological interests alongside soil and water quality may limit these opportunities.

- **Water availability:** Two reservoirs, numerous rivers and the Bridgwater and Taunton Canal are all important sources of water for amenity use, fish farms, production of energy, industry and public water supply. There are areas of principal aquifer and the majority of the NCA is defined as an area which may yield limited water from underlying sandstones. Other than the main settlements in the south of the NCA (Taunton and Wellington), this is a rural area with few urban settlements and low demand on water resources. Changes in farming patterns may place an additional demand on water availability and consideration needs to be given to siting of miscanthus owing to its high water demand and water conservation methods. Rivers supply the adjoining Somerset Levels and Moors NCA and to support the internationally important wetland ecosystems found there.

- **Genetic diversity:** Although often severely decayed and containing only senescent trees, numerous traditional cider apple orchards are found throughout the area. Cider apple varieties are of particular note and have a longstanding association with the area, and varieties such as Dunnings Russet, Even Pearmain and Fairmaid of Taunton are recorded in this locality. While modern bush orchards are being planted, there is a risk that they will use more widely available varieties and that local traditional ones will be lost, with a concurrent loss in sense of place and biodiversity.

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

- **Regulating soil erosion:** Vulnerable loamy clay soils make this area susceptible to soil erosion, the main effects of which are felt in the neighbouring Somerset Levels and Moors NCA. The Upper Tone and tributaries of the Upper Parrett which run through this NCA form part of the Somerset Levels and Moors priority catchment. The Upper Parrett (whose upper tributaries rise within this NCA) and the Upper Brue have problems with sedimentation arising from soil erosion associated with surface water run-off in areas of intensive dairy, pig, poultry and maize production, especially on more vulnerable soils and on steep slopes.[4] The wetlands of the Somerset Levels and Moors SPA, and Curry and Hay Moors SSSI, are in unfavourable condition due to nutrient enrichment. Measures to reduce soil erosion and nutrient loading from crop and livestock management are essential for the provision of this service.

- **Regulating soil quality:** There are five main soilscape types in this NCA. Many of these soils have impeded drainage and are easily poached by livestock and compacted by machinery when the soil is wet. Weak topsoil structures can easily be damaged, and careful timing of activities is required to reduce the likelihood of soil compaction. The area has a long history of food production based on its versatile soils.

- **Regulating water quality:** The south-eastern part of this NCA around Taunton falls within the Somerset Levels and Moors priority catchment. The Upper Tone and tributaries of the Upper Parrett catchments have been identified as having problems with soil erosion and run-off leading to increased nutrient loss and consequent nutrient enrichment of watercourses. This has an impact on water quality feeding the Somerset Levels and Moors SAC in the adjacent NCA. Some 73 per cent of the area is a nitrate vulnerable zone. Measures to reduce soil erosion, sedimentation and nutrient loading from crop and livestock management are essential for the provision of this service.

- **Regulating water flow:** Across most of the area there is low risk of flooding. However Taunton, and Bridgwater on the fringes of this NCA, are susceptible, being affected by flooding events associated with the River Tone and the River Parrett respectively. Flood protection schemes are in place for Taunton and any future development will require flood risk management. Coastal rivers in the north of this NCA are susceptible to tidal flooding, and impermeable geology increases the risk of surface water flow. A variety of measures are used to alleviate and reduce threat including river maintenance, ensuring that shingle traps are cleared and increasing water capture, through increasing soil permeability and water infiltration and reducing surface flow by the use of margins, hedgerow management and planting of trees and woodland in the right places.

- **Regulating coastal flooding and erosion:** Most of the coastline is undefended, although several sections have groynes and sea walls. The beach at Minehead was recharged in 1998: it is more or less stable with a slight tendency to erosion. The policy for this stretch of coast as set out in the Shoreline Management Plan 2 is 'Hold the Line' until it is no longer economically and technically sustainable, and then to move to managed realignment. Maintaining a dynamic coastline is important for the features that make up Somerset's Jurassic Coast. Extensive areas of mudflats and beaches do, however, also provide some level of protection where these are found.

[4] DEFRA catchment priorities identified under the England Catchment Sensitive Farming Delivery initiative http://www.defra.gov.uk/foodfarm/landmanage/water/csf/documents/catchment-priorities.pdf

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** The rich, gently rolling agricultural landscape of irregular fields enclosed by thick hedgerows, often on ancient hedgebanks, with many narrow intersecting valleys and views to the surrounding hills of Exmoor and the Quantocks, and an open and wind-swept coast with low cliffs to the north, characterise this landscape and provide a sense of tranquillity and escapism, although parts of the coastline can feel remote and rather bleak at times.

- **Sense of history:** There is a wealth of sites and features illustrating human occupation and management including hill forts, castles, and field and settlement patterns. Most notable are the manor houses at the foot of the Quantock Hills which were built on the back of the wealth generated from farming.

- **Tranquillity:** Tranquillity figures show a reduction in this area, with a concurrent increase in intrusion from urban development, noise and other sources of visual and auditory intrusion. This is perhaps most notable along the M5 motorway corridor around Taunton and Wellington, and in places such as Minehead which are associated with development and tourism infrastructure along the coast. However, substantial areas of the NCA have remained sparsely populated and uncluttered by modern infrastructure and retain a sense of quiet and tranquillity.

- **Recreation:** The area supports a number of opportunities to experience nature and the landscape. A good path network exists with around 900 km of rights of way, two reservoirs with recreational opportunities, a canal towpath, cycling routes and the coastline. Proposals were made in 2013 to increase access to 90 km of coastline between Minehead and Brean Down under the Marine and Coastal Access Act 2009.

- **Biodiversity:** Habitats in the area are scattered and fragmented, except at the coast where the coastal strip is largely intact. Habitats such as coastal and flood plain grazing marsh, lowland calcareous grassland and lowland meadows, maritime cliff and slope, intertidal sand and mudflats, fen and marsh are found in pockets throughout. However, agricultural intensification, especially along the banks of the River Tone, and changes in farming patterns, such as the loss of permanent grasslands to miscanthus production, mean that sites are under threat of becoming more fragmented and inappropriately managed.

- **Geodiversity:** The geology of the area is quite varied with a wide range of soil types. Known as the Somerset Jurassic Coast, the coastal geology of the area is of international importance for its Jurassic sequence and outstanding fossil finds. Interpreting this interest and maintaining the dynamic nature of the coastline are key activities for maintaining the provision of this service.

Statements of Environmental Opportunity

SEO 1: Conserve and promote the geology and geodiversity of the Vale of Taunton and Quantock Fringes, including the Jurassic Coast, the suite of national and local geological sites and the distinctive relationship between geology, coastal geomorphology, soils, landform and land use, promoting opportunities for recreation in the area and interpretation of the unique features.

For example, by:

- Conserving, managing and enhancing the nationally and locally important geological and geomorphological sites and features which represent the characteristic Jurassic and Triassic sequences of the area, many of which are exposed at the coast through active cliff movement.
- Ensuring that the natural function of coastal geomorphological processes is unimpeded and that intervention measures are adopted only where essential, for example in front of Hinkley Point nuclear power station.
- Providing high-quality interpretation and engagement activities to local people and visitors to Somerset's Jurassic Coast in order to highlight its importance on an international and local scale.
- Managing the coastal strip and hinterland to ensure that new or existing developments neither impact upon the setting or visual coherence of the coast or pose a future threat to continued unimpeded natural processes.
- Developing and providing interpretation for sites which illustrate the relationship between underlying geology and soils, thus providing a link with historical and present biodiversity, land use and management, and aiding interpretation of the wider landscape.
- Ensuring that measures are taken to maintain the favourable condition of the geological Blue Anchor to Lilstock Site of Special Scientific Interest (SSSI) which runs the length of the coast, and that the sites of local geological importance are appropriately managed and, where possible, accessible for study.
- Protecting important features for geological/geomorphological interpretation from inappropriate changes in land use, for example planting woodland on cliffs, changing farming patterns and development of tourist infrastructure.
- Seeking to ensure that this resource is available as an accessible scientific and educational asset to study stratigraphy, palaeontology and the relationship between geology, biodiversity and landscape.
- Implementing the findings of the Shoreline Management Plan.
- Providing ongoing high-quality access to the coast, maintaining multi-user paths and improving connectivity between settlements, both within and outside the area, using and extending the existing network of public rights of way between Minehead and Brean Down and links to and from the South West Coast Path National Trail, and ensuring that inland linkages to the public rights of way network are maintained and, where appropriate, enhanced.

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- Developing new permissive access, where appropriate, to historical and geological sites and other areas of interest as part of a cohesive network of inspiring access provision.
- Maintaining the England Coast Path National Trail and its corridors to the highest standards of management and visitor experience while taking account of dynamic cliff systems in order to provide the focus for both environmental connectivity and a corridor of interest of cultural, historical and environmental significance.
- Continuing to develop detailed understanding of coastal geomorphological processes in order to inform development and planning, particularly around Minehead and Watchet, and the provision of tourist infrastructure along the coast.

The red soils of the area seen on agricultural land at the base of the wooded scarp at the western edge of the Quantock Hills AONB.

SEO 2: Protect, manage and enhance the distinctive farmed landscape, while creating a balance of productive mixed farmland and diversity of habitats and associated species. Create and enhance connecting corridors of hedgerows, orchards, calcareous and flood plain grazing marsh, small woodlands, and hedgerow and riverside trees, and manage parkland and other habitats such as coastal habitats including intertidal salt marsh and mudflats for their contribution to sense of place, and their positive role in reducing soil erosion, enhancing water quality and managing coastal erosion. Promote connecting corridor linkage with the Blackdown Hills, Exmoor and the Quantock Hills.

For example, by:

- Assisting the maintenance of distinctive farming patterns across the area, including current field patterns bounded by thick hedgerows with trees.
- Understanding the systemic changes which may be occurring in the agricultural system of the area, and working with farmers, land managers and communities to positively shape the way in which land is managed into the future, innovating and diversifying to maintain the agricultural economy while simultaneously preserving and positively enhancing the physical, ecological and historic landscape that is so highly valued by local people and visitors alike.
- Helping land managers to develop profitable and sustainable agricultural systems in order to provide sufficient stock to effectively graze this National Character Area's (NCA's) large areas of semi-natural grassland.
- Identifying opportunities for managing, restoring, creating and reconnecting areas of habitat including limestone grassland, lowland meadows, coastal and flood plain grazing marsh, pockets of heath, small areas of woodland and parkland in order to strengthen the connectivity of these habitats across the area, thereby providing a resilient network and supporting species movement, and for the benefits that the habitats will bring in managing soil erosion and water quality and flow, for example planting in the Upper Tone catchment.
- Identifying opportunities for managing, restoring and creating areas of traditional orchards and parkland to retain veteran trees, reinforcing current patterns of these habitats across the area and supporting species movement (for example, bats), and for the benefits that the habitats will bring in managing soil erosion and water quality and flow and maintaining character.
- Understanding and promoting the ecosystem services provided through specific management by land managers and seeking financial mechanisms which reasonably reward and incentivise those practices.
- Maintaining, restoring and sympathetically enhancing the network of small woodlands that are typical of the area, particularly at the fringes of the uplands, utilising their potential for wood fuel and helping to manage soil erosion, in order to encourage more into active management, and to provide hunting grounds for species such as bats.
- Maintaining and reinstating hedgerow management, including laying and coppicing existing hedgerows on slopes and in valley bottoms, to retain these important landscape features for the future and to safeguard their role in supporting the biodiversity of the area, especially for bats, particularly in and around Hestercombe House Special Area of Conservation (SAC); assisting in the reduction of soil erosion by slowing

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the cross-land movement of soils, nutrients and water (encouraging coppice residues to be used as a source of low-carbon fuel); and planting new hedgerow trees where appropriate and where they do not restrict open views.

- Encouraging land use which maintains long views along the coast and across the area from adjacent uplands.
- Protecting the contrasts in character between low and high vale and coast by using their defining characteristics to inform new development, land management, access opportunities and woodland creation initiatives, particularly through the use of agri-environment schemes.
- Maintaining and promoting biodiversity interest which extends into the marine environment, including mudflats found offshore and on the edge of the Severn Estuary SAC, which extends into this area.
- Creating woodland in appropriate locations to help to reduce the impact of Hinkley Point power station where this may help to improve the setting and ecological networks.
- Conserving, maintaining and enhancing the coastal habitats within the NCA of coastal and flood plain grazing marsh, maritime cliff and slope, intertidal sand and mudflats, fen, marsh and wetland habitats.
- Promoting sustainable recreation at the coast to avoid erosion and damage to semi-natural habitats, including the natural cliff and cliff-top vegetation.
- Increasing public appreciation and understanding of semi-natural habitats and key species in the NCA through appropriate education and interpretation.

A sweeping coastal view across the main coastal road. There is an intimate network of woodland and hedgerows and farmland and other habitats such as limestone grassland set against the backdrop of Bridgwater Bay.

SEO 3: Protect and manage the area's historic environment including its rich heritage of hill forts, Roman remains, ridge and furrow, manor houses and vernacular architecture, parkland and distinctive field patterns, engaging both visitors and local communities in understanding how the interaction of human and natural factors has shaped the farmed landscape of today.

For example, by:

- Encouraging arable reversion to grassland where appropriate, and sensitive scrub removal where current landcover and use threaten the integrity of important historic earthworks and remains.
- Managing the levels of grazing on historic features to prevent poaching and erosion damage, while also ensuring that scrub encroachment is prevented.
- Maintaining the dispersed settlement pattern of hamlets and isolated farmsteads and manor houses, further characterised by fine churches, a strong vernacular architecture and a small network of roads, and using opportunities to interpret these features in order to help people to understand the relationship between historic settlement patterns and the farmed landscape today.
- Ensuring that the wealth of heritage assets, including above-ground and buried archaeological features such as earthwork remains, Roman remains, manors, parkland and traditional farm buildings found across the area, are protected, conserved and enhanced, and are effectively and traditionally managed where necessary.
- Conserving and enhancing parkland and orchards to maintain these features in the landscape and ensure continuity through planting and management.
- Conserving and interpreting archaeological earthworks and sub-surface archaeology, while recognising the potential for undiscovered remains.
- Using an understanding of the area's traditional and historical architecture and its distinct patterns of settlement in order to inform the appropriate conservation of historical buildings, and to plan for and inspire any environmentally beneficial new development which makes a positive contribution to local character.
- Promoting access for all to the natural environment across the area, managing access in a way which balances the desire of people to enjoy and experience the area while preventing damage to assets; making the most of natural, historical, inspirational and tranquil places that are available to all, particularly incorporating sustainable multi-user access to and from the England Coast Path National Trail and from major developments such as in Wellington, Taunton and Minehead.
- Encouraging the continued use of local stone as a building material in new developments, any works to existing buildings and conservation projects to further conserve and enhance the scenic beauty of the area.
- Maintaining the diversity of geology and traditional buildings which contributes to the NCA by using, promoting and encouraging locally sourced materials and skills for building repair and construction.
- Recognising that appropriate local sourcing of traditional building stone can enhance geodiversity by creating new temporary or permanent exposures or by improving existing ones.
- Promoting, through engagement, people's understanding of the combined effect that multiple historic features and farm and settlement

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patterns have on landscape character and the importance of their conservation and presentation.

- Bringing all heritage assets within the NCA into sympathetic management, seeking communities' engagement in the process of restoring and maintaining their heritage, and explaining English Heritage's Heritage at Risk register.
- Protecting cropmark enclosures, watermeadow remains and areas of known archaeological interest that are at risk from ploughing by reverting to pasture.
- Maintaining the setting of the numerous manor houses and parkland along the Quantock fringes, investing in new and innovative uses to ensure their continued presence in the landscape.
- Continuing to sympathetically manage and promote features such as the Taunton and Bridgwater Canal and the heritage railway near Minehead to retain their contribution to sense of place and importance in the history of the area and as recreational features.
- Promoting sustainable tourism initiatives, such as the heritage railway, that target a broad range of visitors and reduce car dependency, particularly in and around Minehead, Taunton and Wellington, accommodating high visitor numbers while conserving the landscape and its tranquillity.
- Providing high-quality interpretation and engagement activities to local people and visitors to the area about geodiversity and how it has influenced the development of the landscape and historic vernacular and in particular features such as Somerset's Jurassic Coast.

The West Somerset Railway runs as a tourist attraction between Minehead and Bishops Lydeard. The train runs through the gentle rolling landscape in the north of the NCA showing typical grazing pasture and wooded slopes, which eventually rise to Exmoor National Park.

SEO 4: Safeguard and manage soil and water resources, notably the rivers Tone and Parrett, as part of the wider Somerset Levels and Moors priority catchment and at the coast, working with naturally functioning hydrological processes to maintain water quality and regulate supply; reduce flooding; and manage land to reduce soil erosion and water pollution and to retain and capture carbon.

For example, by:

- Continuing to support farming at a sustainable level with grazing and cropping levels that provide food, lead to improved soil quality, reduce soil erosion, benefit biodiversity and reinforce a sense of place and current patterns of land use.
- Using a catchment-based approach to implement measures required to reduce nutrient and sediment inputs to the Somerset Levels and Moors Special Protection Area and the Curry and Hay Moors SSSI.
- Increasing the amount of farmland managed under principles established by the Catchment Sensitive Farming Programme for the associated benefits that this will bring in relation to water flow management and regulation, water quality and reduction in nitrate and phosphate pollution, prevention of soil erosion and increased biodiversity, which will also see positive benefits for the Somerset Levels and Moors Priority Catchment.
- Encouraging initiatives which seek to promote sustainable agriculture while retaining a mixed farming pattern that supports the mix of habitats and species found in the area and utilising farming methods which reduce sediment run-off.
- Maintaining and restoring hedgerow boundaries that are characteristic of the area and associated field patterns, especially where these help to control cross-land flows and prevent soil erosion and nutrient leaching.
- Restoring and enhancing remnant wetland habitats, including coastal and flood plain grazing marsh and wet woodland, for the benefit of flood storage, water quality, landscape diversity and biodiversity.
- Creating grassland buffer strip verges running across slopes to provide a buffer to soil erosion and nutrient run-off in areas of arable production, including the catchments of the rivers Tone and Parrett.
- Continuing the opportunity to plan for the creation or extension of new broadleaved woodland, hedgerows and grassland habitat mosaics to provide the landscape setting for Taunton and Wellington, and robust, attractive new landscapes, thereby strengthening the ecological network throughout this NCA and adjacent NCAs, particularly along the length of the M5 corridor.
- Enabling the recommendations for relevant implementation measures under the Water Framework Directive and Catchment Flood Management Plans.
- Seeking opportunities to reinstate riverine habitats and connect rivers to their flood plains, for example along the rivers Tone and Parrett, to help to reduce flooding and increase water storage capacity in order to assist with reducing flood risk in Taunton and in the adjoining Somerset Levels and Moors NCA.
- Supporting the reversion to pasture of areas of arable land on slopes and adjacent to rivers, choosing locations according to opportunities to assist biodiversity adaptation to changes in climate and improvements in reducing sedimentation issues, and managing grasslands in favourable condition through extensive grazing.
- Ensuring continued efforts to maintain beach water quality through investment by water companies in sewage treatment plants and infrastructure and land management-based initiatives such as those which seek to reduce soil erosion, slow down and store water during high rainfall, increase water quality and enhance biodiversity.

Additional opportunity

1. Plan for the creation of new landscapes around settlements where development is proposed, particularly around Taunton and Wellington, the M5 corridor and Hinkley Point nuclear power station, which will strengthen local landscape character, and other appropriate development within the area. Reinforce the existing landscape structure as part of any identified growth of urban areas, hard infrastructure and other settlements, ensuring that high-quality green infrastructure is incorporated, enhancing health, access, recreation, the landscape, biodiversity and geodiversity.

For example, by:

- Ensuring that new development contributes to and enhances the character, natural beauty and tranquillity of the NCA.
- Planting new woodland, using native broadleaved species, between and within new developments to filter views and preserve the tranquillity of the area.
- Promoting the use of sustainable building design and construction, using traditional materials and styles wherever possible, incorporating renewable energy generation and water recycling technologies.
- Exploring the role of short rotation coppice and other biomass crops within the framework of new development, and keeping fuel sources close to areas of demand.
- Creating reedbeds as part of developments to filter potentially polluted water before it is discharged to rivers and at the coast.
- Providing access opportunities and natural open spaces close to where people live linked to wider multi-modal routes.
- Ensuring that extensions to settlements, such as those around Taunton and Wellington and their environs, are designed so that they visually and functionally integrate with the surrounding landscape and the existing urban edge. Key views to and from settlements should be retained.
- Providing access to high-quality greenspace through well-designed green infrastructure which will benefit health and wellbeing and provide habitats that increase the permeability of the urban landscape to biodiversity.
- Ensuring that new developments provide biodiversity enhancement rather than just mitigation, for example in enhancing the setting of Hinkley Point power station and the River Tone in the vicinity of Taunton.
- Designing sustainable drainage systems and surface water management plans that can create new wetland features close to urban areas and new development, becoming part of a green infrastructure network.
- Conserving the area's traditional architecture and manors, vernacular and historical buildings in local materials such as sandstone and grey Lias, encouraging the use of appropriate styles and locally distinctive materials, and that the repair, restoration and/or conversion of vernacular buildings should be carried out with due regard to this historical interest using local and appropriate materials, styles and detailing.

Supporting document 1: Key facts and data

Vale of Taunton and Quantock Fringes National Character Area (NCA): 48,403 ha

1. Landscape and nature conservation designations

A small proportion of the NCA is within Exmoor National Park (1 per cent of the NCA). Small areas of the Quantock Hills Area of Outstanding Natural Beauty (AONB), (5 per cent of the NCA) and the Blackdown Hills AONB (<1 per cent of NCA) also occur within the NCA. Exmoor Heritage Coast accounts for <1 per cent of the NCA.

Management plans for the protected landscapes can be found at:

- www.exmoor-nationalpark.gov.uk/
- www.quantockhills.com
- www.blackdown-hills.net/

Source: Natural England (2011)

Wigeon feeding on the mudflats, are regularly winter visitors to Bridgewater Bay and are one of the birds that make up Bridgewater Bay SPA.

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Designated site(s)	Area (ha)	% of NCA
International	Ramsar	Somerset Levels and Moors; Severn Estuary	106	<1
European	Special Protection Area (SPA)	Somerset Levels and Moors SPA; Severn Estuary SPA	106	<1
	Special Area of Conservation (SAC)	Exmoor Heaths SAC; Exmoor and Quantock Oakwoods SAC; Holme Moor and Clean Moor SAC; Severn Estuary SAC; Hestercombe House SAC	110	<1
National	National Nature Reserve (NNR)	Bridgewater Bay NNR	<1	<1
National	Site of Special Scientific Interest (SSSI)	A total of 14 sites wholly or partly within the NCA	590	1

Source: Natural England (2011)

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

Land covered by international and European nature conservation designations totals 210 ha (<1 per cent of the total land area); national designations cover 590 ha (1 per cent). The Somerset Levels and Moors Ramsar site covers the same area as the Somerset Levels and Moors SPA. The Severn Estuary Ramsar site also covers the same area as the Severn Estuary SPA. Both lie within the Severn Estuary SAC. All the international sites, apart from the Severn Estuary SAC, are within a SSSI designated area, as is the NNR.

There are 244 local sites in Vale of Taunton and Quantock Fringes covering 2,039 ha, which is 4 per cent of the NCA.

Source: Natural England (2011)

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

1.1.1 Condition of designated sites

Condition category	Area (ha)	% of SSSI land in category condition
Unfavourable declining	0	0
Favourable	140	24
Unfavourable no change	20	3
Unfavourable recovering	430	73

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 land ranges from being slightly below sea level (0.2 m) to 274 m. The mean height is 67 m.

Source: Natural England (2010)

2.2 Landform and process

The Vale of Taunton extends from the foot of the steep northern scarp of the Blackdown Hills to the Bristol Channel coast. In the west it extends between the Quantock and the Brendon Hills on the edge of Exmoor and to the east between the Quantock Hills and the Somerset Levels and Moors. The steep, moorland-topped character of the Brendon and Quantock Hills to the west and the open character of the clay Levels to the east emphasise its lush, pastoral character all the more.

Source: Vale of Taunton and Quantock Fringes Natural Area Profile, Vale of Taunton and Quantock Fringes Countryside Character Description

2.3 Bedrock geology

Physically the landscape can be divided into two parts; the gentle low vale, which is underlain mainly by Mercia Mudstone (Triassic) and Lower Lias Clay (Jurassic), and the more steeply undulating high vale which is underlain by Triassic Sandstones as well as Mercia Mudstone. The Triassic mudstones and sandstones occur in a band around the edge of the low vale.

Source: Vale of Taunton and Quantock Fringes Natural Area Profile, Vale of Taunton and Quantock Fringes Countryside Character Description

2.4 Superficial deposits

Exposed along the coast are Quaternary periglacial loams, sands and gravels. Similar aged alluvium deposits occur alongside the River Tone and its tributaries.

Source: Vale of Taunton and Quantock Fringes Natural Area Profile, Vale of Taunton and Quantock Fringes Countryside Character Description

2.5 Designated geological sites

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

An ammonite found on the beach, which forms part of the Somerset Jurassic Coast, and a key feature of this coastline's SSSI designation.

There are 35 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 Triassic mudstones and sandstones around the edge of the low vale produce light, freely draining soils. Calcareous clay and stagnogley soils are more common over the mudstones and clays.

Source: Vale of Taunton and Quantock Fringes Natural Area Profile, Vale of Taunton and Quantock Fringes Countryside Character Description

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

Agricultural Land Classification	Area (ha)	% of NCA
Grade 1	3,360	7
Grade 2	11,363	23
Grade 3	29,072	60
Grade 4	1,882	4
Grade 5	364	1
Non-agricultural	67	<1
Urban	2,096	4

Source: Natural England (2010)

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

3. Key water bodies and catchments

3.1 Major rivers/canals

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

Name	Length in NCA (km)
River Tone	33
Bridgewater and Taunton Canal	14
Grand Western Canal	<1

Source: Natural England (2010)

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

The southern part of the Vale is drained by the River Tone and its tributaries. To the north, Doniford Stream, fed by tributaries arising in the Quantocks and Brendon Hills, drains into the sea at Watchet. To the east, many streams drain off the Quantock dip slope and flow across the area into the River Parrett.

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 35,540, 73 per cent of the NCA.

Source: Natural England (2010)

3.3 Water Framework Directive

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

View across the the lower-lying Vale of Taunton and Quantock Fringes from Quantock Hills AONB. The mixed farming pattern of the area is obvious with a patchwork of irregular fields bounded by hedgerows with trees and small pockets of woodland.

4. Trees and woodlands

4.1 Total woodland cover

The NCA contains 2,799 ha of woodland (6 per cent of the total area), of which 626 ha is ancient woodland.

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

4.2 Distribution and size of woodland and trees in the landscape

Woodland is sparse and the distribution of hedgerow trees is variable although there are particularly abundant wooded areas south of Taunton and on the edges of the area.

Source: Vale of Taunton and Quantock Fringes Natural Area Profile, Vale of Taunton and Quantock Fringes Countryside Character Description

4.3 Woodland types

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

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

Woodland type	Area (ha)	% of NCA
Broadleaved	2110	4
Coniferous	410	1
Mixed	125	<1
Other	154	<1

Source: Forestry Commission (2011)

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

Type	Area (ha)	% of NCA
Ancient semi-natural woodland	367	1
Ancient re-planted woodland (PAWS)	258	<1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Fields are usually bounded by thick hedgerows, commonly growing on low hedgebanks, and usually dominated by hazel with a mix of other woody species such as dogwood, holly and blackthorn. These old mixed hedgerows give way to hawthorn hedgerows on the more recent enclosures of the lower-lying land around Taunton.

Source: Vale of Taunton and Quantock Fringe Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

Irregular, medium-sized fields are generally bounded by thick hedgerows, occasionally on top of banks. The low vale, north of Taunton, has a patchwork of well-hedged fields of arable, pasture, market gardening and orchards. The high vale fringing the area is more steeply undulating with pasture and arable in small or medium-sized fields enclosed by hedgerows and with wooded hilltops.

Source: Vale of Taunton and Quantock Fringe Countryside Character Area description; Countryside Quality Counts (2003)

6. Agriculture

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

6.1 Farm type

The NCA has a mixed farm character. Grazing livestock was the most common with 225 holdings (30 per cent), then cereals with 103 holdings (15 per cent). Between 2000 and 2009 most distinct farm types reduced, but in particular dairying, which declined by 44 holdings or 40 per cent. Grazing livestock and cereals increased by 15 and 13 holdings respectively.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Farms between 5 and 20 ha were the most numerous, with 234 holdings (31 per cent) covering 2,484 ha (5 per cent of the area). 161 (21 per cent) farms were between 20 and 50 ha covering 5,121 ha (10 per cent of the area). By far the greatest proportion of land (26,064 ha or 65 per cent) was managed within holdings in excess of 100 ha. Farms between 5 and 20 ha and over 100 ha increased in numbers by 18 and 3 respectively between the period 2000 and 2009. Between 2000 and 2009, farms between 20 and 50 ha decreased by 13 units and farms under 5 ha saw a reduction of 3 units.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

Owned land made up 65 per cent of the total farm area, while the remainder was held in tenancy. There was a decrease in owned land of 5 per cent over the 2000 to 2009 period, but an increase in tenanted land of 9 per cent.

2009: Total farm area = 40,264 ha; owned land = 26,227 ha
2000: Total farm area = 38,614 ha; owned land = 27,634 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

Grass and uncropped land at 21,011 ha was the most common land cover followed by cereals at 10,091 ha. Between 2000 and 2009 many crop types saw an increase by hectarage. The largest was 'other' arable crops with 1,352 ha, followed by grass and uncropped land at 812 ha. However, cereals and cash roots experienced a decline of 1,277 ha and 132 ha respectively.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

Sheep were the most numerous livestock with 40,400 animals followed by cattle at 33,800 and pigs at 15,200. Between 2000 and 2009 the numbers of all livestock fell. Sheep reduced by the greatest numbers, a fall of 14,900 animals, pigs reduced by 10,900 animals and cattle reduced by 5,700 animals.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The total number of principal farmers was 1,080 with 44 salaried managers. During the period 2000 to 2009 the number of salaried managers increased by 13, but principal farmers decreased by 58. The number of full-time workers also declined over the same period by 64, while the number of casual/gang workers declined by 359. Part-time workers increased by 8.

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

Coastal and flood plain grazing marsh occurs sporadically in the far west of the area, inland from the coast. Flood plain grazing marsh also occurs along the course of the River Tone and its tributaries to the south of the area. Small areas of wet woodland and mire are also found in these shallow valleys. Substantial areas of mudflat occur along the coastal boundary of the area, with a substantial area between Watchet and Minehead (Blue Anchor Bay). Mudflats between Steart and Stolford mark the western extent of the Severn Estuary SAC/SPA. Wet woodland is found sporadically scattered across the low-lying north-eastern part of the area, between Kilve and Stogursey, and to Cannington and Spaxton.

Source: Vale of Taunton and Quantock Fringes Natural Area Profile

7.2 Priority habitats

The Government's new strategy for biodiversity in England, Biodiversity 2020, replaces the previous Biodiversity Action Plan (BAP) led approach. Priority habitats and species are identified in Biodiversity 2020, but references to BAP priority habitats and species, and previous national targets have been removed. Biodiversity Action Plans remain a useful source of guidance and information. More information about Biodiversity 2020 can be found at; http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/englandsbiodiversitystrategy2011.aspx

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

Priority habitat	Area (ha)	% of NCA
Coastal and flood plain grazing marsh	1,531	3
Broadleaved mixed and yew woodland (broad habitat)	1,431	3
Lowland heathland	152	<1
Upland heathland	148	<1
Lowland meadows	84	<1
Maritime cliff and slope	79	<1
Purple moor grass and rush pasture	36	<1
Lowland calcareous grassland	34	<1
Lowland dry acid grassland	34	<1
Mudflats	2	<1

Source: Natural England (2011)

Maps showing locations of priority habitats are available at

- http://magic.defra.gov.uk/website/magic/ select 'Habitat Inventories'

7.3 Key species and assemblages of species

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

8. Settlement and development patterns

8.1 Settlement pattern

The Vale of Taunton and Quantock Fringes is a settled agricultural area with a largely dispersed settlement pattern of hamlets and scattered farmsteads. A network of narrow, winding lanes and trackways links the many farmsteads and roadside dwellings. Hamlets, comprising no more than a church and a loose cluster of houses, are a characteristic feature, but there are also larger villages, including Bishops Lydeard, Milverton and Bradford-on-Tone.

Source: Vale of Taunton and Quantock Fringe Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

The main settlements within the Vale of Taunton and Quantock Fringes NCA are; Taunton, Wellington, and Minehead. The total estimated population for this NCA (derived from ONS 2001 census data) is: 136,347.

Source: Vale of Taunton and Quantock Fringe Countryside Character Area description; Countryside Quality Counts (2003), Natural England (2012).

8.3 Local vernacular and building materials

Stone-built churches, typically with a tall perpendicular tower, mostly of red Triassic sandstone, are a prominent feature of many settlements. Most of the older farmsteads and cottages are also built from the red sandstone, but tend to be rendered and painted. On the coast the buildings are in contrasting brown-grey Lias. The great country houses within the Vale are wholly different from the vernacular buildings and churches and many are built from imported stone.

Source: Vale of Taunton and Quantock Fringe Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

Although the fertile soils of the Vale of Taunton and Quantock Fringes may have attracted early settlement, prehistoric evidence is scarce and confined mainly to the edges of the higher ground adjacent to Exmoor and the Quantocks. However, the early importance of centres around Taunton and Cannington is apparent from iron-age hillforts, with a particularly well-studied hillfort at Cannington which continued as a significant centre into the early Saxon era. In the Medieval period the area became quite densely populated, the frequent 'ton' place names representing Saxon and medieval farmsteads. At the southern end a large area around Taunton was part of the Bishop of Winchester's very prosperous manor at Taunton. Although open fields developed they were enclosed in piecemeal fashion at an early date. They probably persisted longest on the Bishop's estates in the south and on the coastal strip.

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

9.2 Designated historic assets

This NCA has the following historic designations:

- 9 Registered Parks and Gardens covering 813 ha.
- No Registered Battlefields.
- 44 Scheduled Monuments.
- 2,100 Listed Buildings.

Source: Natural England (2010)

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

10. Recreation and access

10.1 Public access

- 2 per cent of the NCA 965 ha is classified as being publically accessible.
- There are 893 km of public rights of way at a density of 1.8 km per km^2.
- There is 1 National Trail (South West Coastal Path) within the NCA covering 2 km.

Source: Natural England (2010)

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

Access designation	Area (ha)	% of NCA
National Trust (accessible all year)	18	<1
Common Land	265	<1
Country Parks	0	0
CROW Access Land (Section 4 and 16)	545	1
CROW Section 15	145	<1
Village Greens	3	<1
Doorstep Greens	0	0
Forestry Commission Walkers Welcome Grants	330	<1
Local Nature Reserves (LNR)	62	<1
Millennium Greens	0	0
Accessible National Nature Reserves (NNR)	<1	<1
Agri-environment Scheme Access	13	<1
Woods for People	591	1

Sources: Natural England (2011)

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

View from the route of the West Somerset Coast Path at Lilstock, Bridgwater Bay. Hinkley Point power station is in the distance.

11. Experiential qualities

11.1 Tranquillity

Based on the CPRE map of tranquillity (2006) it seems that much of the NCA is disturbed; a reflection of the larger settlements, numerous settlements and road (M5) and rail infrastructure running through the area. It is at its most tranquil to the west of Wellington around the Tone valley.

The coastline viewed from Kilve showing the low cliffs and distinctive geology, and the limestone grassland on the fringes of the cliff tops.

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

Category of tranquillity	Score
Highest	37
Lowest	-91
Mean	-5

Sources: CPRE (2006)

More information is available at the following address: **www.cpre.org.uk/campaigns/landscape/tranquillity/our-tranquillity-map-explained**

11.2 Intrusion

The 2007 Intrusion Map (CPRE) shows the extent to which rural landscapes are 'intruded on' from urban development, noise (primarily traffic noise), and other sources of visual and auditory intrusion. This shows that the M5 has had a significant impact on southern part of the area, and that increased development around Watchet and Minehead has impacted on the coastal strip. A breakdown of intrusion values for this NCA is detailed in the following table.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	22	48	54	32
Undisturbed	74	49	40	-34
Urban	3	3	6	3

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are the large increase in areas affected by development.

- More information is available at the following address: **www.cpre.org.uk/campaigns/planning/intrusion/our-intrusion-map-explained**

12. Data sources

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

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

Supporting document 2: Landscape change

Recent changes and trends

Trees and woodlands

- Old cider apple orchards have been lost from the area, especially in the lower vale, Tone flood plain and Quantock fringes. New commercial orchards with low trees/bushes are different in their character. There has been some restoration and creation of traditional orchards under Environmental Stewardship.

- Small woodlands and hedgerow elm trees, which were prevalent in this sparsely wooded landscape, have been lost. They were especially important near the coast and in the Quantock fringes where woodland cover is less significant.

- Many of the small woods of the area have suffered from a lack of or poor woodland management. Uptake of the Woodland Grant Scheme is relatively low. There has also been little woodland creation however this is in keeping with the character of the area.

- Hedgerow and infield trees are key landscape features that are being lost. Trees are becoming old and are being lost through removal and decay. There is very little new planting to replace these trees, and a risk that any planting does not take account of local character. Lack of traditional management and planting patterns of pollarded willows and black poplar in the flood plain and of oaks in the lower vale are particularly notable.

- English elms were particularly common here and a real feature at the coast. Dutch elm disease has meant that these have been all but lost from the landscape, except as smaller hedgerow features.

Boundary features

- The field pattern has been changed in the recent past by hedgerow removal, especially in the Quantock fringes, lower vale and Tone flood plain. There has also been a decline in hedgerow management, although coastal hedgerows are in good condition. The removal of hedgerows in the past has changed the pattern of irregular fields and thick hedgerows with oak trees, impacting on the rural and agricultural character of this landscape.

- Of the estimated 3,846 km of boundary features in this NCA, 460 km of hedgerow are under some form of management under Environmental Stewardship.

- Hedgerow trees were once a common feature of parts of the landscape, although are being lost as they become old and are not replaced.

Agriculture

- Change in the agricultural character of the area and the variation between the flood plains, coast and high vale has been ongoing in recent years. There has been a reduction in permanent grasslands, sheep and dairy cattle, loss of orchards, and increase in vegetable growing and miscanthus. Although there has been an overall reduction in livestock, particularly in sheep, there has been a shift from dairy to lowland cattle and meat production.

- The increase in growing miscanthus for animal bedding across the area has been the most notable landscape change in agricultural practice.

- The largest uptake of agri-environment schemes has been for restoration of grassland/semi-natural vegetation, lowland pastures on neutral/acid soils, and lowland hay meadows and creation of orchards.

Settlement and development

- Taunton, Wellington and Minehead are the most significant settlements within the area. All three have seen significant expansion and development in recent years. In particular the rural gap between Taunton and Wellington is gradually being eroded.

- Pressure for change is most notable along the corridor of the M5 motorway and in places along the coast; for infrastructure and distribution, and tourism facilities respectively.

- Tourism related development and infrastructure along the coast has been steadily increasing and is particularly notable around Minehead, Watchet and along the coast at Blue Anchor.

- The area between the M5 and the coast has seen relatively little development and remains essentially rural in character, although there has been some inappropriate conversion of farm buildings.

- Planning permission has been given for further development at Hinkley Point nuclear power station of a new generating station, Hinkley Point C, equivalent in size to the current site, and associated works around Cannington, Williton, Combwich and Bridgwater, just outside the NCA. The development will have an impact on the visual setting of the area which will be mitigated by extensive landscape enhancement measures, including tree and woodland planting, grassland creation, hedgerow planting and other landscaping works.

View from the Quantock Hills AONB showing a wooded feel to the landscape from small areas of woodland and hedgerow trees. There are also scattered farmsteads and hamlets found throughout the NCA.

Semi-natural habitat

- In 2011, 97 per cent of SSSI in the area were in favourable or unfavourable recovering condition.
- Pre-1990 there had been a loss of meadows and pastures in the area, recent efforts have tried to arrest this decline.
- There are a variety of habitats in the area, but they are fragmented and none are extensive in area, with the exception of larger patches of coastal and flood plain grazing marsh along the River Tone and at the coast near Minehead. This fragmentation is in part due to the more intensive nature and history of farming across the NCA. The extent and condition of semi-natural habitats has been maintained in recent years notably through Environmental Stewardship.
- In 2003 Environmental Stewardship agreements were in place to manage the following habitat extent: regeneration of grassland/semi-natural vegetation (375 ha), lowland pastures on neutral/acid soils (263 ha), and lowland hay meadows (119 ha). Recent initiatives by the Somerset Wildlife Trust will see work in the Taunton area to further enhance and reconnect these habitats.

Historic features

- Historic parkland is an important feature of this area. In 1918 there were approximately 1,452 ha of historic parkland, covering about 3 per cent of the NCA. By 1995 it is estimated that only 508 hectares of this remained. In 2003 approximately 183 ha of the remaining historic parkland was in management; about 27 per cent of this was covered by a Historic Parkland Grant, and 9 per cent included in an agri-environmental scheme.
- About 66 per cent of listed historic farm buildings remain unconverted and most are intact structurally (Countryside Quality Counts data).

Dunster Castle overlooking the north-western part of the NCA on the fringes of Exmoor NCA. Historic features such as this and their associated parkland are a notable feature of the area and an indication of the wealth and prosperity built on the back of agriculture.

- The area contains a range of heritage assets and in particular there are a high density of manors and parkland, many established from as early as the twelfth century. These highlight the agricultural prosperity of the area and underpin farming patterns but are at risk of loss and lack of management and in the case of parkland a lack of succession planting. The upkeep and maintenance of these properties can be a challenge and other uses such as holiday lets and use as activity centres have given many of these sites a new lease of life.

- Pasture improvement, intensification of arable and loss of grassland to arable threaten areas of ridge and furrow, buried archaeology and other historic earthworks, especially in the Quantock fringes.

Coast and rivers

- In 2010, 73 per cent of the NCA was designated a nitrate vulnerable zone. The eastern part of this NCA falls within the Somerset Levels and Moors Priority Catchment.

- Almost the entire length of the Bridgwater and Taunton Canal is located within this NCA. Since the early 1960s it has been used to transport drinking water to Bridgwater. By 1994 Somerset County Council had restored the entire length of the canal to enable its use for leisure activities, including a footpath along its entire length.

- Rivers in the area are of mixed ecological quality. The Tone is assessed as moderate ecological quality, and its tributaries – Backstream, Halse Water, and Hillfarrance Brook – as good ecological quality. The Parrett tributaries are assessed as moderate to poor ecological quality. Other smaller rivers in the north of the NCA include the River Aller which has good ecological quality and the Pill River, Donniford Stream and Kilve Stream which are all of poor quality. The groundwater quality is good throughout. The main reasons for moderate to poor ecological status are high levels of phosphate affecting fish communities, physical modification of watercourses and low levels of dissolved oxygen. The Upper Tone and tributaries of the Upper Parrett catchments have problems of soil erosion and run-off leading to increased nutrient loss and consequent nutrient enrichment of watercourses.

- The Upper Tone Catchment Pilot to improve water quality, by tackling the reasons for poor ecological status covers the south western edge of this NCA and extends into the neighbouring Exmoor NCA. This catchment pilot includes the River Tone upstream of Taunton and its tributaries, Hillfarrance Brook, Haywards Water, Westford Stream and Hele Brook. Wellington and several villages including Wiveliscombe, Milverton and Norton Fitzwarren are included in the pilot area.

- Coastal defences along the coast at Minehead, Blue Anchor Lilstock and along the stretch in front of Hinkley Point power station have been maintained with a management aim of hold the line. The rest of the coast has no coastal defence with a management aim of no active intervention except for a small stretch between Blue Anchor and Minehead which has been classed as managed realignment.

Minerals

- There has been little quarry interest in this area, and in the past stone was imported for the construction of churches and country houses. One active quarry remains at Cannington which produces limestone products.

Drivers of change

Climate change

- Sea level rise, combined with increased storminess, storm-surges and intense rainfall events could increase the risk of coastal flooding, and accelerate natural erosion of the coastline, particularly the softer Jurassic exposures between Lilstock and Hinkley Point. The effects of climate change and sea level rise have been accounted for on the coastal stretch in front of Hinkley Point nuclear power stations, where coastal defences have been put in place.

- Increased storminess, intense rainfall and tidal surges mean Taunton and Bridgwater (which sits on the eastern edge of the NCA), could see more flooding events which are predicted to be severe; exacerbated by more extreme flows in rivers.

- Increased storminess combined with increased summer drought may lead to the loss of mature and/or veteran trees such as hedgerow oak and black poplar and parkland trees. Trees may also be threatened by the increased prevalence of diseases including Sudden Oak Death. This may be particularly notable at the coast where increased salt spray will exacerbate conditions.

- The extent of semi-natural habitats, already fragmented, may deteriorate further due to pressures from changes in climate. This may include the spread of invasive and woody species due to more favourable climate, reduction in species diversity as a result of warmer winters and more frequent drought conditions. Trees such as black poplar may be particularly susceptible to drought conditions.

- A longer growing season with higher temperatures may encourage the expansion of arable and horticultural production with the further loss of traditional orchards and permanent pasture to crops currently grown in southern Europe – such as sunflowers, navy beans, soya and lupin as well as different crop timings and an increased prevalence in pest and diseases.

A black poplar on the edge of the village pond at East Quantoxhead. There are some fine examples of this nationally rare tree species in the NCA, generally on low lying wetter ground.

Other key drivers

- There are plans for further expansion of the principal towns of the area including Minehead, Taunton and Wellington and to a degree Watchet and Williton. Taunton and Wellington in particular have significant land areas identified for housing and employment development. Taunton is seen as a growth centre due to its strategic location on the M5 corridor between Bristol and Exeter. The Taunton Local Plan identifies the need for 13,000 more homes and an urban extension on its eastern edge. Plans for Wellington, also strategically located along the M5, also incorporate an urban extension with 2,500 new homes.

- Approved expansion of Hinkley Point nuclear power station to include a new reactor and associated infrastructure including temporary housing at Cannington, Williton, Combwich and Bridgwater, just outside of the NCA. Road enhancement will also be part of these works including works at M5 junctions and the A39 and overall mitigation measures including landscaping tree planting, agricultural land and species work.

- Potential capacity enhancements are identified along the M5 motorway corridor. Increasing amounts of and the scale of development in the vicinity of the M5 motorway are altering the character of the southern part of the area.

- The Marine and Coastal Access Act 2009 provided opportunities to protect the marine environment and ensure access to all parts of the coast; the scheme for continuous coastal access from Minehead to Brean Down just outside of the area were being prepared in 2012/13.

- The demand for increasing renewable energy generation could result in increased pressure for onshore wind farms, landfall and grid connection for off-shore wind and tidal energy schemes, growth of biomass crops and increased areas of solar farms. Miscanthus is already relatively widespread and increased demand for use as bedding for farm animals and in potential renewable energy schemes is a possibility.

- Increased pressure for food production as a result of a motivation for greater national food self-sufficiency may create opportunities to explore sustainable intensification and a move towards more arable production. This may increase pressure on already fragmented habitats and on water quality but schemes which look for opportunities for habitat creation and connection, for instance around Taunton, and to improve water quality and retention may also benefit.

- A rise in interest in local cider may result in opportunities for new orchard creation.

- An increasing trend in UK-based holidays may see more coastal development pressures for tourist related infrastructure such as caravan parks along the coastal fringe which could change the windswept and open character of the coastline.

- Flooding issues further downstream in the Somerset Levels and Moors NCA could see activity on hydrological processes in this catchment to help regulate flow, including woodland creation in the Upper Tone, and other remedial works to retain and slow water flow.

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.

Limestone grassland fringes the Somerset Jurassic Coast cliffs, particularly between Kilve and East Quantoxhead, providing a nectar-rich habitat for invertebrates.

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: Conserve and promote the geology and geodiversity of the Vale of Taunton and Quantock Fringes, including the Jurassic Coast, the suite of national and local geological sites and the distinctive relationship between geology, coastal geomorphology, soils, landform and land use, promoting opportunities for recreation in the area and interpretation of its unique features.	↘ *	↘ **	↔ **	↔ ***	↔ ***	↔ **	↔ *	↔ **	↗ **	↗ **	↗ **	↗ *	↑ ***	↗ ***	↗ **	↑ ***	↑ ***	↗ ***	↑ ***
SEO 2: Protect, manage and enhance the distinctive farmed landscape, while creating a balance of productive mixed farmland and diversity of habitats and associated species. Create and enhance connecting corridors of hedgerows, orchards, calcareous and flood plain grazing marsh, small woodlands, and hedgerow and riverside trees, and manage parkland and other habitats such as coastal habitats including intertidal salt marsh and mudflats for their contribution to sense of place, and their positive role in reducing soil erosion and enhancing water quality and in managing coastal erosion. Promote connecting corridor linkage with the Blackdown Hills, Exmoor and the Quantock Hills.	↑ ***	↑ ***	↗ **	↑ **	↗ ***	↗ *	↗ ***	↗ ***	↗ ***	↗ ***	↗ **	↗ *	↔ ***	↗ ***	↗ **	↗ *	↔ ***	↑ ***	↔ *
SEO 3: Protect and manage the area's historic environment including its rich heritage of hill forts, Roman remains, ridge and furrow, manor houses and vernacular architecture, parkland and distinctive field patterns, engaging both visitors and local communities in understanding how the interaction of human and natural factors has shaped the farmed landscape of today.	↗ *	↗ **	↔ ***	↔ ***	↘ **	↔ ***	↗ **	↗ *	↗ *	↗ *	↗ *	↔ *	↗ **	↑ ***	↑ ***	↗ ***	↑ ***	↗ ***	↑ ***
SEO 4: Safeguard and manage soil and water resources, notably the rivers Tone and Parrett, as part of the wider Somerset Levels and Moors priority catchment and at the coast, working with naturally functioning hydrological processes to maintain water quality and regulate supply; reduce flooding; and manage land to reduce soil erosion and water pollution and to retain and capture carbon.	↗ ***	↗ ***	↑ **	↔ ***	↘ *	↗ **	↗ ***	↗ **	↗ **	↗ **	↔ ***	↔ ***	↗ ***	↗ **	↗ ***	↗ ***	↔ *	↗ ***	↗ *

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

National Importance; Regional Importance; Local Importance

Landscape attributes

Landscape attribute	Justification for selection
Geological interest and landscape contrast between Triassic and Jurassic geology.	■ A landscape defined by its geology. The gentle low vale underlain mainly by Mercia Mudstone (Triassic) and Lower Lias Clay (Jurassic), and the more steeply undulating high vale which is underlain by Triassic Sandstones and Mercia Mudstone. ■ At the coast the land ends in low cliffs mainly of Blue Lias which are locally folded and faulted. Layers of shale and limestone laid down in the Jurassic are fossil rich and known as Somerset's Jurassic Coast. Differing patterns of erosion leave distinctive pavements of limestone across beaches. Dynamic cliff systems retain key features of this stretch of coast. This stretch is designated as an SSSI for its outstanding interest. ■ 35 Local Geological Sites. ■ Local vernacular architectural style reflecting local materials including sandstone and Grey Lias that bring a sense of harmony to the landscape.
Tree-lined streams and rivers wind through the area.	■ The River Tone and its tributaries drain the area to the south, while in the north Doniford Stream fed by tributaries arising from the Quantocks and Brendon Hills, drains into the sea at Watchet. To the east many streams drain off the Quantock dip slopes and flow into the River Parrett. The Bridgwater and Taunton Canal runs across the south of the area. ■ River Tone waters drain into Somerset Levels and Moors SAC and Curry and Hay Moors SSSI. ■ Rivers in the area support a range of species such as otter and hunting bats and the black poplar is often found along their banks.
Mixed farming pattern with a distinctive field pattern.	■ Long history of mixed farming in this area, and it is likely that early settlers were attracted by its fertile soils. ■ Soils in the area are fertile and versatile. The red soils provide a unifying element in the landscape. The Triassic mudstone and sandstones that occur in a band around the edge of the low vale and produce light, freely draining soils. Calcareous clay and stagnogley soils are more common over the mudstones and clays. ■ Unusually this area retains a strong sense of a mixed farming economy. Farms tend to be over 100 ha in size. ■ Lowland farmland qualities are in sharp contrast to the surrounding upland landscapes. ■ The main farming type is based on livestock management and in particular sheep and cattle. Arable and root crops are also a key part of the mix and as livestock numbers decrease slightly, there is a corresponding increase in this type of farming. The growing of miscanthus is evident, although this is to supply bedding for animals rather than as an energy crop. ■ An irregular pattern of medium sized fields representing different stages of open field systems and enclosure. Fields usually bounded by thick hedgerows, commonly growing on low hedgebanks, and usually dominated by hazel with a mix of other woody species such as dogwood, holly and blackthorn. These old mixed hedgerows give way to hawthorn of the more recent enclosures around Taunton. ■ Old cider orchards were a characteristic feature and although their numbers have declined they still remain scattered throughout. Unlike the tall and widely spaced trees that characterised traditional orchards many of those that remain consist of closely planted bush varieties.

Landscape attribute	Justification for selection
A diverse network of habitats and associated species particularly evident at the coast.	■ A fragmented but diverse biodiversity resource, with calcareous and neutral grassland, species-rich pasture, lowland hay meadows, parkland, small woodlands, network of dense hedgerows, coastal and flood plain grazing marsh and mudflats at the coast. ■ Mudflats are extensive and the eastern fringe falls within the Severn Estuary SAC, important for spectacular number of overwintering waders and wildfowl such as wigeon, curlew and teal. Exmoor Heaths SAC; Exmoor and Quantock Oakwoods SAC; Holme Moor and Clean Moor SAC extend into the NCA at the peripheries. Hestercombe House SAC is designated for lesser horseshoe bats which are likely to use the dense network of hedgerows and woodlands of the Quantock Hills for foraging grounds. ■ Along the coastal fringe grassland habitats, and in particular calcareous grasslands, tend to be contiguous providing a good network for butterflies, such as the small blue and Duke of Burgundy. The summer song of skylarks, climbing far into the sky and the cacophony of bumble bees, crickets and grasshoppers are most evocative sounds to be heard in the NCA, along coastal grasslands. ■ A developing network of green infrastructure in Taunton particularly focused on the River Tone important for otters and hunting bats. ■ Traditional cider apple orchards with well-spaced tall trees with permanent grassland underneath were once a key feature in the landscape. They now remain scattered and are being replaced by modern bush orchards which do not support such a diversity of species. ■ The lush pastoral character of this area with its scattered habitats provides an ecological network between the uplands of Exmoor and the Quantock Hills. ■ A dense network of rivers lined with trees includes pollarded willows, alders and the nationally scarce black poplar. Hedgerows tend to a mix of species which provide a useful nectar source for bees and butterflies.
Evidence of long-standing human occupation throughout NCA.	■ Visible signs of human habitation, agriculture and industry from evidence of Bronze and Iron Age hill forts, roman settlements, medieval field pattern, post medieval enclosure, and most notably numerous 16th-/17th-/18th-century manors and parkland along the Quantock fringes. ■ Long history of mixed farming in this area, and it is likely that early settlers were attracted by its fertile soils. Large numbers of manor houses at the fringes of the Quantocks dating from the 16th century onwards testify to the agricultural wealth of this area. ■ The pattern of settlement throughout most of NCA is significantly unaffected by 20th-century development and expansion, except around Minehead, Bridgwater, Taunton and Wellington and the M5 corridor. There are 2,100 Listed Buildings highlighting the notable local vernacular. ■ The area contains 19 Registered Park and Gardens covering 813 ha, and 44 Scheduled Monuments. ■ Transport infrastructure from past centuries can be seen in the area. The Grand Western Canal to Taunton was constructed in 1839 and closed in 1867. The Bridgwater and Taunton Canal opened in 1827 and is still in use today. From 1962 the canal was used for the transport of potable water for Bridgwater. Two railways crossed the area and terminated at Watchet from the mid 1860s. The West Somerset Mineral Railway and the West Somerset Railway ran from Bristol and Exeter, opening in Taunton in 1842. This was extended in 1874 to reach Minehead and remained active until 1971. It has since re-opened as a heritage railway. The M5 began construction in the late 1960s.

Landscape attribute	Justification for selection
Distinctive settlement pattern united by vernacular style.	■ It is a densely settled agricultural area, with a largely dispersed settlement pattern of hamlets and scattered farmsteads. The exception is the major settlements of Wellington, Taunton, Minehead, Williton and Bridgwater. Taunton and Wellington in particular are expanding due in part to the influence of the M5 which runs across the south of the area. ■ Smaller manor houses and country houses are distinctive features. ■ A strong vernacular architectural style is characterised by the use of sandstone, to the west and grey Lias to the east. Some farmsteads and cottages are stone built but rendered and painted. The great country houses within the Vale are wholly different from the vernacular buildings and churches and many are built of imported stone. Taunton and Wellington are the exception. Extensive urban development contrasts strongly with the local vernacular with a different style, setting and pattern. However they do retain elements of original settlement patterns and build materials. Hinkley Point power station to the eastern edge of the area is a distinctive development in the landscape, prominent in views rising from the coast as a modern statement in an otherwise rural landscape.
Uncluttered views from coast, more intimate views from low vale with a backdrop of upland landscapes.	■ Sunken lanes connect dispersed hamlets and farmsteads and are bordered by thick hedgerows which afford glimpses of the landscape through field gates and from higher ground. This gives the landscape an intimate, timeless feel. ■ Relatively open uncluttered coastline with fine views across Bridgwater Bay to Wales and inland to Exmoor and the Quantock Hills. Hinkley Point nuclear power station at the far eastern edge of the NCA prominent in views along coast and from the Quantock Hills adds a different dimension. ■ Woodland cover is low in this area, but retains a wooded feel due to the large numbers of hedgerow and river side trees. ■ Bounded by Exmoor National Park, Quantock Hills AONB and Blackdown Hills AONB, views across this landscape from these uplands are sweeping and emphasise this areas lush pastoral character. ■ A small proportion of the NCA is within Exmoor National Park (1 per cent of the NCA). Small areas of the Quantock Hills Area of Outstanding Natural Beauty (AONB), (5 per cent of the NCA) and the Blackdown Hills AONB (<1 per cent of NCA) also occur within the NCA. Exmoor Heritage Coast accounts for <1 per cent of the NCA.
A good footpath network and other recreational features.	■ There are 893 km of public rights of way at a density of 1.8 km per km2. There is one National Trail (South West Coastal Path) within the NCA covering 2 km. There are also numerous local trails such as the Coleridge Way, National Cycle network and two reservoirs offering recreational activities. ■ Delivery of the England Coast Path will improve coastal access in this NCA. A relatively undeveloped coastline attracts many visitors for quieter pursuits. ■ Somerset's Jurassic Coast is a draw for many visitors and researchers seeking to experience the spectacular geology of this coastline. ■ Bridgwater and Taunton Canal and the West Somerset Railway utilise old transport routes for alternative enjoyment of the countryside.

Landscape opportunities

- Continue to encourage and appropriately manage the area's diverse geology and in particular the dynamic cliff system at the coast, promoting its importance to landscape and biodiversity and as an educational resource and the access opportunities associated with the coastal strip.
- Protect the varied densely settled pastoral landscape of fringe hills, undulating vale, flood plain and low coastline.
- Ensure the matrix of habitats is retained and where possible extended including the mudflats, limestone and other species-rich grasslands, parklands and orchards and woodlands. Ensure that species such as wigeon and teal, calcicole species and invertebrates are positively managed for in the landscape.
- Continue or introduce active interventions on habitats that depend upon 'traditional' management, principally grasslands and woodland. Plan for the extension and linking of existing habitats in order to increase climate change resilience and strengthen landscape permeability, bringing benefits to soil erosion, water quality, flood regulation and recreation.
- Protect and maintain hedgebanks, hedgerows and hedgerow trees, occasional small woodlands and pollarded riverside willows, alders and black poplars within an intensively farmed landscape; protect the distinctive field pattern and network of public rights of way which not only delineate patterns of occupation and provide excellent access but also provide an essential network of ecological connections across the wider countryside.

Hedgebanks, hedgerows and hedgerow trees, small woodlands and pollarded trees, help delineate distinctive field patterns and provide an ecological network within the farmed landscape. They are key features that need protection and maintenance to ensure continuity in the landscape.

- Conserve the undeveloped coastal strip, including rich biodiversity assets, significant geological and geomorphological elements, particularly along the stretch between Blue Anchor and Lilstock, and unimpeded coastal processes,

- Plan for changes in farming types, cropping patterns and crops in the face of climate change and the need to enhance biodiversity, retain landscape character and ensure water flow and drainage patterns that continue to provide good quality water to Somerset Levels and Moors SAC outside of this area.

- Protect and manage permanent grassland, including calcareous grasslands, species-rich pastures, lowland hay meadows and costal and flood plain grazing marsh in mosaic with the area's cultivated farmed habitats.

- Plan for the creation and expansion of woodland particularly to the south around Taunton, along the M5 corridor and in relation to proposals for Hinkley Point nuclear power station to enhance visual containment of new development and filter views, while enhancing biodiversity networks and aiding flood control.

- Protect from damage and appropriately manage the area's rich cultural heritage, both buried and exposed, most notably prehistoric remains, Roman farm, medieval features and manors and parkland, for the benefit of sense of place and cultural heritage, and for biodiversity, geodiversity, and recreation. Enhance the visibility and interpretation of, and access to historic features to raise awareness and to provide opportunities for education and sustainable tourism.

- Manage and reinforce settlement patterns, to ensure that sense of place is maintained and any growth is sustainable and maintains or, preferably, enhances the character of this NCA. Plan for the creation of new landscapes associated with expansion around the urban fringes of Taunton and Wellington, respecting the local vernacular and incorporating the distinctive character of existing hedgerow networks, small woodlands into green infrastructure.

- Manage and reinforce the local vernacular architecture ensuring that new building follows local styles, conversions are completed sympathetically and sense of place is strengthened and retained.

- Continue to protect and enhance views and the contrasts between uncluttered coastline, intimate views in the vales and views to and from the surrounding uplands.

Ecosystem service analysis

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Fertile soils Mixed agriculture with meat production, dairy and arable Orchards	The soils are fertile and versatile. 23 per cent and 60 per cent of soils are classified as Grade 2 or 3 soils respectively. 52 per cent of the area is pasture or uncropped land. This supports dairying, sheep and cattle grazing, the largest agricultural interest in the area. This is followed by cereals which cover 25 per cent of the area. Miscanthus growing is increasing in the area, mainly used for animal bedding. Cider apple orchards are a notable feature, especially in the southern half of the area.	Regional	The mild climate, good growing conditions and fertile soils mean this is an area long associated with food production evidenced by the numbers of manors dating from the 16th century built on the back of the wealth generated by farming. Traditionally the area has been one of mixed farming, the lowlands associated with cereals and the Quantock and Exmoor fringes associated with animal grazing. Between 2000 and 2009 there has been a reduction in permanent grasslands, sheep and dairy cattle, loss of orchards, and increase in vegetable growing and miscanthus. Although there has been an overall reduction in livestock, particularly in sheep, there has been a shift from dairy to lowland cattle and meat production. The area remains highly productive and trends suggest a shift in farming patterns in response to economic drivers, and potential intensification in some areas, for example more intensive grazing of rough pastures. Maintaining landscape setting and ensuring appropriate and beneficial soil and nutrient management, avoiding sedimentation and minimising diffuse pollution, will be essential both for the maintenance of food production levels and other services, notably soil quality, water quality, biodiversity and buried archaeology. Orchards, primarily for cider production, used to be a feature of this area, most notably in the south. There has been a trend of orchard removal. In 2000, 388 ha of orchard remained and in 2009, 326 ha. Some replanting is occurring but this tends to be bush orchards which have a different character.	Work with farmers and land managers to maintain a balance between profitability and the long-term viability of food production levels, miscanthus growing and the protection and enhancement of the natural and historic environment and sense of place. Support and advise livestock farmers on integrating extensive beef and lamb production with management of the semi-natural grasslands within the NCA. Work with the farming community to ensure good soil and nutrient management, thereby securing a sustainable future for farming, protecting environmental features within the area, and supporting the supply of other ecosystem services. Encourage management of traditional orchards and sympathetic management of new orchards to maximise their benefits for biodiversity and their contribution to sense of place and culture. Develop links between local food producers and local tourism, hotels, pubs and schools. Highlight links between food production and the valued landscape.	**Food provision** **Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Sense of place / inspiration** **Sense of history** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Scattered patches of broadleaved woodland In field, hedgerow and riverside trees	There are approximately 2,799 ha of woodland in the area which equates to 6 per cent coverage of the total area. Approximately 626 ha is ancient woodland. Broadleaved woodland accounts for 1,383 ha and 502 ha are conifer. Tree species include black poplar and willow, and in field trees such as oak are also present.	Local	Timber production is of limited interest in this NCA. Tree cover is generally afforded by hedgerow and riverside trees. Small woodlands are found on slightly higher ground, and at the fringes of the NCA woodland particularly to the south. Woodlands were managed for timber for farm use and pheasant shooting. High agricultural productivity, low woodland cover and a predominance of black poplar, willows and alder with some oak and ash mean timber quality is likely to be negligible, except for small local usage. Small amounts of timber could possibly be obtained for bespoke items and local use from infield, hedgerow and riverside trees, although this is likely to be of a small scale. There is some scope for planting to improve timber levels and woodland coverage, but this should be within landscape character and species should reflect current local patterns. Forestry Commission calculations indicate there is potential to for a further 1,500 ha of woodland approximately.	There is little opportunity for timber provision from this area. Seek opportunities for small-scale expansion of local woodland in appropriate locations, to support increased biodiversity, reinforce landscape character around the fringes of the area, reduce rates of water flow and sedimentation from adjacent hills and potentially provide a local source of timber.	**Timber provision** **Sense of place / inspiration** **Regulating water flow** **Regulating soil erosion** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	Main rivers flowing through area transporting water from surrounding uplands Bridgwater and Taunton Canal Hawkridge and Durleigh Reservoirs	The main rivers in the area are the Tone, Doniford Stream and its tributaries arising in the Quantocks and Brendon Hills; and many streams that drain off the Quantock dip-slopes and flow across the area into the River Parrett (just outside of the NCA in the Somerset Levels and Moors). In the north of the NCA there are several small coastal rivers such as the Pill River, the Kilve Stream and the River Aller. The underlying geology of mudstone and sandstone is important locally for private and small-scale groundwater supplies and for producing springs to feed streams. To the south-west, the Quantock Hills and Upper Tone Valley are underlain by older rocks that are also strongly folded and faulted slates and shales and are classed as Minor Aquifer Units. The NCA includes two major reservoirs at Hawkridge close to the eastern edge of the Quantocks supplying Bridgwater and Durleigh close to Bridgwater (now primarily managed for recreation and wildlife and water supply to Bridgwater). The main abstractions in this NCA are for amenity use, fish farms, production of energy, industry and public water supply.	Regional	The southern part of the NCA is classed as 'over licensed' for groundwater and surface water therefore has no further water available for abstraction; the north west mainly has 'water available' in relation to surface water while in the north east there is a small area of surface water that is 'over abstracted'. Other than the main settlements in the south of this NCA, Taunton and Wellington, this is a rural area with few urban areas and minimal demand on water resources. The proposed expansion of Taunton, Wellington and Bridgwater on the outskirts of the NCA may see an additional increase in demand for public water supply. Changes in farming patterns and an increase in miscanthus may place an additional demand on water availability and consideration needs to be given to siting of miscanthus and water conservation methods. Bridgwater and Taunton Canal, which supplies drinking water to Bridgwater, and reservoirs at Hawkridge and the numerous natural springs and flood plain and coastal grazing marsh associated with some of the rivers, are important wet habitats supporting a range of species, including the black poplar which prefers damp conditions. Increasing drought conditions may be of concern in the future which may affect water availability, especially rivers in the south which flow into the Somerset Levels and Moors and care will be needed to ensure water remains available to support this adjoining NCA.	Seek opportunities to further increase areas of semi-natural habitats, especially flood plain grazing marsh to improve water infiltration and targeted water storage. Promote water conservation initiatives to farmers and in new developments to ensure these have a limited impact on water availability. Ensure careful siting of miscanthus to prevent undue impact on water availability. Identify and support initiatives that further knowledge and understanding of the environmental and economic impacts of drought and the relationship to other ecosystem services.	**Water availability** **Food provision** **Regulating water flow** **Regulating water quality** **Regulating soil quality** **Sense of place / inspiration** **Sense of history** **Biodiversity** **Climate regulation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Genetic diversity	Local varieties of apple many associated specifically with the area Cider orchards	Many villages and farmsteads retain small traditional orchards preserving a number of locally important apple varieties, particularly local cider varieties. New bush orchards have also been planted.	Regional	Although often severely decayed and containing only senescent trees, numerous farm orchards are found throughout the area. Cider varieties are of particular note and have a longstanding association with the area and varieties such as Dunnings Russet, Even Pearmain and Fairmaid of Taunton are recorded from this locality. Traditionally, agricultural workers in the area received part of their wages in cider. It is important to maintain the genetic diversity of orchard fruit varieties in order to safeguard future food and drink provision, retain local distinctiveness and culture and afford increased resilience to climate change and disease. New orchards have been planted in response to upsurge of interest in local cider. Many of these, however, are bush orchards which have a different character and often utilise more commonly found apple varieties. It is important now to plant older variety apples in more traditional orchards as part of local heritage and protection of the genetic resource.	Encourage regeneration of existing orchards and new planting with local varieties. Raise awareness of local apple varieties and link owners of orchards with local fruit and cider producers and suppliers.	**Genetic diversity** **Biodiversity** **Sense of place/ inspiration** **Sense of history** **Food production**
Biomass energy	Fertile soils Woodland Dense hedgerow network Field and hedgerow trees Miscanthus Orchards	Good growing conditions and fertile versatile soils mean that short rotation coppice and miscanthus could be grown in this area. Miscanthus is already established in some parts of the NCA; however, this tends to be utilised for animal bedding. The existing woodland cover and the large number of hedgerow trees and dense hedgerow network offers potential for small-scale biomass production.	Local	Defra yield maps indicate that the majority of the NCA has the potential for a medium yield of short rotation coppice and a high yield of miscanthus. The lack of nearby facility to utilise this material means however that this is currently a limited opportunity. Short rotation coppice may be accommodated within low lying enclosed landscapes where possible linked with willow clumps and within existing field patterns. Miscanthus is more suited to mixed farmland within the existing pattern of arable cropping and an enclosed landscape. Biodiversity, agricultural productivity and archaeological interests alongside soil and water quality may limit opportunity. The existing woodland cover (6 per cent of the NCA) offers limited potential for the production of biomass by bringing existing woodlands under management or as a by-product of commercial timber production. Small-scale woodland management for timber for use and pheasant shooting may yield some supply. Similarly hedgerow and orchard management may also bring small-scale biomass production potential.	Work with the farming community to identify suitable locations for the increase in net yield of miscanthus and short rotation coppice, avoiding locations that would be contrary to local landscape character, likely to impact on archaeological deposits or be in conflict with nature conservation opportunities. Explore initiatives that make use of arisings from the management of woodland, orchards and hedgerows, as sources of biomass and biofuel.	**Biomass energy** **Climate regulation** **Water availability** **Regulating water flow** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Mudflats along coastal fringe Woodland Areas of coastal flood plain grazing marsh Soils under pasture	Carbon storage in the soils is low, ranging from 0–5 per cent with occasional areas reaching 10 per cent in the south. There may also be pockets of higher carbon content in soils underlying remaining areas of coastal and flood plain grazing marsh and in the soils of woodlands and pasture.	Local	This NCA has a relatively low carbon storage potential as soils tend to be loamy clayey which do not have high carbon storage capacity. However, those underlying woodland, coastal and flood plain grazing marsh, mudflats and permanent pasture may have increased capacity and an ongoing sequestration role. This can be enhanced by increasing organic matter content, where appropriate and if conditions allow. Some of the regularly tilled soils are principally mineral soils and have little or no organic material within them. Hedgerows and hedgerow trees will be good at capturing and storing carbon.	Carbon sequestration can be increased in soils by increasing organic matter inputs and/or by reducing the frequency or area of cultivation. Explore potential for local woodfuel production, as a carbon neutral fuel and has a low carbon footprint in terms of harvest and transportation to end user. Consider potential to produce material through management of existing hedgerows, woodland and trees and through the appropriate planting of new hedgerows and woodland and trees. Retain permanent pasture and consider restoration of permanent pasture and introduce or maintain sustainable grazing levels to reduce soil poaching and disturbance which will help carbon storage capacity of soils.	**Climate regulation** **Food provision** **Water availability** **Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Regulating water flow** **Sense of place / inspiration** **Sense of history** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Rivers Bridgwater and Taunton Canal Hawkridge and Durleigh Reservoirs Flood plain and coastal grazing marsh Riparian habitats Land management within the catchment	The south-eastern part of this NCA around Taunton falls within the Somerset Levels and Moors Priority Catchment. The Upper Tone and tributaries of the Upper Parrett catchments have been identified as having problems of soil erosion and run-off leading to increased nutrient loss and consequent nutrient enrichment of water courses. Where information is available ground water quality is good overall, apart from a small area to the south-west. The rivers are mixed in terms of their ecological quality with the Tone being moderate, and its tributaries – Backstream, Halse Water, Hillfarrance – being good, and the Parrett tributaries being moderate to poor. Other smaller rivers in the north of the NCA include the River Aller, which has good quality and the Pill River, Donniford Stream and Kilve Stream which are all of poor quality. The groundwater quality is good throughout. The Bridgwater and Taunton Canal has been assessed as having 'good' ecological potential. 73 per cent of the area is a nitrate vulnerable zone.	National	Substantial problems with water quality have been identified in this catchment from soil erosion and run-off leading to increased nutrient loading and subsequent enrichment of water courses. Evidence suggests that there are a number of potential sources including, intensive dairy, outdoor pig, poultry and maize production as well as diffuse agricultural pollution. The area around Taunton and the Rivers Tone and Parrett are of particular concern as they then flow into the Somerset Levels and Moors, an internationally important wetland for birds and ditch flora and fauna. Other threats to water quality include; sedimentation as a result of erosion and damage to the soils both in and outside of the area; diffuse water pollution from agriculture, particularly run-off of manure, fertiliser, poor stock management infrastructure and chemicals; soil erosion due to overgrazing and excessive stock access to watercourses resulting in severe bank side erosion. Measures to reduce soil erosion, sedimentation and nutrient loading from crop and livestock management are essential. Ensuring continued efforts to maintain beach water quality through investment by water companies in sewage treatment plants and infrastructure and land management-based initiatives such as those which seek to reduce soil erosion, slow down and store water during high rainfall, increase water quality and enhance biodiversity remain key to maintaining good water quality entering the Severn Estuary SPA and SAC.	Work with farmers and landowners to establish and maintain best practice in water quality management including; sustainable grazing regimes and stocking rates; applications of organic matter and fertilizer; maintenance of farm infrastructure; and cultivation and cropping activity. Work with farmers and landowners to identify crops and cropping regimes which require lower applications of fertiliser and pesticide, to help protect watercourses from chemical run-off. Promote the use of buffer strips to watercourses, and the creation of riparian semi-natural habitat, supported through agri-environment schemes; manage livestock near water to prevent access to and erosion of bank sides. Promote improvements in farm infrastructure and waste management. Encourage positive management of vegetation along rivers, stream and canal that maintains water flow while helping to trap sediments and nutrients; manage and continue to introduce pastures, wet woodland and other wetland habitats in the flood plain, that help to filter water. Seek opportunities to maintain beach water quality through investment by water companies in sewage treatment plants and infrastructure and land management-based initiatives such as those which seek to reduce soil erosion, slow down and store water during high rainfall, increase water quality and enhance biodiversity.	**Regulating water quality** **Regulating soil quality** **Regulating soil erosion** **Regulating water flow** **Climate regulation** **Biodiversity** **Sense of place / inspiration** **Sense of history**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Rivers, streams and ditches Flood plain and coastal grazing marsh Bridgwater and Taunton Canal Hawkridge and Durleigh Reservoirs Pasture and grassland habitats Geology	There is little risk of flooding across most of the area. However Taunton and Bridgwater on the fringes of this NCA are susceptible, affected by flooding events associated with the River Tone and the River Parrett respectively. The main Parrett does not flow through the NCA itself, but its north-west tributaries do. Flooding here has been limited to local surface water problems. Coastal rivers in the north of this NCA transport a significant amount of shingle which, when deposited upstream of culverts, can reduce their capacity and increase the likelihood of flooding. Shingle traps are currently emptied on a regular basis. Tidal flooding can be an issue at Minehead.	Regional	Recent flooding in the Tone and its tributaries has been strongly driven by local surface water problems, exacerbated by some farming practices which have increased field run-off locally. A flood protection scheme is in place for Taunton (Project Taunton). This scheme protects Firepool and other proposed development areas although any future development in both settlements will require flood risk management proposals. Streams in the west are typically steep and fast-flowing, draining from the highlands of Exmoor and the Brendon and Quantock Hills and flowing northwards to the sea. Geology has a significant influence on the response to rainfall. The geology of West Somerset has low permeability; this contributes to the high level of overland flow and the rapid response of the rivers to rainfall. These watercourses carry material with them that can then cause local problems with capacity. Measures are in place to regularly empty shingle traps. Measures to reduce the amount of material entering these rivers should be put in place, alongside maintaining river channels to reduce blockage.	Ensure any new development in and around Bridgwater and Taunton includes flood risk management proposals. Implement measures outlined in the Shoreline Management Plan and the Catchment Flood Management Plan. Seek opportunities to expand areas of wetland habitats (such as grazing marsh) and riverside habitats to help reduce sedimentation and flow into watercourses. Work with farmers and landowners to establish and maintain best practice in soils management including; grazing regimes and stocking rates; applications of organic matter and fertilizer; and cultivation and cropping activity to help reduce sediment flow into watercourses. Maintain river channels, especially debris clearance to reduce risk of blockage.	**Regulating water flow** **Regulating water availability** **Regulating water quality** **Regulating soil erosion** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Soil types Semi-natural habitats and permanent pasture Mixed farming	The complex geology of the area is reflected in the different soils types found throughout. The Triassic mudstones and sandstones around the edge of the low vale produce light, freely draining soils. Calcareous clay and stagnogley soils are more common over the mudstones and clays and soils are generally slightly acid loams and clays with impeded drainage. There are five main soilscape types in this NCA: ■ Slightly acid loamy and clayey soils with impeded drainage, covering 46 per cent of the NCA. ■ Freely draining slightly acid loamy soils (35 per cent). ■ Lime-rich loamy and clayey soils with impeded drainage (7 per cent). ■ Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (5 per cent). ■ Loamy and clayey flood plain soils with naturally high groundwater (4 per cent).	Regional	Those soil types covering more than 10 per cent of the NCA are described below. The slightly acid loamy and clayey soils with impeded drainage (46 per cent) are easily poached by livestock and compacted by machinery when the soil is wet. Weak topsoil structures can easily be damaged, and careful timing of activities is required to reduce the likelihood of soil compaction. The freely draining slightly acid loamy soils (35 per cent) have potential for increased organic matter levels through management interventions. They may be valuable for aquifer recharge, requiring the maintenance of good structural conditions to aid water infiltration and requiring the matching of nutrients to needs to prevent pollution of the underlying aquifer. The versatile soils of the area have long supported food production; the numerous manor houses and farmsteads throughout testify to the wealth generated by agriculture. The main types of loamy clayey soils are typically versatile and support a range of uses including arable cropping and horticulture. There is a risk with climate change that drought conditions may increase which may mean a reduced capacity to support grass systems.	Work with farmers and landowners to establish and maintain best practice in soils management including; grazing regimes and stocking rates; applications of organic matter and fertilizer; and cultivation and cropping activity. Encourage restoration of and an expansion in the area of permanent pasture. Seek and realise opportunities to improve farm infrastructure, particularly the location of feeders and drinkers, and the use of droves and farm tracks, to minimise localised compaction and, or poaching. Minimise machinery/ vehicle movements on vulnerable wet soils. Improve levels of organic matter in soils where appropriate through the use of green manure crops such as legumes to help fix nitrogen and improve soil structure.	**Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Regulating coastal erosion** **Food provision** **Water availability** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Soil types Semi-natural habitats and permanent pasture Mixed farming	Vulnerable loamy clay soils make this area susceptible to soil erosion; however the main effects of this are felt in the neighbouring Somerset Levels and Moors NCA. The Upper Tone and tributaries of the Upper Parrett that run through this NCA form part of the Somerset Levels and Moors priority catchment.[5] The Triassic mudstones and sandstones around the edge of the low vale produce light, freely draining soils. Calcareous clay and stagnogley soils are more common over the mudstones and clays.	National	The vast majority of soils covering the NCA (88 per cent) are at risk of erosion. Many of the slightly acid loamy and clayey soils with impeded drainage (46 per cent) are prone to capping/slaking, leading to increased risk of erosion. These and the lime-rich loamy and clayey soils with impeded drainage (7 per cent) are easily compacted by machinery or livestock if accessed when wet, increasing the risks of soil erosion by surface water run-off, especially on steeper slopes. Soils need to be managed carefully to reduce risks with careful timing of cultivations and maintenance of vegetation cover. The freely draining slightly acid loamy soils (35 per cent) have enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, often exacerbated where organic matter levels are low after continuous arable cultivation or where soils are compacted. There is also potential for wind erosion on coarse textured variants. The slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (5 per cent) and the loamy and clayey flood plain soils with naturally high groundwater (4 per cent) have a low erosion risk. The Upper Tone and tributaries of the Upper Parrett that run through this NCA form part of the Somerset Levels and Moors Priority Catchment and have problems of soil erosion associated with vulnerable soils on steep slopes in areas of high rainfall. This is exacerbated by compacted soils associated with intensive dairy production, bare soils associated with outdoor pig farming, and areas of open grown crops (maize, potatoes and miscanthus) which are highly susceptible to soil erosion. In turn, this eroded soil erosion is leading to the eutrophication of the wetlands of the Somerset Levels and Moors SPA, with the River Tone feeding Curry and Hay Moors SSSI which are in unfavourable condition.	Work with farmers and land managers to apply the principles of good soil management as advocated by initiatives such as Catchment Sensitive Farming. Where opportunities arise and in particular alongside rivers, reinstate permanent pasture and introduce grassland margins to arable fields to help reduce soil erosion. Encourage the use of green manure crops, such as nitrogen-fixing legumes, within arable systems to replace nutrients and bind soil, winter stubble options in agri-environment agreements, and limiting livestock access to watercourses in locations particularly prone to erosion, for example along the River Tone and its tributaries.	**Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Biodiversity**

[5] Defra priority catchments identified under the England Catchment Sensitive Farming Delivery Initiative (http://archive.defra.gov.uk/foodfarm/landmanage/water/csf/documents/state-aid-ecsfdi2008.pdf)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Pastoral landscape with semi-natural grassland Dense hedgerow network Orchards Vegetable growing	The NCA has small areas of semi-natural grassland that can provide some sources of nectar for pollinating insects but the main sources are likely to be the dense pattern of hedgerows with their flower-rich hedgebanks and the large number of remnant traditional orchards.	Local	This NCA provides a significant and well distributed source of nectar for pollinating insects. However, much of the remaining semi-natural grassland, while floristically quite diverse and still displaying many flowering plants, remains vulnerable to improvement, removal and under grazing with a subsequent risk of losing floristic diversity. These meadows in conjunction with the soft cliffs at the coast are likely to provide habitat for solitary mining bees and other invertebrates. The current extent of pollinator friendly habitats in the NCA is relatively high and in particular the dense network of flower-rich hedgerows and scattered orchards provide the largest, if seasonal source of nectar. Intensive management of these features would reduce their benefit to pollinators. Management regimes to achieve a favourable habitat condition would, in turn, promote greater densities of pollinating species. In particular sympathetic hedgerow management would maximise the benefits of this network.	Bring areas of semi-natural grassland into suitable grazing management, including areas of under grazed coastal grassland. Sympathetically manage hedgerows and orchards to encourage floristic diversity and to enhance the habitat network for pollinators. Seek opportunities to enhance the habitat network for pollinators and increase nectar provision in the farmed landscape by restoring and creating lowland meadows; planting field margins using floristically diverse species mixes where appropriate; enhancing road verge floristic diversity through management and planting; and taking advantage of new development to create habitat for pollinators. Ensure management of soft rock exposures does not destroy mining bee and other invertebrate habitat opportunities.	**Pollination** **Food production** **Biodiversity** **Sense of place/ inspiration** **Pest regulation**
Pest regulation	Well-distributed semi-natural habitats providing habitat for pest predators Woodland Mixed farming	Pest regulation is currently supported by the existing spread of semi-natural habitat across the NCA. They provide habitat for natural predators which assist in controlling pest species, although there is little information on the exact contribution they make in this NCA.	Local	The various habitats across the areas will support some level of natural predators of possible benefit to the areas orchards, vegetable growing and other cropping. Natural predators such as lesser horseshoe bats also rely on adequate sources of prey species to maintain viable populations. Measures to reconnect habitat linkages and improve habitat condition and extent will benefit this service.	Seek opportunities to enhance existing and create new semi-natural habitats to benefit natural predators. Attempt to realise the full potential of the NCA's farmed landscape for the suite of species that should be flourishing there through measures such as beetle banks.	**Pest regulation** **Biodiversity** **Sense of place/ inspiration** **Food production** **Pollination**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating coastal erosion and flooding	Natural and dynamic cliff systems Intertidal sand and mudflats Limestone shelves Beaches Maritime cliff and slope	The coastline runs from Hinkley Point in the east to Minehead in the west, with the majority designated as SSSI, made up of the Blue Anchor to Lilstock geological SSSI and, to the east, the Bridgwater SSSI. The Blue Anchor to Lilstock SSSI provides an example of a series of cliff sections through the uppermost Triassic rocks of the Penarth Group down to the lowermost part of the Jurassic (205–142 million years ago) Lias Group. By contrast, the Bridgwater SSSI comprises a low-lying coastline with a succession of habitats with extensive intertidal mudflats, salt marsh, shingle beach and grazing marsh intersected by a complex network of freshwater and brackish ditches and supporting internationally and nationally important numbers of over-wintering and passage migrant waders and waterfowl. Most of the coastline is undefended,[6] although several sections have groynes and seawalls. The beach at Minehead was recharged in 1998: it is more or less stable with a slight tendency to erosion. The policy for this stretch of coast as set out in the Shoreline Management Plan 2 is to 'hold the line' until it is no longer economically and technically sustainable, and then to move to managed realignment. There are areas of coastal and flood plain grazing marsh, maritime cliff and slope, intertidal sand and mudflats, fen, marsh habitats, vegetated shingle, coastal salt marsh which support this service. Daw's Castle at Watchet, which is a scheduled monument, is at high risk from coastal erosion. Other coastal or tidal archaeology to be noted includes the number of fish traps along the coast.	Regional	The coastline is of mixed geology with both cliffed and low-lying areas. It is a dynamic coastline; the low lying cliffs are alternating layers of soft and harder geology with different erosion rates. Platforms of limestone can be found on beaches, especially in the Kilve area as a result. Because this section of coastline has nationally important geological features, including its dynamic geomorphology, improvements to coastal defences may pose a threat to these features. In the area of Bridgwater SSSI the coastline fronts a low lying area susceptible to flooding, which will be exacerbated by sea level rise and with this, there is likely to be a narrowing of the inter-tidal zone, increasing the amount of energy reaching sea defences. Stolford, on the edge of the NCA, is threatened by flooding of homes, businesses and roads if the coast realigns and there are power lines running from Hinkley Point across this flood plain also in danger. Some areas of the coast are protected such as Hinkley Point power stations (protected by a sea wall and rock armour) but again the area is susceptible to sea level rise. The area of Bridgwater SSSI is also designated as an SAC, SPA and Ramsar site requiring considerable care when considering alternative flood alleviation measures. Extensive areas of mudflat and beaches do however also provide some level of protection where these are found. Much of the coast is a popular tourist destination, the beaches widely used for leisure and recreation and inland areas occupied by caravan and holiday facilities. This increases the pressure on maintaining coastal defences and beaches. The Marine and Coastal Access Act 2009 make recommendations for extending the England Coast Path between Brean Down and Minehead. Proposals put forward in 2013 make provision for rollback of land to retain this access.	Intervene as little as possible in the natural coastal processes which dominate the coast of this NCA. Avoid construction of new structures and infrastructure that would, in time, require coastal defences and implement new approaches to secure these features, and in particular caravan parks and other features. Investigate new approaches to securing coastal assets rather than attempt to defend the receding cliff, including considering more appropriate siting of development, habitat restoration along cliff edges and roll back land. Seek to implement findings of Shoreline Management Plans. Ensure coastal access opportunities remain while adapting to a dynamic coastline through the provision of roll back land and information and advice to users. Ensure historic assets are recorded and factored into any coastal works.	**Regulating coastal erosion and flooding** **Geodiversity** **Biodiversity** **Sense of place/ inspiration** **Sense of history** **Recreation**

[6] The North Devon and Somerset Shoreline Management Plan, Environment Agency (2010) and Severn Estuary Shoreline Management Plan, Environment Agency (2000)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place/ inspiration	Wide expanse of coast and Bridgwater Bay Rich pastoral landscape fringed by hills Long views from the coast and more intimate settings across the rest of the NCA Well-wooded feel and tree-fringed rivers Rich physical and cultural heritage Local vernacular architecture and dispersed settlement pattern	The rich, gently rolling agricultural landscape of irregular fields enclosed by thick hedgerows, often on ancient hedge banks, with many narrow intersecting valleys and views to the surrounding hills of Exmoor and the Quantocks, and an open and windswept coast with low cliffs to the north, characterise this landscape and provide a sense of tranquillity and escapism although parts of the coastline can feel remote and rather bleak at times. The area has a well wooded feel due to the extent of trees in hedges and scattered small woodlands, with large numbers of rare native black poplar found along the River Tone and its tributaries, while cider apple orchards are a characteristic but declining feature throughout the NCA. A dispersed settlement pattern of hamlets and farmsteads linked by narrow winding lanes further defines the area, as does the diverse geology reflected in the local building materials of red sandstone, brown-grey Lias near the coast and occasional cob, and the mosaic of remnant semi-natural habitats ranging from wet woodland to calcareous and neutral grasslands. The NCA (in combination with its surrounding landscape) has provided inspiration to poets and artists, most notably Coleridge who lived at Nether Stowey and wrote many of his most famous works here (including 'Frost at Midnight'). The adjoining features of Exmoor National Park (Quantock Hills Area of Outstanding Natural Beauty Blackdown Hills AONB contrast with this NCA, enhancing its lush pastoral nature and add to its sense of place and character.	Regional	Pressure for change is most notable along the corridor of the M5 motorway and in places along the coast; for infrastructure and distribution, and tourism facilities respectively. Housing development around Taunton and Wellington and other larger settlements is also affecting a degree of change in the character of the area. The pastoral character and wooded feel in contrast to surrounding uplands and an uncluttered windswept coast are the area's most distinctive features. Changes in farming practice, removal of hedges and loss of orchards, pockets of meadows, parkland and hedgerow trees risk changing this character. The landscape, and in particular its relationship with its surrounding uplands and the coast has and continues to provide inspiration for many people, the coast in particular providing a draw to visitors. The noteworthy geology at the coast, low lying cliffs and stark and generally uncluttered views across Bridgwater Bay are evocative and a draw to many visitors. Hinkley Point in the far north of the area punctuates the skyline adding a further dimension to this sometimes bleak coastline. Further development at this site and mitigation work will mean views will evolve and change over time.	Protect and enhance uncluttered and intimate views across and into this NCA and the distinctive features that characterise the area. Land management practices, for example maintaining the balance of mixed farming, managing hedgerows with trees, in field trees, maintaining meadows, managing traditional orchards, should be sympathetic and enhance the biodiversity and rich cultural and geological heritage found here. Opportunities exist to protect and restore hedgerows, trees, orchards, parkland and the vernacular architecture of settlements, manor houses and barns. Ensure that development respects local settlement patterns and building materials, and avoid the loss of historical evidence through insensitive development.	**Sense of place/ inspiration** **Sense of history** **Tranquillity** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Hill forts and castles Field patterns and settlement patterns Geological record Strong surviving mixed agricultural landscape Manors and associated parkland such as Hestercombe and Nynhead Roman remains at Cannington	The history of the landscape is evident in iron-age, Roman, Saxon and medieval/post-medieval influence, including a predominantly irregular field pattern reflecting piecemeal enclosure of medieval strips, with prehistoric remains widespread and concentrations at the edges of the higher ground adjacent to Exmoor and the Quantocks. Prominent features span the ages and act as a reminder of the wealth associated with the productive farmland of the area which has shaped and continued to shape the landscape; iron-age hill forts such as Cannington, the scatter of medieval motte and bailey castles beyond Taunton castle, and 18th-/19th-century mansions and parklands such as Hestercombe and Nynehead. This sense of history is reinforced by the traditional buildings of local or imported stone and some thatched roofs, notably the sandstone churches that are a prominent feature of larger villages and typically feature a tall perpendicular tower, plus characteristic cider houses often incorporated within stabling. Ridge and furrow still visible in fields giving a sense of long use of the farmed landscape. The geological record and fossil finds at the coast provide an important record of past landscapes and environments. Coastal archaeology is present in the form of submerged forests, peat shelves, and medieval and later fish traps. Recent research at Hinkley Point – a large-scale archaeological landscape investigation, comprising geophysical survey and excavation identified a variety of sites, including bronze-age occupation, iron-age and Romano British settlement and a rare Saxon settlement.	Regional	It is the settlement patterns, and field patterns which reveal much of the story of this area as much as the remains of castles and manor houses. Long associated with versatile and fertile soils the area retains a strong sense of history associated with food production. The present pattern of settlement dates from late in the first millennium AD and is distinctive for its high density of dispersed farmsteads and hamlets. Many of these hamlets developed from small manorial centres. Later mansions and manor houses at the foot of Quantock Hills indicate an agriculturally prosperous area, which continues today. The erosion of field patterns, water meadows, ridge and furrow, loss of parkland and orchards and other landscape features such as hedgerows risk diluting this setting. Maintaining the long-standing pastoral character of the area that contributes to the sense of history is dependent on sustainable livestock and farming regimes. Inappropriately located development may also damage or result in the loss of both physical assets and the strong sense of history to be found.	Minimise disturbance and damage to archaeological sites resulting from cultivation through the use of methods such as shallow cultivation and in particular avoid changes to field patterns and removal of hedgerows. Protect features under permanent pasture where appropriate. Work with landowners, farmers, local communities and local decision makers to safeguard heritage assets and the pervading sense of history, and identify and realise opportunities for the enhancement of the setting, interpretation and legibility of heritage assets. Where opportunities for new development are proposed, use local vernacular architectural styles and settlement patterns to inform design solution that reinforce the existing sense of history. The restoration and conversion of vernacular buildings should be sympathetic, use local materials and preserve local distinctiveness. Seek opportunities to re-plant and restore orchards and parkland to re-enforce landscape and historic setting. Seek to continue and enhance interpretation of the many layers of historic evidence for educational and recreational purposes. Maintain the built elements of the historic environment and where necessary find sympathetic and innovative uses for redundant historic buildings. Seek to retain the connection between rural buildings, such as farmstead, barns, manor and gentry' houses and their surrounding landscapes.	**Sense of history** **Sense of place/ inspiration** **Biodiversity** **Food provision** **Tranquillity** **Geodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Pastoral landscape with small settlements linked by sunken lanes Largely undeveloped coastline	According to CPRE intrusion mapping tranquillity has declined significantly in the past 50 years, with the area of 'undisturbed' land having decreased from 74 per cent in the 1960s to 40 per cent in 2007. However, substantial areas of the NCA have remained sparsely populated and uncluttered by modern infrastructure and retain a sense of quiet and tranquillity. The majority of intrusion into perceived tranquillity occurs along the M5 motorway corridor, around Taunton and Wellington and in places, such as Minehead associated with tourism along the coast.	Regional	Tranquillity is an important feature of the NCA, and is closely associated with Exmoor National Park, Blackdown Hills AONB and Quantocks AONB which adjoin this NCA and have views out across it to the sea. Increased development along the M5 and A358 corridor, around Taunton, Wellington and Bridgwater on the edge of the NCA, and to a degree along the coast has increased disturbance in some areas. However, much of the area remains relatively sparsely populated, with small sunken lanes connecting settlements nestled in hedgerow rich farmland, giving a sense of remoteness and tranquillity. Construction of Hinkley Point on the north eastern coast and associated development will increase localised disturbance for a time, although mitigation work in the long term could bring significant benefits to enhancing features associated with tranquillity. The coastline, notably between Blue Anchor and Kilve remains largely tranquil, closely associated with the seascape of the Bristol Channel.	Seek to conserve remaining areas of tranquillity, the open uncluttered views and skylines and the strong pastoral character and the views close association it has with Exmoor National Park and two AONBs. Seek to conserve areas of tranquillity associated with the coast, Bridgwater Bay and the Bristol Channel reflecting the strength of maritime character. Seek opportunities for enhanced screening and mitigation of features around transport corridors, major developments and urban expansion which mitigate impacts on tranquillity and strengthen landscape character, contributing to biodiversity and sense of place. Where possible infrastructure features such as power lines should be sensitively incorporated into the landscape.	**Tranquillity** **Sense of place /inspiration** **Sense of history** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation	900 km rights of way network including South West Coast Path Canal towpath National Cycle Network Small amount of open access land Hawridge and Durleigh Reservoir and Bridgwater to Taunton Canal Beaches and coast West Somerset Railway	The area supports a number of opportunities to experience nature and the landscape. A good path network exists with around 900 km of rights of way (at a density of 1.85 km per km^2) including the South West Coastal Path, the Channel-to-Channel Walk, Ride UK, Celtic Way, Quantock Greenway, MacMillan Way West, and the National Cycle Network. There are also 380 ha of open access land covering 0.78 per cent of the NCA. Hawkridge and Durleigh Reservoirs provide additional recreational opportunities in the eastern half of the NCA, including coarse fishing, sailing and bird-watching, while Exmoor and the Quantock Hills are notable recreational resources adjoining the area.	Regional	Recreation is an important feature of this NCA, although most opportunities to access the natural environment are focused on the coast, around larger settlements such as Taunton and on the periphery to Exmoor National Park and Quantocks AONB. Coastal habitats and geological features are particularly sensitive so care is needed to balance the economic and health benefits of the areas recreation opportunities with maintaining and enhancing biodiversity, geological and heritage features. Coastal tourism and recreational activities are notable. There are proposals to extend coastal access along 90 km of the coastline between Minehead and Brean Down under the Marine and Coastal Access Act 2009. This will extend rights of access to the coastline of this area and the shoreline. Other features such as the areas two reservoirs and the West Somerset Railway offer different experiences of the landscape. Access and recreational activities, particularly close to where people live, brings mental and physical health benefits. A network of trails linking quality natural spaces and other visitor destinations can also provide significant benefits in terms of income from local visitors and tourists. Expansion of the areas local communities, especially Taunton and Wellington may bring additional pressures and on footpaths, tow path and riverside walks and new routes and opportunities should be sought to enhance this network.	Further opportunities for enhancements to the public rights of way network should be realised. Improved access should incorporate enhanced interpretation, particularly of natural and heritage assets and features. Extend awareness of access and recreational opportunities available across the area, and particularly beyond the coast and adjoining National Park and AONB where possible. Identify and realise opportunities to create new circular routes or links to existing rights of way, particularly around Taunton and Wellington and along major rivers taking all reasonable steps to prevent the spread of non-native invasive species.	**Recreation** **Sense of place / inspiration** **Sense of history** **Tranquillity** **Biodiversity** **Geodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	Coastal and intertidal habitats including large areas of intertidal sand and mudflats and maritime cliff and slope, coastal and flood plain grazing marsh. Mix of woodland types Rare or notable species A number of designated sites or parts of designated SAC, SPAs, Ramsar and SSSI and local sites including areas of limestone grassland, fen, orchards, and lowland meadow	6 per cent of the NCA is covered by priority habitats including coastal and flood plain grazing marsh, covering 1,500 ha and 550 ha of woodland (wet woodland, lowland mixed deciduous and upland oakwoods). 1 per cent of the area is designated SSSI covering 600 ha and there are 2 SPAs, 5 SAC and 2 Ramsar sites that part fall within this NCA. There are also 244 Local sites in Vale of Taunton & Quantock Fringes covering 2,039 ha which; 4 per cent of the NCA. A number of priority species are also present including (but not exhaustively) black poplar, lesser horseshoe bat, otters, small blue and Duke of Burgundy butterfly. The wave cut platforms between Hinkley Point and Watchet create a significant rock reef system inhabited by a wide range of marine invertebrate.	National	Habitats in the area are scattered and fragmented, except at the coast where the coastal strip is largely intact. Habitats such as coastal and flood plain grazing marsh, lowland calcareous grassland and lowland meadows are found in pockets throughout. However agricultural intensification, especially along the banks of the River Tone, and a small change in farming patterns, such as a change from pastoral to growing miscanthus, means sites are under threat of becoming more fragmented and inappropriately managed. Initiatives, such as the River Tone Living Landscapes Project, are helping to address these pressures. A number of species, for example overwintering birds at the coast, such as curlew, will benefit from large areas of pastoral land if managed sensitively. Rivers provide a corridor through the landscape for some species such as bats, black poplars and otters. 97 per cent of SSSI are in favourable or unfavourable recovering condition. A number of SAC, SPAs and Ramsar sites extend into the area from surrounding areas including the Severn Estuary SPA; Somerset Levels and Moors SPA; Exmoor Heaths SAC; Exmoor & Quantock Oakwoods SAC; Holme Moor & Clean Moor SAC and Severn Estuary SAC. Overwintering birds such as wigeon, teal, turnstone and curlew are a feature. The area plays a key role in providing a network of smaller habitats to support and connect these designated sites and work could be completed to enhance this network. Hestercombe House SAC sit wholly within the NCA and has been designated for lesser horse bats, which will use the network of hedges and woodland in the area as feeding and foraging ground. Associated with the manors of the area are a number of wood pasture and parkland sites. Orchards are also a notable feature in the southern half of the NCA. Ensuring these remain in good condition with succession planting will be key to maintenance of both these features. At the coast mudflats and other intertidal habitats are a key feature however, 'coastal squeeze' on intertidal habitats may be exacerbated in some areas as a result of a need to 'hold the line' of coastal defences in some stretches near to Minehead and Blue Anchor.	Improve the quality and increase the area of all priority habitats, notably flood plain and coastal grazing marsh, lowland meadows, wood pasture, orchards and arable habitats and connecting watercourses, looking to better connect, buffer, improve and create habitat patches, resulting in more coherent and resilient ecological networks to improve habitat resilience and enable necessarily responsive species movement. Continue to use evidence to build a landscape scale approach to habitat management and restoration and to prioritise action on the ground, benefitting the strong sense of a special place and strengthening landscape character. In particular use all tools available, such as habitat mapping, to target appropriate action. Protect and enhance designated sites aiming to achieve favourable condition on all sites and linking them, where appropriate (and where there is no risk of increasing the range of non-native invasive species), to the wider habitat network to further enhance their influence, functionality and resilience to climate change and other threats. Identify and realise opportunities to protect, restore and manage coastal habitats and manage them appropriately to increase their adaptability to climate change and rising sea levels.	**Biodiversity** **Regulating coastal erosion and flooding** **Regulating water quality** **Regulating water flow** **Regulating soil quality** **Food provision** **Sense of place/ inspiration** **Climate regulation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Somerset Jurassic Coast Diverse geology with superb coastal exposures Important palaeontological resources Local vernacular Educational assets for outstanding geological interest One geological SSSI and local sites Hetangian/ Sinemurian Global Stratotype Section and Point Geomorphology	The geology of the area is quite varied with a wide range of soil types. In the extreme west and south-west the underlying geology is Permo-Triassic pebble bed conglomerates breccias and sandstones. Rocks of this age extend north and east around the Quantock Hills and Taunton but here they are mudstones and marls. In the far north of the area forming most of the cliffs and the intertidal zone are rocks of the upper Triassic and the lower Jurassic. The sequence consists of grey shales, mudstones and limestones which contain many fossils including marine vertebrates and invertebrates. Also expose along the coast are Quaternary periglacial loams, sands and gravels. Alluvium deposits also occur alongside the River Tone and its tributaries. There is an isolated outcrop of Carboniferous limestone at Cannington Park. The Blue Anchor to Lilstock Coast SSSI is in favourable condition. Although there are quarries operating in the area these are limited for supplying local construction stone.	International	The coastal geology of the area is of international importance for its Jurassic sequence and outstanding fossil finds; known as the Somerset Jurassic Coast. It is part of the same geology sequence exposed at the Dorset and East Devon World Heritage Site. The best sequence can be found between East Quantoxhead and Kilve. One particular cliff section near East Quantoxhead has been identified as a World Reference Point within the geological time scale and marks an internationally agreed division between two parts of the Lower Lias succession. This exposure, fossils, sedimentology and coastal geomorphological processes mean this whole stretch of coastline is designated a SSSI. In 1916 some of the shales at Kilve were discovered to be bitumous and oil rich. Although there was some extraction of oil, production did not continue for long. Remains of this activity can still be seen in the car park at Kilve. Of particular importance to this area is access to, interpretation of and the study, understanding and functioning of coastal geomorphological processes, palaeontology and its internationally important geology. Managing fossil collecting activity is required to ensure responsible collecting and safety; cliffs of this sequence are liable to erosion and slumping. Maintaining the dynamic nature of the coastline is also a key part of the coastal geomorphology. Local vernacular uses sandstone, Grey Lias and slate. Mansions and churches were generally constructed from imported stone. An isolated inlier of Carboniferous Limestone is quarried at Cannington near Bridgwater. Permo-Triassic deposits, essentially comprising sandstones, mudstones and conglomerates, are worked on a minor scale only. Sand is available from the Triassic Pebble Beds and Conglomerate at Whiteball near Wellington. The Budleigh Salterton Pebble Beds are a source of building stone which is being worked at Capton near Williton. Clay from the Mercia Mudstone Group has been used for brick making at Poole to the east of Wellington. In earlier times, gypsum was mined near Watchet.	Ensure the importance of this coast's geology and geomorphology is presented to both visitors and local people using interpretation of the highest quality. Maintain and where appropriate enhance levels of access to the geodiversity assets of the coast. Seek opportunities to allow coastal processes to take place unimpeded and maintain the current levels of unmodified geomorphological processes. Ensure new developments in the area reflect the vernacular in high quality builds using local stone (and other materials where appropriate) and styles. Investigate the ways in which marine geodiversity could be presented and interpreted, particularly in relation to the abundant marine biodiversity. Seek to maintain and develop links with local research institutions, schools and higher education providers to raise awareness of and use of the site for research and education.	**Geodiversity** **Biodiversity** **Sense of place/ inspiration** **Regulating coastal erosion and flooding** **Regulating soil erosion** **Regulating water flow** **Regulating soil quality** **Tranquillity** **Recreation**

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