National Character Area profile:

152. Cornish Killas

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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.

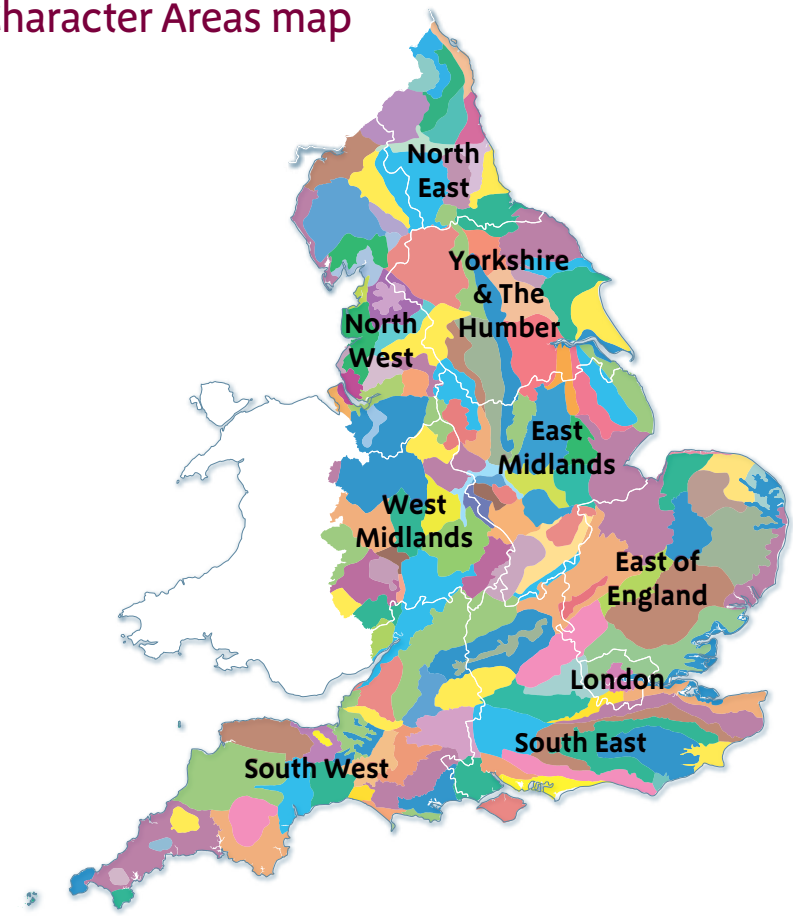
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

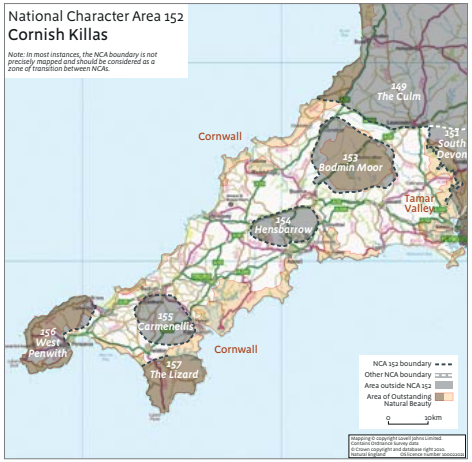
The Cornish Killas National Character Area (NCA) forms the main body of the Cornish landmass around the granite outcrops of Bodmin Moor, Hensbarrow, Carnmenellis, West Penwith and The Lizard NCAs. The northern half of the NCA, with its open character and general lack of tree cover, affords long views across Cornwall to neighbouring NCAs and out to sea. The gently rolling scenery, sheltered coves, headlands and estuaries of the south coast contrast with the exposed high cliffs and more rugged nature of the north coast. The rocky coastline is characterised by coves and headlands and possesses an impressive number of important geological exposures. On the eastern side of the NCA, the River Tamar separates the counties of Devon and Cornwall, with the Tamar Valley landscape linking the two NCAs of the Cornish Killas and South Devon. On the northern boundary of the NCA, the landscape merges with the western edge of The Culm, which lies in north Cornwall and Devon and shares many characteristics.

The Cornish Killas NCA contains 43,762 ha of the Cornwall Area of Outstanding Natural Beauty (AONB), covering 19 per cent of the NCA, mainly along the coasts. The NCA also includes 8,326 ha of the Tamar Valley AONB and several stretches of Heritage Coast. There are also 7,635 ha of Special Areas of Conservation, Special Protection Areas and Sites of Special Scientific Interest in the area. These international and national designations reflect the outstanding natural and scenic qualities and the quality of the mosaic of valuable semi-natural habitats within the NCA. Notable species found within the area include seals, otter, cirl bunting, marsh fritillary butterfly and the very rare Plymouth pear and shore dock.

The area is rich in minerals such as copper, tin, lead and zinc and provides access to nationally important and striking geodiversity. There is a long and internationally important history of mining, the remains of which now make up a significant portion of the Cornwall and West Devon Mining Landscape World Heritage Site.

The NCA has been inhabited by humans for thousands of years and retains a rich variety of historical assets, including cairns, barrows, Neolithic to iron-age hill forts and defended systems, field systems, cliff castles and coastal defences, medieval castles, medieval wayside crosses and a wealth of nonconformist chapels and derelict mining buildings. This habitation is also reflected in the medieval field patterns defined by the iconic Cornish hedges.

The area has seen great change, but retains a strong sense of identity, with the distinct Cornish culture attracting many devotees. Artistic activity has focused on St Ives, on the border between the Cornish Killas and West Penwith, which has been a centre for leading British artists for more than 100 years. The landscape of the Cornish Killas is also closely associated with and has been celebrated by the popular literature of Daphne du Maurier and poets as varied as John Betjeman and Charles Causley.



Click map to enlarge; click again to reduce

The Cornish Killas is now a popular tourist destination, appreciated for its rugged coastline, with its 317 km of South West Coast Path and many opportunities for water-based sports, as well as for the many inland rights of way, stately homes and parklands, historic features such as Tintagel Castle and opportunities for activities such as horse riding and cycling.

Statements of Environmental Opportunities:

- **SEO 1:** Manage, restore, link and enhance the area's rich mosaic of wildlife habitats, expanding their quality, extent and range where appropriate. This needs to be achieved alongside sustainable agricultural practices, which contribute to soil and water quality as well as providing habitat management. This benefits the local economy, minimises soil erosion and flooding and provides increased recreational opportunities.

- **SEO 2:** Conserve, manage and increase understanding of the area's rich historic environment and its valuable interlinked geological and cultural heritage – including the mining legacy, the prehistoric and later settlements and ritual remains, and the unique Cornish hedges and field patterns – which combine to bring a unique historical and cultural identity to Cornwall.

- **SEO 3:** Sustainably manage the visitor pressure associated with this distinctive landscape to ensure that the numerous recreational opportunities, such as the South West Coast Path and high-quality beaches, continue to be enjoyed sustainably by the local community and visitors. Develop volunteering opportunities both for local residents and for visitors, and endeavour to better connect people with places and natural assets.

Daffodil fields and wind turbines near Penryn.

Description

Physical and functional links to other National Character Areas

The Cornish Killas National Character Area (NCA) forms the main body of the Cornish landmass around the igneous outcrops of Bodmin Moor, Hensbarrow, Carnmenellis, West Penwith and The Lizard NCAs. The open character of the landscape and the general lack of tree cover mean that long views are afforded across Cornwall to neighbouring NCAs and out to sea.

A network of minor streams and rivers form physical links with adjacent landscapes, including the rivers Fowey, Camel, Tiddy, Inny and Lynher (draining from Bodmin Moor); the rivers Hayle and Cober (draining from Carnmenellis); the rivers Par and Fal (draining from Hensbarrow); and minor streams draining from West Penwith.

The north and south Killas coasts provide continuous visual and physical links along the length of the Cornish peninsula, through the dramatic coastline and its associated impressive geology. On the eastern side of the NCA, the River Tamar, which rises only 6 km from the north Cornwall coast in The Culm NCA, separates the counties of Devon and Cornwall, with the Tamar Valley landscape linking the two NCAs of the Cornish Killas and South Devon. On the northern boundary of the NCA, the landscape abuts the south-western edge of The Culm, which lies in north Cornwall as far south as Boscastle. The NCA has many features in common with the area of west Devon, immediately east of the river.

All of the main transport links (the A30, A38 and A39 roads and the mainline railway) between Cornwall and the rest of the country in part run through the Cornish Killas NCA, with the main railway line skirting the moorland areas as it winds its way to Penzance.

St Michael's Mount.

Key characteristics

- A coastline of rugged, sheer cliffs, sandy beaches with rolling surf and dramatic sand dune systems on the north coast.
- Intimate coves and deep, steep-sided rias (drowned valleys) with broadleaved woodland down to the tidal edge.
- Rocky coastline characterised by coves and headlands, with an impressive number of important geological exposures.
- Numerous fishing villages and small ports, many now developed into bustling summer tourist destinations, with small coves, quays and fish cellars slipways predominating.
- An undulating shillet (shale) plateau, with open vistas and a characteristic network of stone-faced earthen banks (Cornish hedgebanks), many enclosing fields in use since medieval times. From higher ground there are long views across a rather uniform landscape of mixed farming, with small villages and market towns.
- Renewable energy structures, such as wind and solar farms, which are a recent addition to the landscape.
- Broadleaved wooded valleys, dominated by internationally important western oak woodland habitat, which dissect the plateau and lead to the south coast.
- Many outstanding historic parks at Caerhays, Anthony and Lanhydrock associated with the sheltered flooded river valleys along the south coast and benefiting from the mild climate. These have developed on both mining profits and more traditional historic estates.
- Important industrial archaeological sites, including hard rock mining with its distinctive engine houses and quarrying sites, some of which form part of the Cornwall and West Devon Mining Landscape World Heritage Site.
- A dispersed settlement pattern of hamlets, farmsteads, historic mining villages and small fishing villages, often formed of simple, austere buildings, with nonconformist chapels and wayside crosses, and located where steeply incised valleys meet the coast.
- Coastal defences and 16th century Henrician forts along the south coast, with clustering around Falmouth and the Fal, St Austell Bay and Whitsand Bay towards Plymouth.
- A number of market towns such as Liskeard, Camborne, Redruth and Truro located between the higher moorland and the coast. Coastal towns such as Falmouth, Fowey and Padstow were established on a strong maritime industry.
- Lowland heath, wet woodland, wetland, scrub and unimproved grassland complexes, which are common and are sometimes associated with areas of past industrial activity.

Cornish Killas today

The underlying geology of sedimentary and metamorphic rocks (referred to locally by the mining term 'killas') and a strong maritime influence are the unifying factors of the Cornish Killas NCA. The area forms a gently undulating plateau, with no part of the area more than 24 km from the sea. The NCA has a mild, oceanic climate with above average rainfall and strong, salty winds. There are wide views across a rolling landscape of Cornish hedge-bounded fields. The area supports mixed farming and the growth of a wide variety of crops, including horticultural crops in the Tamar Valley and arable areas on the Roseland peninsula, as well as supporting beef, sheep and dairy enterprises. This rolling landscape is punctuated by small copses. The plateau is cut by a complex pattern of deep valleys leading to richly varied coastlines. These valleys contain the main rivers in Cornwall, all of which rise on the higher granite outcrops and plunge the short distance to the sea. In the north, the steep, high cliffs face the full force of the Atlantic gales, and the wind-swept character extends many miles inland, with large numbers of wind-pruned hawthorn trees located on hedgebanks. In the south, the landscape of the drowned valleys is gentler, for example at Fowey and Falmouth. These valleys contain more woodland (mainly broadleaved) and tree cover, providing a contrast to the open, wind-swept nature of the north coast.

Field patterns vary widely, from long narrow strips made from earlier open fields around hamlets, to the intricate, regular patterns around mining communities, and the rectilinear pattern of 19th-century and earlier enclosure of the once-extensive areas of rough ground. The field pattern is defined by the Cornish hedgebanks, which change in character reflecting the landscape: they vary from almost bare granite faces to being completely covered in shrubs, herbs and, in some cases, mature trees, which sometimes join over the top of lanes to form tunnels of greenery.

There are scattered farmsteads and hamlets, with the buildings generally of local stone and granite, often whitewashed and with slate roofs. Recent farmsteads are larger and more prominent, and tend to be on the more marginal, recently enclosed lands. Post-Victorian buildings characterise the recent expansion of many settlements such as Liskeard and Camborne, and these tend to be constructed using modern materials to the exclusion of vernacular styles. Planned villages are few, but market towns, with foursquare granite and slate churches surrounded by clusters of buildings, are common.

There are many isolated churches and medieval 'churchtown' settlements. Nonconformist chapels are found on the edges of these settlements and are an integral part of the mining and other settlements that developed from the 17th century within and around areas of former rough ground.

Cornwall's towns developed between the late 18th century and the 20th century from small medieval cores into rural market and fishing towns. Cornish unit housing is a distinctive post-Second World War style often found in the suburbs of these towns. Many of the larger industrial-based settlements have experienced challenging economic conditions following the decline of traditional mining industries. The area is scattered with relics of its mining heritage, such as engine houses and disused railway lines. The NCA includes sections of the Cornwall and West Devon Mining Landscape World Heritage Site, in the Tamar Valley and St Austell areas – evidence of the importance of its mining heritage.

On the north coast, short, deeply etched valleys cut through to the sea, their streams often spilling over as waterfalls, and the land ends abruptly in sheer cliffs, commonly over 100 m high. This is a coastline of pounding rollers, sea spray, sandy beaches and rugged headlands with dramatically sited ruins. These range from 19th-century mining buildings and their chimneys to the evocative Tintagel Castle and promontory forts such as that at Trevelgue Head. Many ports and harbours along the north coast have retained their older buildings with colour-washed walls and slate roofs. Many have been converted into restaurants, galleries and accommodation, which has resulted in locations such as Padstow and Rock becoming popular tourist centres. The development of Cornwall as a mass holiday destination began from the late 19th century. It has seen a significant increase in caravan parks and features a dispersed pattern of modern buildings that can be highly visible in parts of the open landscape. Many of the potential activities that draw people to the area are inextricably linked to its environment and remote character. Popular recreation assets include a large section of the South West Coast Path National Trail.

On the south coast, deep, complex, narrow valleys are cloaked by sessile oak woodland – much of it ancient and of international nature conservation importance – which continues down to the water's edge. The undulating land grades into tidal inlets, reedbeds and sandy coves, occasionally rising to rocky headlands. Farmsteads shelter in the upper valleys, and the steep slopes often have an intricate pattern of small fields. Fishing villages are common, with many retaining their attractive, old-world character in spite of surrounding 20th-century development – an expansion driven by the growth of tourism. The mild climate of this southern coast is emphasised by the large, lush gardens, often with frost-tender plants, found in the sheltered inlets. Rocky headlands are marked by dramatically located hill forts, cliff castles, lighthouses and ruined mining buildings, and there are many offshore rocks and small islands, perhaps the best known being St Michael's Mount. The outstanding natural and scenic beauty of the coastal landscape is recognised through the designation of long stretches as part of the Cornwall Area of Outstanding Natural Beauty (AONB).

The NCA contains a diverse array of habitats, many of which are designated as nationally and internationally important nature conservation and geological sites. These include heathlands, which are characterised by heath, scrub, bristle bent and western gorse and are found in mosaics with mire, willow carr and scrub communities. Areas of open wetlands are diverse and are characterised by purple moor-grass, bog mosses, soft rush, bog asphodel and black bog rush. The wetland communities provide important habitats for many insect species, such as the nationally scarce small red damselfly and the internationally important marsh fritillary butterfly. Extensive areas of willow (and occasionally alder) carr are found in flood plains and areas with impeded drainage. In places, willow carr forms part of an unusual transition of habitats from oak woodland to willow carr to salt marsh, as seen at Sett Bridge within the Upper Fal Estuary and Woods Site of Special Scientific Interest (SSSI). Herb-rich unimproved grassland can be found on the sides of the steep valleys that dissect the Cornish landscape. There are extensive areas of unimproved grassland found on the cliff-tops and also associated with sand dune systems. The many Cornish hedgebanks provide a haven for plants and shelter for a diverse range of invertebrates, small mammals and birds. Species of note include the Plymouth pear, cirl bunting and several bat species.

As well as attracting large numbers of tourists, the area has become a destination for or home to many painters, artists, musicians and writers on account of the drama and inspiration of the sea, landscape, history and culture, and wildlife.

The landscape through time

The rocks of the Killas plateau were laid down as sediments during the Devonian Period, then buckled, squeezed and lifted during the Carboniferous as continents moved towards each other. Spectacular folds in rock layers are visible in the sea cliffs. The enormous pressure and temperatures generated caused sedimentary rocks to be metamorphosed into the slates of the present-day Killas. The intrusion of magma baked the surrounding Killas, resulting in an aureole of metamorphic rocks. The aureoles are particularly rich in minerals such as copper, tin, lead and zinc. The term 'Killas' is a Cornish mining term.

Following the last glacial period, Cornwall became covered by forests of sessile oak and hazel on drier ground and alder in damp valley bottoms. By the end of the Mesolithic Period, people had begun to change the landscape by burning vegetation and herding the larger mammals, taking the first steps towards domestication. Neolithic monuments provide evidence that 5,000 years ago there were highly organised societies in Cornwall and the process of developing the present landscape had begun.

In the later Neolithic and Early Bronze Age there were mixed farms with round houses at the centre, stone-walled arable and meadow fields, and lanes leading to rough summer grazing on higher and coastal land. Clearance of the woodland continued, and the pattern of anciently enclosed landscape with its areas of clearance, cultivation and settlement was established. As the climate deteriorated towards the end of the Bronze Age, upland sites were abandoned to become rough ground for grazing animals and extracting fuel, but the lowland, comprising most of the Killas, remained in occupation. From around 400 bc many settlements were defended, with strategically important farming hamlets given ramparts and defensive ditches – the Cornish rounds such as the Penhale Round, Fraddon. These enclosures are generally less than a hectare in size and consist of a simple entranceway formed by a gap in the circuit of the bank and ditch. Many are roughly circular or oval in shape, but rectilinear enclosures are also common. Enclosed settlements are frequently sited on hill tops with their entrance facing downhill. In many places the enclosed settlements are sited within extensive field systems, with the farmers living in these hamlets practising mixed agriculture – cultivating crops and keeping a range of livestock. The presence of many undefended settlements suggests that this was essentially a peaceful time, with as much the same area of Cornwall under productive agriculture as in the early 18th century.

Rounds were finally abandoned by around 600 ad; hamlets at this point were open, undefended groups of farmsteads. At the end of the first millennium the basic rural settlement pattern that endures in Cornwall today was consolidated – with its highways, byways and farmland, fords and bridging sites. In many respects Saxon rule, which was not established fully until the 9th century, sat lightly in Cornish culture, as did the rule of the Normans.

In the later medieval period, farming life, with its hamlets, lowland fields and upland grazing, continued as before. As the population increased and the climate improved slightly, the uplands were partly resettled. At the same time the economy diversified, with an industrial society forming around the tin and copper mines and the quarries. These, together with the growth of ship-building and trading, led to the development of coastal ports and small industrial and market towns at intervals across the landscape. As well as the

intricate patterns of enclosed fields, subdivided strips were present around the hamlets. These and other field patterns were preserved by enclosure after the population decline that followed the Black Death.

During the 16th and 17th centuries the agricultural landscape changed; most strip fields were amalgamated and enclosed by great Cornish hedgebanks, forming the main part of anciently enclosed land seen today. More regular patterns of enclosure are typical of the areas of rough ground enclosed from this period. In the 18th century, tin and copper mining, china clay mining and quarrying had again begun to grow. The growth of industry brought wealth; large country residences were established and ornamental gardens were laid out on sheltered sites. The significance of the development of mineral extraction in the area is now recognised through the definition and inscription of the Cornwall and West Devon Mining Landscape World Heritage Site.

Throughout this period the basic agricultural pattern of Cornwall continued and, as industry declined, it reasserted itself as the dominant influence on the landscape. Tourism began to flourish as mining contracted; encouraged by the growth of the railways that took Cornwall's agricultural and horticultural produce to markets as far away as London. The growth of tourism was concentrated on the coasts, with new roads and development to accommodate the visitors. Relics of industry, such as closed railway lines, have now been given a new lease of life as visitor attractions, for example the Camel Trail, a cycle path that runs from Wenford Bridge to Padstow, and the coast-to-coast Mineral Tramways Trail that runs from Devoran to Portreath.

In the 20th century changes to the landscape continued. Elms, thought originally to have been introduced in Neolithic times and used to form dense windbreaks along field boundaries, were devastated by Dutch elm disease and left a more open and exposed landscape. Agricultural improvement, notably in dairying; the development of horticulture stimulated by improved transport; the development of mass tourism; and, more recently, the impact of renewable energy schemes have brought further changes to the landscape.

In 1959 eight areas of the NCA were designated an AONB and, combined with areas on Bodmin Moor, The Lizard and West Penwith, made up the Cornwall AONB, designated for its special scenic beauty. In 1995 the Tamar Valley AONB was designated, which includes the areas associated with both the Tamar Valley and the Lynher Valley.

Trematon Castle by the wooded valley of the Lynher.

Ecosystem services

The Cornish Killas 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 Cornish Killas NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** The main products derived from the Cornish Killas NCA are lamb, beef and dairy products, along with cereals, fruit, vegetables (brassicas and potatoes) and pork, with localised production of apple juices, cheeses and wines. This is complemented by fish and seafood caught inshore and landed in the small ports and harbours.

- **Water availability:** The NCA has no underlying aquifer but is an important water catchment for the county. There are several important reservoirs; for example, Porth Reservoir supplies water to Newquay. The River Fowey has significantly modified flows because of the two major reservoirs in its upper catchment. Although there is no major aquifer, there is groundwater held in fracture and fissure systems which is available for local abstraction. The main abstraction uses are for public water supply, hydroelectric power, amenity use and industry.

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

- **Regulating water quality:** The acidic nature of the bedrock where the streams rise, as well as past mining activities, have led to poor water quality in some sections of the NCA. Over-use of nitrogen fertilisers also adversely affects water quality.

- **Regulating water flow:** High levels of rainfall and the flashy nature of many of the NCA's watercourses, as well as the issue of old mine workings that impact on drainage, lead to problems with flooding in several of the area's towns, including Truro, Par, St Austell and Hayle. Semi-natural habitats play an important part in helping to prevent flooding, and their creation or expansion may be used to help to protect towns.

- **Regulating coastal flooding and erosion:** The overall objectives of the Shoreline Management Plan are to let the coastline naturally evolve unimpeded, but to support adaptation in and resilience of coastal settlements. This would provide for coastal change while maintaining the overall character. Most of the coast has exposed, open shorelines, but most coastal settlements have flood defences and, to some extent, the hard rock headlands and beach boundaries, typical of Cornwall, act as natural protection.

Cultural services (inspiration, education and wellbeing)

- **Sense of inspiration:** Cornwall has a strong sense of place, with high cliffs; intimate coves with sandy beaches; deep, wooded valleys; and rolling moorland – complemented by the irregular and ancient field patterns and variety of mixed land uses. The sense of place is enhanced by the ever-present influence of the Atlantic Ocean. The landscape has been and continues to be the inspiration for many artists, writers, poets and photographers.

- **Sense of history:** There is a very strong sense of history, with evidence of human interaction with the landscape ranging from the history of farming traced in the area's abundant archaeology and its intricate pattern of ancient fields, to the exploitation of mineral resources. There is a wealth of archaeological sites, including prehistoric cliff castles, hill forts and bowl barrows. This sense of history is further enhanced by the use of the Cornish language in place names and historical locations; these often provide information on former land use and associated ownership.

- **Tranquillity:** Though much reduced since the 1960s, there are still tranquil areas in the wooded valleys and along the coast.

- **Recreation:** There is an extensive rights of way network, more than 300 km of the South West Coast Path and a wealth of open access land. In addition there are parklands and estates. The area also has a coast that is famous for its recreation opportunities, which include surfing, sailing and walking.

- **Biodiversity:** Some 2 per cent of the area is designated as SSSI. There are 8,000 ha of priority woodland habitat, along with 3,500 ha of maritime cliff and slope, 1,200 ha of lowland heathland, 1,200 ha of coastal sand dunes and 1,100 ha of fens. Other priority habitats include reedbeds, coastal and flood plain grazing marsh, purple moor-grass and rush pastures, and lowland calcareous grassland. Many of the SSSI support important species such as breeding avocets, little egret and populations of otters and marsh fritillary butterfly.

- **Geodiversity:** The geological processes that underpin the area have assisted with the generation of Cornwall's industrial and now cultural heritage. Part of the area is included within the Cornwall and West Devon Mining Landscape World Heritage site. A diverse range of soils have developed through the interplay of climate, topography, vegetation and human influence, which in turn support the characteristic habitats and land use across the area.

Tintagel Castle.

Statements of Environmental Opportunity

SEO 1: Manage, restore, link and enhance the area's rich mosaic of wildlife habitats, expanding their quality, extent and range where appropriate. This needs to be achieved alongside sustainable agricultural practices, which contribute to soil and water quality as well as providing habitat management. This benefits the local economy, minimises soil erosion and flooding and provides increased recreational opportunities.

For example, by:

- Continuing to manage areas of lowland and coastal heath and realising opportunities to extend and re-connect fragmented sites.
- Reinstating or creating areas of herb-rich unimproved grasslands to re-connect habitats, particularly in areas where water infiltration can be improved, soil erosion prevented and nutrient leaching reduced.
- Maintaining and creating low-input grassland, integrated into arable areas, with interlinking grassland buffer strips and grass verges running across slopes in areas suffering from soil erosion and nutrient run-off.
- Restoring hedgebanks, especially where they help to impede cross-land flows, reduce soil erosion and agricultural run-off and enhance water infiltration, to prevent flooding. Such hedgebanks should maintain or reinstate historic field patterns, particularly in proximity to villages and hamlets.
- Creating and enhancing a diverse network of wetlands on valley slopes and bottoms (reedbeds, marshes, willow and alder carr, valley mire and wet meadows), contributing to the storage of floodwaters, reducing flooding downstream and filtering polluted waters.
- Positively managing semi-natural woodlands lining the estuary and ria slopes (including the Fowey, Fal and Helford rias); encouraging natural regeneration to re-connect fragmented sites; reinstating coppice management; and undertaking new planting to link fragmented sites. Such measures will increase adaptation to climate change; increase water infiltration and water storage, thereby reducing flood risk; stabilise soils and reduce nutrient run-off; and increase carbon sequestration and storage.
- Coppicing woodlands where possible and appropriate, and planting standard trees throughout the farmed environment to provide a sustainable, local source of wood fuel.
- Identifying opportunities and mechanisms for and promoting working with coastal processes to provide a coast protection function.

SEO 2: Conserve, manage and increase understanding of the area's rich historic environment and its valuable interlinked geological and cultural heritage – including the mining legacy, the prehistoric and later settlements and ritual remains, and the unique Cornish hedges and field patterns – which combine to bring a unique historical and cultural identity to Cornwall.

For example, by:

- Introducing extensive grazing regimes and scrub removal where current land cover threatens the integrity of important earthworks and remains such as barrows, cairns, cliff-top castles and earthworks, and remnants of past tin and copper mining, particularly where they form part of the Cornwall and West Devon Mining Landscape World Heritage Site.
- Continuing to manage built features relating to past mining activity, such as engine houses, and remains such as spoil heaps, shafts, surface extraction pits, leats and tramways, particularly within the World Heritage Site.
- Identifying and maintaining surviving early patterns of enclosure and field boundaries, notably the Cornish hedgebanks that support rich and important assemblages of flora. Ensure the use of local stone and facing styles in Cornish hedgebanks to maintain local character, and the retention of stone stiles on pathways.
- Supporting and assisting the World Heritage Site committee in giving effect to the operative Management Plan and delivering agreed priorities in support of the site's Outstanding Universal Value, as is required of the Government by treaty.
- Promoting the heritage value of historic mineral extraction sites, spoil heaps, mining heritage and residual re-colonisation that benefits biodiversity, in particular as part of the Cornwall and West Devon Mining Landscape World Heritage Site.
- Conserving and interpreting archaeological earthworks and sub-surface archaeology, while recognising the potential for undiscovered remains, informed by understanding of historic landscape character.
- Protecting and increasing understanding of the cultural and biodiversity importance of the ancient field systems and Cornish hedgebanks and how, with other forms of interconnected habitats, they reflect millennia of change and create biodiversity stepping stones and corridors.
- Conserving, restoring and managing historic parklands, which support rich invertebrate, lichen and bryophyte populations. Encourage tree planting that is sympathetic to the historic parkland plan (including the replacement of exotic specimens), reinstate traditional management techniques of pollarding and pruning, and sympathetically manage standing ancient and veteran trees. Conserve parkland structures and rides.
- Providing information and interpretative material to ensure that public access respects the presence of archaeological features, particularly where located on open access land or common land or in close proximity to the South West Coast Path.
- Improving the visibility of rock exposures in both redundant and active quarries and providing interpretation to improve understanding of both geodiversity and the extractive industries – past and present.

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- Ensuring that the sense of tranquillity is maintained by encouraging only appropriate levels of development in appropriate locations and ensuring that the traditional character of the small, historic fishing and farming settlements and mining villages is retained through use of local building materials and styles.
- Maintaining and enhancing the distinctive settlement pattern of market towns, small villages and dispersed settlements and their diverse architectural styles, ensuring that future development recognises and retains the value of the area's biodiversity, access and heritage and contributes positively to its character.
- Encouraging the use of local products – for example locally caught edible crabs and rare-breed beef from the heathland – within suitable businesses, for example pubs, restaurants and tourist markets, and ensuring that links are made to the landscape from which the product is sourced.

Polperro lies on a typical ria (drowned valley) with steep wooded sides.

SEO 3: Sustainably manage the visitor pressure associated with this distinctive landscape to ensure that the numerous recreational opportunities, such as the South West Coast Path and high-quality beaches, continue to be enjoyed sustainably by the local community and visitors. Develop volunteering opportunities both for local residents and for visitors, and endeavour to better connect people with places and natural assets.

For example, by:

- Sustainably managing the area's visitor and tourist industry to maintain, conserve and interpret the existing high-quality landscape and the historic and wildlife assets while ensuring that the local community and economy can continue to enjoy and benefit from this unique and heavily used recreational landscape.
- Promoting access to the natural and historic environment across the area, particularly incorporating sustainable access to the South West Coast Path and continued careful management of the National Trail itself. This needs to accommodate growth in visitor numbers while retaining the tranquillity and inspirational qualities of the area.
- Managing the visitor pressure at the various locations that are distinctive and widely recognised landmarks, and which bring high visitor numbers to the area.
- Conserving the cultural heritage, coastal views and undisturbed character of sections of the coastline to ensure that public enjoyment continues, while also ensuring that visitor pressure does not have a negative impact on the character.
- Providing guidance and interpretation to improve public understanding and to reduce damage to features as a result of recreational uses (including rock climbing and coasteering).
- Maintaining an undeveloped coastline where appropriate, allowing natural coastal processes to operate unimpeded.
- Considering the cumulative impacts of development and land use change on the landscape. It is important that any proposals do not have a detrimental impact on the local character and tranquillity.
- Focusing the development of new, or enhancement of existing, recreational facilities and tourist sites in compatible locations, maintaining the mix of 'passive' and 'active' leisure and recreational opportunities.
- Exploring working with partners and organisations that support volunteering in the natural environment to provide opportunities for people to increase their knowledge and understanding of biodiversity while benefiting habitats and species.

Supporting document 1: Key facts and data

Cornish Killas National Character Area (NCA): 222,098 ha

1. Landscape and nature conservation designations

The Cornish Killas NCA contains 43,762 ha of the Cornwall Area of Outstanding Natural Beauty (AONB), covering 19 per cent of the NCA area. The NCA also includes 8,326 ha of the Tamar Valley AONB and several stretches of Heritage Coast: Godrevy to Portreath, Gribbin Head to Polperro, Pentire Point to Widemouth, Rame Head, St Agnes, The Lizard, The Roseland and Trevose Head. The area also includes sections of the Cornwall and West Devon Mining World Heritage Site in the Tamar Valley and St Austell areas.

Management plans for the protected landscape can be found at:

- www.cornwall-aonb.gov.uk/
- www.tamarvalley.org.uk/

Source: Natural England (2011)

Please note: Part of this NCA is affected by an Order extending the Yorkshire Dales National Park. This will not take effect unless confirmed by the Secretary of State. Please see www.naturaleng-land.org.uk/lakestodales for current status.

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	n/a	n/a	0	0
European	Special Protection Area (SPA)	Tamar Estuaries Complex SPA, Marazion Marsh SPA	233	<1
	Special Area of Conservation (SAC)	Breney Common and Goss and Tregoss Moors SAC, Carrine Common SAC, Fal and Helford SAC, Godrevy Head to St Agnes SAC, Newlyn Downs SAC, Penhale Dunes SAC, Plymouth Sound and Estuaries SAC, Polruan to Polperro SAC, River Camel SAC, St Austell Clay Pits SAC, Tintagel-Marsland- Tregoning Hill SAC	2,242	1
National	National Nature Reserve (NNR)	Goss Moor NNR, Golitha Falls NNR	51	<1
National	Site of Special Scientific Interest (SSSI)	A total of 91 sites wholly or partly within the NCA	5,109	2

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 2,295 ha (1 per cent of the total land area); national designations cover 5,109 ha (2 per cent). The Tamar Estuaries Complex SPA lies within the Plymouth Sound and Estuaries SAC.

There are 285 local sites in the Cornish Killas covering 13,564 ha which is 6 per cent of the NCA.

Source: Natural England (2011)

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

1.1.1 Condition of designated sites

Condition category	Area (ha)	% of SSSI land in category condition
Unfavourable declining	468	9
Favourable	2,706	53
Unfavourable no change	136	3
Unfavourable recovering	1,789	35

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

Ranges from -0.2 m below sea level to a maximum height of 331 m.

Source: Natural England (2010)

2.2 Landform and process

An undulating slate plateau cut by a complex pattern of valleys leading to richly-varied coastlines.

Source: Cornish Killas Countryside Character Area Description

2.3 Bedrock geology

The rocks of the plateau were laid down as sediments during the Devonian period, then buckled, squeezed and lifted during the Carboniferous as continents moved towards each other. Spectacular folds in rock layers are visible in the sea cliffs. The enormous pressures and temperatures generated caused sedimentary rocks to be metamorphosed into the slates of the present-day killas. The intrusion of magma (to form the granites of NCAs Bodmin Moor, Hensbarrow, Carnmenellis, and Dartmoor) baked the surrounding killas resulting in an aureole of metamorphic rocks. The aureoles are particularly rich in minerals such as copper, tin, lead and zinc.

Source: Cornish Killas Countryside Character Area Description, Cornish Killas and Granites Natural Area Profile, British Geological Survey maps

2.4 Superficial deposits

Ice sheets did not reach as far south as Cornwall; however, the area was subject to arctic-like conditions during the glacial periods. The arctic conditions also led to the formation of large amounts of shattered rock,

known as head, which now occupies valley bottoms and slopes. Areas of sand, evidencing changes in sea level and climate change, have been deposited along the north coast.

Source: Cornish Killas Countryside Character Area Description, Cornish Killas Natural Area Profile, British Geological Survey maps

2.5 Designated geological sites

Designation	Number
Geological Site of Special Scientific Interest (SSSI)	34
Mixed interest SSSI	14

There are 68 Local Geological Sites within the NCA.

Source: Natural England 2011

Arable weeds on Pentire Head.

- 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

In general, the killas rocks give rise to brown earth soils which are well-drained and of moderate fertility. In places they are very productive on well-favoured sites leading to Grade 1 soils.

Source: Cornish Killas Countryside Character Area Description, Cornish Killas and Granites Natural Area Profile

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	276	<1
Grade 2	25,706	12
Grade 3	154,191	69
Grade 4	27,481	12
Grade 5	1,718	1
Non-agricultural	5,656	3
Urban	5,225	2

Source: Natural England (2010)

- Maps showing locations of statutory sites can be found at: http://magic.defra.gov.uk/website/magic/ - Select 'Landscape' (shows ALC 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 Inny	30
River Camel	21
River Lynher	21
River Fowey	20
River Fal	17
River Allen	16
River Seaton	16
River Hayle	14
River Tiddy	14
River Tamar	6
River St Neots / Loveny	2

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.

Owing to tectonic tilting to the south, the major river catchments occur on the southern side of the NCA. The larger catchments tend to have a dendritic pattern, with complex tributaries and sub-tributaries, for example the Tamar, the Fowey, the Fal and the Helford. The rivers on the northern coast tend to have a more linear pattern with valleys of a much shorter length, though the River Camel is an exception, having a well-developed estuary.

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 54,898 ha, 25 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

Large ships laid up in the Upper Fal.

4. Trees and woodlands

4.1 Total woodland cover

The NCA contains 21,467 ha of woodland (10 per cent of the total area), of which 5,949 ha is ancient woodland.

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

4.2 Distribution and size of woodland and trees in the landscape

Broadleaved wooded river valleys, particularly along the south coast, contrasts with the limited tree cover on the exposed plateau and cliff tops further north. Outstanding parklands, rich in lower plants, are generally found in sheltered coastal valleys. Small tree groups occur around settlements.

Source: Cornish Killas Countryside Character Area Description, Cornish Killas and Granites Natural Area Profile

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	15,951	7
Coniferous	3,476	2
Mixed	697	<1
Other	1,343	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	2,234	1
Ancient re-planted woodland (PAWS)	3,715	2

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Hedgerows and Cornish hedgebanks, some stone-faced, enclose a landscape of mixed farming.

Source: Cornish Killas Countryside Character Area Description; Countryside Quality Counts (2003)

5.2 Field patterns

Field patterns vary widely, though generally the landscape is one of ancient enclosure formed in the medieval period and in some cases earlier.

Source: Cornish Killas 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 farming character. In 2009 there were 916 holdings grazing livestock lowland (30 per cent), 324 dairy holdings (10 per cent), 322 mixed type holdings (10 per cent), 285 holdings specialising in cereals (9 per cent), 184 horticulture (6 per cent), 165 general cropping (5 per cent), 98 grazing livestock in the Less Favoured Areas (3 per cent), 732 other types (24 per cent), 50 specialist poultry (2 per cent) and 24 specialist pigs (1 per cent). Several farm types saw a rise in the number of holdings over the period 2000 to 2009. The largest was in other types which increased by 133 holdings, cereals by 34, and general cropping by 23. Over the same period, some farm types saw quite steep reductions in the number of holdings, dairy which lost 246 holdings, grazing livestock lowland which lost 140, mixed farming which lost 101 and horticulture which lost 56.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Farms sized 5 to 20 ha were the most common in terms of numbers of holdings, with 956 holdings but only covered an area of 10,545 ha. Farms between 20 and 50 ha were the next most numerous at 716 holdings, covering an area of 24,083 ha. By area, the most significant were those farms over 100 ha with 92,545 ha or 55 per cent of the total farmed area. Numbers of holdings decreased among all size brackets between 2000 and 2009, apart from farms over 100 ha, which increased by 50 holdings. Farms between 20 and 50 ha lost the most number of holdings (down by 140), followed by farms under 5 ha (down by 99) and farms between 5 and 20 ha (down by 93 holdings).

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

Owned land made up 59 per cent of the total farmed 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, while land held in tenancy had increased by 6 per cent.

2009: Total farm area = 168,311 ha; owned land = 99,646 ha

2000: Total farm area = 161,800 ha; owned land = 104,577 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

The area of grass and uncropped grassland had increased slightly from 110,117 ha to 112,709 ha between 2000 and 2009. The area of oilseed rape dropped considerably, while the area of stock feed increased from 981 ha to 1,434 ha. The area of cereals and other arable crops also increased between 2000 and 2009.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

Although the amount of livestock remained considerable, the numbers decreased between 2000 and 2009 across all types. Pigs decreased from 35,000 to 26,200, sheep decreased from 366,500 to 276,200, and cattle from 208,200 to 195,700.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

While the numbers of holders decreased from 5,111 to 4,509, the number of managers increased, but only slightly, from 97 to 100. The number of full-time workers contracted between 2000 and 2009 (from 1,029 to 757), while the number of part-time workers increased from 539 to 622. Casual and gang worker numbers also dropped from 1,396 to 774.

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

Mixed low-intensity farmland supports a large number of species of insects, birds and mammals. Throughout the NCA there is wildlife-rich farmland, though there are some main areas, including the coastal strip and the mid-Cornwall moors around Goss Moor.

Cornish hedges provide a haven for plants and shelter for a diversity of invertebrates, small mammals and birds. Species of note include the Plymouth pear, cirl bunting and several bat species.

Cornwall holds 11 per cent of the national total of lowland heath, ranging from wet to dry and from maritime to terrestrial. Cornwall's climate means that most heathlands within the NCA are best thought of as humid heaths combining elements of both wet and dry heathland communities. These heathlands are characterised by heath, scrubs, bristle bent and western gorse, and are often found in mosaics with mire, willow carr and scrub communities.

Areas of open wetlands are very diverse though often characterised by purple moor grass, bog mosses, soft rush, bog asphodel and black bog rush. The wetland communities provide important habitat for many insect species, such as the nationally scarce small red damselfly and the internationally important marsh fritillary butterfly. Willow, and occasionally alder, carr is found in extensive areas in flood plains and areas of impeded drainage. In places willow carr forms part of an unusual transition of habitats from oak woodland through willow carr to salt marsh, for example, at Sett Bridge within the Upper Fal Estuary and Woods SSSI.

Herb-rich unimproved grassland can be found on the sides of the steep valleys which dissect the Cornish landscape. There are extensive areas of unimproved grassland found on the cliff tops and also associated with sand dune systems.

Broadleaved woodland is mostly 'western oak woodland', a type characteristic of the Atlantic seaboard of Britain, dominated by sessile oak with occasional ash, with hazel and holly as common under-storey species. Mixed and coniferous woodland has replaced much of the broadleaved woodland, and though not supporting as rich a diversity of species, can provide food and shelter for a number of common bird and insect species.

Rivers and streams are important for populations of many common invertebrates and fish and also for species of conservation concern such as Atlantic salmon and otters. Large waterbodies are limited in the NCA. Those that are present are usually man-made reservoirs or abandoned mineral workings.

Much of the Cornish coast is made up of a strip of semi-natural habitats sandwiched between the marine environment and agricultural land. The vegetation is heavily influenced by exposure to wind and salt spray and provides a refuge for many different species of plants and animals.

Parkland, mostly found in the southern part of the NCA, consists of mature trees, and with dead wood supporting a rich diversity of mosses, liverworts and lichens.

Mines and quarries provide sites for diverse communities of invertebrates, peregrine falcons, bats and metallophyte liverworts and mosses.

Source: Cornish Killas and Granites Natural Area Profile

7.2 Priority habitats

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

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

Priority habitat	Area (ha)	% of NCA
Broadleaved mixed and yew woodland (broad habitat)	12,584	6
Maritime cliff and slope	3,433	2
Lowland heathland	1,223	1
Coastal sand dunes	1,168	1
Coastal and flood plain grazing marsh	316	<1
Purple moor grass and rush pasture	149	<1
Lowland calcareous grassland	134	<1
Reedbeds	81	<1
Mudflats	62	<1
Blanket bog	42	<1
Lowland meadows	24	<1
Saline lagoons	23	<1
Uplands heathland	7	<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/

Marsh fritillary butterfly.

8. Settlement and development patterns

8.1 Settlement pattern

The Cornish Killas NCA contains a high degree of scattered farmsteads and hamlets, including a high proportion of medieval or earlier origin. The ancient pattern of settlement is intermixed with typically small, nucleated settlements, most developing in the 12th and 13th centuries. Industrialisation contributed to the overall dispersed pattern of settlement. Cornwall's towns are more numerous than might be expected, some developed in the 19th and 20th centuries into large industrial communities or rural market towns.

Source: Cornish Killas Countryside Character Area Description; Countryside Quality Counts (2003)

8.2 Main settlements

The main coastal towns within the Cornish Killas are Saltash, Fowey, Falmouth, Newquay, Padstow, Wadebridge and Penzance. The main internal towns are St Austell, Bodmin, Liskeard, Camborne, Redruth, Helston, Hayle and Truro (the county town). The total estimated population for this NCA (derived from ONS 2001 census data) is 416,007.

Source: Cornish Killas Countryside Character Area description; Countryside Quality Counts (2003), Natural England (2012)

8.3 Local vernacular and building materials

The most common traditional building materials are stone and granite, often whitewashed and with slate roofs and sometimes slate hanging to walls. Cob was formerly widespread and often found used to build upper floors of rural and town buildings into 19th century. There is limited use of brick, largely confined to ports such as Truro and Fowey.

Source: Cornish Killas Countryside Character Area Description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

There are large amounts of visible archaeology including cairns, barrows, Neolithic to iron-age hill forts and defended systems, field systems, cliff castle and hill forts, medieval castles and medieval wayside crosses.

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

9.2 Designated historic assets

This NCA has the following historic designations:

- 32 Registered Parks and Gardens covering 2,985 ha.
- 1 Registered Battlefield covering 51 ha.
- 711 Scheduled Monuments.
- 8,809 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

- 3 per cent of the NCA 7,601 ha is classified as being publically accessible.
- There are 2,537 km of public rights of way at a density of 1.1 km per km2.
- There is 1 National Trail (South West Coastal Path), of which 317 km is within this NCA.

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)	1,513	<1
Common Land	893	<1
Country Parks	677	<1
CROW Access Land (Section 4 and 16)	4,464	2
CROW Section 15	254	<1
Village Greens	26	<1
Doorstep Greens	5	<1
Forestry Commission Walkers Welcome Grants	271	<1
Local Nature Reserves (LNR)	353	<1
Millennium Greens	4	<1
Accessible National Nature Reserves (NNR)	48	<1
Agri-environment Scheme Access	345	<1
Woods for People	2,667	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.

Walkers enjoying the South West Coast Path above Polridmouth.

11. Experiential qualities

11.1 Tranquillity

Based on the CPRE map of tranquillity (2006) it appears that a large proportion of the NCA, although not heavily disturbed, does suffer to some degree from disturbance. The most tranquil areas can be found along the less developed stretches of coastline such as the Roseland peninsula and Port Isaac Bay. The least tranquil are around the larger towns of Truro, St Austell, Falmouth and Padstow.

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

Category of tranquillity	Score
Highest	-66
Lowest	52
Mean	1

Sources: CPRE (2006)

More information is available at the following address: **www.cpre.org.uk/what-we-do/countryside/tranquil-places/in-depth/item/1688-how-we-mapped-tranquillity**

11.2 Intrusion

The 2007 Intrusion Map (CPRE) shows the extent to which rural landscapes are 'intruded on' from urban development, noise (primarily traffic noise), and other sources of visual and auditory intrusion. This shows that away from the main towns and transport links some areas escape intrusion particularly along the coast, for example, the Roseland peninsula. A breakdown of intrusion values for this NCA is detailed in the following table.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	11	30	42	31
Undisturbed	84	66	54	-30
Urban	1	1	3	2

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are the huge increase in areas experiencing disturbance (up by nearly a third).

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

Engine houses on Rinsey Head.

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

- The NCA contains around 21,500 ha of woodland (10 per cent of the total area), of which nearly 3,500 ha is coniferous. Woodland and scrub communities have expanded due to the abandonment of agriculture from many coastal cliffs, heathland and wetland habitats. A lack of traditional woodland management and loss of historic orchards is a notable negative trend, with low take-up of the Woodland Grant Scheme for management, particularly of ancient woodlands.

- Agreements for new planting increased by 4 per cent between 1998 and 2003, although in terms of area this reflected the generally sparse woodland cover of the landscape. The NCA is classed as a medium priority for coppice management and a high priority for woodland planting.

Boundary features

- Cornish hedgebanks form the significant boundary features in this landscape, and many have remained in use for more than 1,000 years. A variety of styles exists across the NCA which reflect the locally available bedrock and individual hedger's techniques. Their maintenance and restoration through the majority of agri-environment schemes reflects their importance. Currently over 500km of hedgerows are being restored or maintained through this mechanism.

Agriculture

- Intensification of agriculture in more productive areas has resulted in a loss of pastures and flower-rich meadows to arable and intensive horticultural. This process is also reflected in the amalgamation of traditional small farms into larger units (for example the intensification and centralisation of dairy and beef production).

- Increased agri-environment scheme take-up from 1998 has reflected the interest in managing marginal land and has gone some way to balancing the changes in land use, with a significant number of agreements for the management and restoration of heathland and grassland as well as for the creation of spring arable habitats to enhance bird interest, most notably for cirl and corn bunting.

Settlement and development

- The Regional Spatial Strategy identified a need for 48,800 new homes and 33,100 jobs in Cornwall. The majority of this new growth has been focused on the towns of Camborne – Poole – Redruth, Falmouth – Penryn and Truro.

- Renewable energy developments, especially wind and solar farms which exploit the exposed, windy conditions and the high light levels across the peninsula, have increased across the area.

Semi-natural habitat

- While designated areas (SAC, SPA, SSSI and NNR) make up only 3 per cent of the NCA, other priority habitats, including lowland heathland, maritime cliff and slope, broadleaved woodlands, purple moor-grass and rush pasture, cover a further 8 per cent. This diverse range of habitats creates an intricate mosaic with the surrounding farmland much of which has potential to be of high conservation value. However, the unprotected areas have been lost through agricultural change and neglect over recent years. This has reduced the variety of habitats which provides a high density of species niches.

- Nationally important species including marsh fritillary, chough, otters, grey seals, corn and cirl buntings and a wide variety of rare arable weeds are associated with these important habitats. Many of these habitats and species have benefited from targeted management through agri-environment schemes since 1998 and, combined with a re-introduction programme for cirl buntings and natural re-colonisation by choughs, populations are increasing in both number and geographic spread.

Historic features

- The many historic features which form a key part of the character of the area have not changed significantly in recent years. However, changes in stocking levels have resulted in an increase in vegetation, particularly bracken, which is masking a number of these sites and causing root damage to the below ground archaeological layers. Changes are also occurring with the increase in solar farms. Some neglect and removal of ancient field boundaries has occurred.

- The inscription in 2006 of the Cornwall and West Devon Mining Landscape World Heritage Site has positively enhanced the physical condition and understanding of the mining heritage within the NCA through consolidation and interpretation of the former industrial sites.

Coast and rivers

- The overall objective of the Shoreline Management Plan is to let the coastline naturally evolve supporting adaptation and resilience of coastal settlements while maintaining the overall character. There are areas, such as Newquay, where more active management has recently occurred and the long-term adaptation of beaches (and their retention) has allowed tourism to increase.

- There has been little change in the water quality of the NCA's rivers in recent years.

Winecove Point and the iron-age Cliff Castle.

Drivers of change

Climate change

- Increased sea levels will impact on coastal habitats and species, for example estuaries, vegetated sea cliffs, dune systems, beaches and coves.
- Increased storminess will increase the rate of erosion of landscape features such as the maritime cliffs and slopes as well as altering coastal habitats and impacting on heritage features and some protected species. The igneous rocks are very resistant to erosion but the softer slates, where they outcrop at the coast, are less so. These landscape features are a valuable geological resource in their own right.
- Potential changes in rainfall patterns may impact on the types of crops grown within the area; this combined with potential desiccation of soils and flash flooding may lead to landscape change and reductions in fertility and productivity.
- A change in climate may lead to pressure on existing species and habitats leading to the development of more transitional habitats and the potential increase in non- native species and habitat types from continental Europe.
- A change in the climate may lead to the development and use of novel / unusual crops such as olives and vineyards. These types of reactive changes have occurred a number of times over the last 200 years in connection with early vegetables and flower and fruit production.
- The ability of soils to retain and slow the flow of water, reducing flood risk in surrounding towns and villages, may be impaired as a result of soil desiccation following drought.
- Warmer winters could promote increased tree growth, as well as the suitability of the area for new non-native species such as Corsican pine – with the south west being particularly suitable for the growth of high-quality softwood timber – and Holm oak, further affecting woodland composition.
- A change in climate may also increase the pests and disease in the area such as ash die-back which may have a significant impact on the woodland character of the valleys.

Carland Cross windfarm.

Other key drivers

- Allowing natural coastal processes to operate unimpeded which needs to be balanced against a need to protect homes and businesses.
- Pressure to develop within the area is generally low, but with higher demands in localised areas. Given the overall sensitivity of the landscape and natural environment, great attention needs to be applied to ensure the enhancement of both their character and quality resulting from any development.
- A transport corridor of regional significance from Exeter through to the Isles of Scilly runs through the NCA and may be subject to capacity enhancements.
- Pressure to erect renewable energy developments such as wind farms and solar farms, both on and offshore, may increase.
- Maintaining sustainable pastoral farming activity and encouraging extensive, low input livestock production to maintain and extend the amount of semi-natural habitat, such as lowland heath, and purple moor-grass and rush pasture presents an ongoing challenge.
- Maintenance of an agricultural economy to sustain a local and permanent labour force sufficient to manage the farmed landscape also presents a number of challenges.
- The integrated management of semi-natural habitats, heritage and cultural features, and geological assets at a landscape scale, may result in more beneficial ways of working with a wider group of interested parties.
- Sustained and increased numbers of visitors present both a challenge to limited and restricted resources, but also an opportunity to engage a wider range of communities and support the local economy. Making valued habitats, geological features and heritage assets available to a wider audience may need to be balanced against the protection of semi-natural habitats, disturbance to wildlife, increased rates of erosion, consumption of local resources – principally water and energy – and economic benefits.

Rolling farm land between the River Camel and the Allen River.

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.

Coast at Looe.

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	Regulating coastal erosion	Sense of place/ Inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Manage, restore, link and enhance the area's rich mosaic of wildlife habitats, expanding their quality, extent and range where appropriate. This needs to be achieved alongside sustainable agricultural practices, which contribute to soil and water quality as well as providing habitat management. This benefits the local economy, minimises soil erosion and flooding and provides increased recreational opportunities.	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↔ **	↔ **	↔ **	↗ ***	↗ **	↗ **
SEO 2: Conserve, manage and increase understanding of the area's rich historic environment and its valuable interlinked geological and cultural heritage – including the mining legacy, the prehistoric and later settlements and ritual remains, and the unique Cornish hedges and field patterns – which combine to bring a unique historical and cultural identity to Cornwall.	↔ **	↔ **	↔ **	↔ **	↗ **	↔ **	↔ **	↔ **	↔ **	↔ **	↔ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **
SEO 3: Sustainably manage the visitor pressure associated with this distinctive landscape to ensure that the numerous recreational opportunities, such as the South West Coast Path and high-quality beaches, continue to be enjoyed sustainably by the local community and visitors. Develop volunteering opportunities both for local residents and for visitors, and endeavour to better connect people with places and natural assets.	↔ **	↗ **	↗ **	↔ **	↔ **	↔ **	↗ **	↔ **	↔ **	↗ **	↗ **	↔ **	↗ **	↗ **	↗ **	↗ **	↔ **	↔ **

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
An open plateau of faulted and folded slates and siltstones (killas) dissected by an intricate pattern of valleys with long, uninterrupted views.	■ The open nature of the 'killas', forming the bulk of the Cornish landscape, gives the characteristic feel to the central, and most of the coastal, parts of Cornwall. ■ Contrast is provided by the valleys dissecting the plateau, giving variety of form and land cover. Valleys vary greatly in size and character; in the north, often narrow and densely wooded, in the south, more rounded with woodland extending to the water's edge. ■ The underlying sedimentary rocks not only give rise to the dramatic coastal form, but in association with magma intrusions also result in rich mineral deposits. 'Killas' is a mining term and expresses the long-term exploitation of mineral resources and links to geodiversity in the area.
Valley and coastal woodlands, and rich, sometimes exotic parklands in sheltered valleys contrast strongly with the often treeless plateau.	■ On steeper valley sides in the southern half of the NCA and in discrete coastal locations along the north coast, western oak woodland perpetuates; a habitat of international importance rich in lichen and bryophyte species. These are evocative, often secret places running to the water's edge. ■ Historic parks and gardens, representing a wealth of historic styles and fashions can be found in the area. These parks tend to exploit the mild Atlantic climate and sheltered conditions found in the coastal valleys. Exotic trees are often prominent features in these gardens.
The ancient pattern and method of field enclosure, cultivation and agriculture tell of the long occupation and versatility of the landscape.	■ The varied pattern of fields, often fossilising the record of historic land use from as early as the Neolithic and Bronze Age demonstrate the early cultivation of the land. ■ The pattern and size of enclosure gives a rich texture to the plateau landscape, and relief from the generally open, treeless character. ■ Cornish hedgebanks, built from stone cleared from fields and topped by gnarled bushes and stunted trees, testify to the longevity of occupation of the land. ■ Cornish hedgebanks provide valuable habitats for a rich array of flora and fauna, and are of cultural importance. ■ The enclosed fields are versatile and productive, with mixed farming and occasionally specialist horticulture and market gardening prevalent. The diversity of agricultural activity can be supportive of a wide range of species. ■ Wildlife-rich farmland can be found along the coast in the Pentire area north of Padstow and is among the most biodiversity-rich farmland areas in the south-west England.
Lowland heath of international importance, mire, scrub and unimproved Culm grassland complexes occur, often forming the transition between land and sea, and alongside streams and rivers.	■ The area contains a high proportion of the national resource of wet and dry lowland heath, with some notably large areas, for example at Goss and Tregoss Moors. Lowland heath supports a range of uncommon flora and fauna, including Dorset heath, Dartford warbler, nightjar and silver studded blue butterfly. ■ Herb-rich unimproved grassland is found on steep valley sides, along cliff-tops and in sand dunes. ■ Coastal habitat sandwiched between the sea and agricultural land and heavily influenced by exposure to wind and salt-laden spray, supports a large number of animal and plant species.

Landscape attribute	Justification for selection
A stunning and diverse coast with spectacular geological formations, cliffs, sand dunes, bays, coves and estuaries, fishing villages and towns.	■ The coastal heathland and unimproved grasslands along the coast have provided ideal habitats for the re-establishment of choughs. ■ The coastline is dramatic in appearance with high rugged cliffs, open estuaries and tumbling coastal streams. ■ Many coastal promontories include old forts and castles used to defend the land from attack from the sea. ■ Much of the coastline is designated as Cornwall Area of Outstanding Natural Beauty, in recognition of the special qualities of the coast, while Heritage Coast designation reflects the many features of historical and natural interest. Many of the small fishing villages are now bustling tourist destinations with an international following including Padstow, Rock and Fowey.
A landscape rich in history, historic features and industrial remains; visible records of human use and interaction with natural resources.	■ Field patterns and evidence of settlement originating from the Neolithic and Bronze Age were further developed during the early medieval period. ■ Hill-top settlements and forts, barrows and cairns, medieval castles and wayside crosses, medieval and Tudor manors, and 18th and 19th century parks and gardens feature regularly throughout the area. ■ The impact of the exploitation of tin and copper during the 18th century is still largely visible in the landscape and is of international significance. These form part of the Cornwall and West Devon Mining Landscape World Heritage Site. ■ Other small slate quarries can be found along the north coast, where much of the extracted material is used for roofing.
Vibrant market towns supporting the needs of local communities, an historic pattern of settlement and the use of simple, robust architecture and building materials.	■ Vernacular architecture, using locally occurring materials, predominantly granite and slate, is simple and utilitarian. While brick is unusual, there is some cob, and slate hanging is quite common north of Newquay, where there is widespread use of shillet. There is some post Second World War Cornish unit housing on the edges of towns and villages. ■ Market towns are compact with well-defined centres focused on solid granite and slate churches and open market places. ■ The remote clusters of houses and terraces of cottages are often white-washed, and simple Nonconformist chapels and small farmsteads of traditional domestic proportions punctuate the landscape. ■ Some larger Barton Farms and estate farms stand out when compared to the smaller farmsteads.
A landscape of contrast; in places uncluttered by modern development, in others, much altered by human activity; in places sheltered, tranquil and passive, in others wild, exposed and exhilarating.	■ An exceptional quality of light, a brightness bordering on Mediterranean, can be experienced at times along the coast. At other times, the moist Atlantic air produces swirling mists, thick fogs and high levels of rainfall. ■ A stormy, rugged north coast and a gentler, luxuriant south coast are contrasted by a discordant, wind-swept, treeless central plateau. ■ An inspirational coastline, prompting both artistic and literary expression and physical, active endeavour (climbing, surfing, sailing and other water sports).

Landscape opportunities

- Protect the pattern of field enclosure and the species-rich hedgebanks which form a rural mixed farmland of considerable historic importance, with nationally and internationally important habitats, notably lowland heath, unimproved grassland, western oak woodland and coastal fringes (dunes, cliffs, estuaries.).
- Protect the important geological, geomorphological, archaeological and cultural heritage sites and assets from erosion, damage and loss due to inappropriate management and development.
- Conserve, enhance and manage semi-natural habitats and associated species including estuaries, maritime cliff and slope, lowland heath, coastal sand dunes, coastal flood plain grazing marsh, intertidal mudflats, saline lagoons and coastal salt marsh, providing a valuable habitat for wildlife and a 'soft', natural sea defences, allowing natural processes to take place, and maintaining a dynamic coastal landscape.
- Manage access, tourism and associated infrastructure in a positive way to soften impacts and disperse pressures effectively.
- Manage the restoration of hedgebanks and estate landscapes to reinforce the structure and historic pattern of enclosure and land use.
- Manage the parks and gardens, and their often exotic content, and woodlands of national and local importance, to maintain the contribution made to the character and qualities of, predominantly, the south coast.
- Plan for the 'restoration' of former minerals sites and quarrying activity to maximise their potential for people, interpreting and researching geodiversity and biodiversity, while retaining and reinforcing their cultural heritage value.
- Plan for the appropriate re-timbering of the landscape following the loss of elms in the last quarter of the 20th century, encouraging the planting of suitable field boundary trees.
- Plan for ongoing access to and space for recreation and leisure activities both along the coast and the secluded, enclosed river valleys.
- Plan for the sustainable continuation of the culture of using the natural resources in the landscape that have shaped and continue to shape it.

Ecosystem service analysis

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Livestock for meat and dairy Cereals and vegetable crops Orchards and vineyards especially in the Tamar Valley Specialist local food producers for example Cornish Yarg, and ice creams Inshore and estuary fishing	The NCA has a mixed farming character where grazing livestock, dairying, and growing of arable crops predominate. There are also some specialist farms such as specialist poultry and pig producers. The main products derived from the Cornish Killas are lamb, beef and milk, along with cereals, fruit, vegetables (brassicas and potatoes) and pork, with localised production of apple juices, cheeses and wines. There are still fishing fleets in many of the port towns such as St Ives and Padstow. Crab and lobster potting are common in some areas.	Regional	The wet and warm Atlantic climate is conducive to a long growing season which is reflected in the stock husbandry regime of animals being 'out' for a large proportion of the year. Most of the soils are brown earth soils which are well drained and of moderate fertility. In places they are very productive on well-favoured sites. In such areas arable farming is more predominant and field sizes tend to be larger and more regular. Vegetable crops such as potatoes and cauliflower grow well in these rich soils and end up for sale in supermarkets all over the country. Maintaining soil structure and condition will be necessary to maximise the response of agriculture to a changing climate. As the margins for traditional agriculture have become tighter, there has been an increase in the number of specialist food producers such as the Camel Valley Vineyard. Fishing fleets have declined in recent years due to economic issues and competition from the European fleet.	Work with the local farming and rural community to identify how to increase the overall productivity of agricultural systems within the area, seeking to increase the commercial value of associated foodstuffs while avoiding adverse impacts within the NCA and on other ecosystem services. Develop markets that reduce the export of landed fish. Opportunities may exist for further diversification into novel crops or livestock species.	**Food provision** **Biodiversity** **Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Sense of place/ inspiration** **Sense of history**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	3,476 ha of coniferous woodland 15,951 ha of broadleaved woodland	Much of the coniferous woodland is under active management for timber. The management of broadleaved woodlands varies but there is some timber production from them. Much of the woodland grows on the slopes of valleys and is difficult to access and of high nature conservation value.	Local	The quality of timber produced within conifer plantations is generally low due to the wet nature of the ground, the strong winds and the nutrient-poor soils. Historically many of the locations chosen for planting were in the poorest locations for agriculture. These areas were often rich in biodiversity. Pockets of habitats still survive within plantations and show potential for restoration. Much of the broadleaved woodland in the NCA consists of trees that are stunted by the poor soils and strong winds found within the region. This limits their use for timber.	Clearance of conifer plantations at maturity provides opportunities for a single crop of timber with the benefit of releasing sites for the restoration of semi-natural habitats which would enhance landscape character; and increase the connectivity with existing semi-natural habitats, benefiting species such as the marsh fritillary butterfly. Increased and enhanced management of broadleaved woodlands through traditional, low impact methods would release timber suitable for local use (predominantly as wood fuel). This positive management would improve habitats, help to regulate water flow and increase the stability and quality of soils.	**Timber provision** **Biodiversity** **Regulating water quality** **Regulating water flow** **Sense of place/ inspiration** **Regulating soil quality** **Climate regulation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	A network of rivers and streams Small reservoirs Lakes and ponds associated with estates and manors	The NCA has no underlying aquifer but is an important water catchment for the county and there are several reservoirs for example Porth Reservoir that supplies water to Newquay. The River Fowey has significantly modified flows because of the two major reservoirs in its upper catchment on Bodmin Moor. Although there is no major aquifer, there is groundwater held in fractures and fissure systems which are available for small, local abstractions. The main abstraction uses are for public water supply, hydroelectric power, amenity use and industry.	Local	Water is available for further abstraction, although there are areas around the north and west coast and in the east where 'no water available', 'over licensed' and 'over abstracted' conditions exist. These are identified in the Catchment Abstraction Management Plan. The NCA contains or is affected by several reservoirs including the Colliford, Siblyback, Drift, Porth, Stithians, College and Argal. For example, the River Fowey has significantly modified flows because of the two major reservoirs in its upper catchment, the Colliford and Siblyback (on Bodmin Moor upstream of the Cornish Killas NCA). The Penryn River is over abstracted downstream of the Argal Reservoir on the edge of the Carnmenellis NCA. River flows in the Par, Fal and St Austell rivers have been significantly affected by pollution and suspended solids from the China clay industry making water unavailable for public supply.	Seek opportunities to maximise the availability of water by increasing the retention of the water flows through the area. This could be achieved through the reinstatement of a natural, meandering drainage pattern and reinstating wet habitats that intercept and retain increased volumes of water which may also contribute to reducing the peak flow and flashy nature of the rivers. Seek opportunities to realise the energy producing potential of fast flowing streams and rivers, particularly where this coincides with the restoration and maintenance of historic structures, features and management practices. Encourage good environmental management of semi-natural habitats, and in particularly unimproved permanent grasslands, increasing the capacity of habitats to retain water and improve water quality.	**Water availability** **Regulating water quality** **Regulating water flow** **Food provision** **Biodiversity** **Sense of history**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Genetic diversity	Crop wild relatives, including sea cabbage, wild carrot and Plymouth pear	There are several species of crop wild relatives found in the NCA. The relatively extensive nature of agriculture, areas of semi-natural habitat and Cornish hedgebanks and especially coastal habitat, combine to provide conditions that are favourable for crop wild relatives such as Plymouth pear.	National	The crop wild relatives growing in the NCA are an important store of genetic diversity which could help with the development of new food plant varieties and variants.	Ensure the protection of habitats supporting crop wild relatives and work with local communities to maintain and extend and continue to appropriately manage habitats suitable for crop wild relatives. Realise opportunities to educate the public, especially landowners, about the importance of crop wild relatives and encourage further research into future use of these plant species.	**Genetic diversity** **Biodiversity** **Sense of place/ inspiration** **Food provision**
Biomass provision	Small section wood from hedgerow and woodland management and the arisings from scrub management	The NCA has 10 per cent woodland cover; offering potential for biomass by bringing existing woodlands under management and using waste materials from commercial forestry operations. Small areas of Biomass have been established through the Energy Crops Scheme.	Local	The potential yield for miscanthus is predominantly high while for short rotation coppice (SRC) it is low. Opportunities for SRC are likely to be limited to the broader coastal valleys, off the exposed hill tops and linked to existing blocks or belts of woodland. Planting of energy crops would need to be sensitively located to avoid loss of fertile and productive agricultural land and to prevent negative impacts on semi-natural habitats, landscape character and views, and heritage assets. Clearance of scrub and the management of hedgebanks may generate material suitable for local wood fuel.	Seek opportunities to promote the clearance of scrubbed areas to increase the area and condition of semi-natural habitat and actively encourage the use of woodland thinning and brash as a source of local wood fuel. Attention should be given to the removal of scrub that coincides with scheduled monuments and other heritage assets. Identify opportunities for planting short rotation coppice and miscanthus, appropriately sited within the existing pattern of woodland Cornish hedgebanks and semi-natural habitats in the eastern part of the NCA. Identify opportunities for using hedgerow thinnings as a source for local wood fuel biomass.	**Biomass provision** **Food provision** **Biodiversity** **Sense of history**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Carbon-rich soils Woodland Permanent grassland	A relatively low proportion of carbon is stored within the first soil horizon – between 0 and 10 per cent only. There are a few small and fragmented areas with higher soil carbon content in the NCA associated with heathland and wetlands. The estuaries, rias and some coastal habitats, including grey sand dunes, dune slacks and reedbeds, around the fringes of the area will store high levels of carbon. Climate regulation will also be offered by the woodlands of the NCA, especially where they are brought under management. Permanent grasslands, particularly wet valley grasslands and some coastal grassland and wet heath, support soils with higher and deeper deposits of carbon and vegetation and are thus suitable for the sequestration of carbon.	Local	Wet heath habitats, estuaries and reedbeds, permanent grassland and woodland all play an important role in sequestering carbon. The management of these habitats should be considered in light of this additional important role. Areas of permanent grassland and woodland maintain higher levels of carbon storage than regularly cultivated soils. Where permanent grassland or long leys occurs, appropriate application of organic matter will result in higher levels of carbon storage and improved soil condition. The use of nitrogen fertilisers on poorly structured soils is likely to result in the release of nitrous oxide gases. Similarly, areas of secondary and ancient semi-natural woodland support soils with higher carbon levels and contribute to the storage and sequestration of carbon.	Increase sequestration of CO_2 through bringing more woodlands into management and expanding and linking areas of semi-natural habitats which can play an important part in the build-up of soil carbon.	**Climate regulation** **Regulating water quality** **Regulating water flow** **Biodiversity** **Regulating soil quality** **Regulating soil erosion**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Rivers, streams, reservoirs Wooded valleys Uncultivated areas on steep slopes, particularly areas of heath Cross-field hedgebanks (in arable)	Groundwater quality is classed as poor across the whole character area, influenced by the acidic granite geology and past history of metal mining and the china clay industry. River chemical quality is mixed, with many stretches of good quality but other stretches of river failing to achieve good chemical condition, including the River Lynher in the east and the River Fal in the west. The ecological quality of rivers, lakes and ditches is also mixed, with the majority classed as either good or moderate, while some are classed as poor and a couple as bad, in the River Fal catchment. Many of the rivers fall within the West Cornwall Priority Catchment, suffering from phosphate and nitrate pollution originating from intensive dairy and horticultural / bulb production. Other rivers fall into the River Camel Valley and tributaries Priority Catchment which suffer from nutrient loss and consequent eutrophication of water courses.	Regional	The groundwater quality is poor throughout the area generally reflecting the acidic nature of the surrounding bedrock, the presence of metals and minerals and past mining activity. Twenty-five per cent of the NCA is a nitrate vulnerable zone. The main issues relate to nutrient leaching (phosphates bound to soil particles and slurry) and soil erosion particularly from fields on steep valley slopes under arable production or where soils have become compacted or eroded from high livestock numbers. Areas of semi-natural habitat such as wet heath and pools help regulate water quality, holding water before it drains into the NCA's streams and rivers. Similarly areas of woodland, rough pasture and ground, and cross-field hedgebanks and buffer strips help to intercept sediment and nutrients.	Increase and link areas of unimproved grassland, especially those on slopes and adjacent to watercourses which will help to reduce surface water flow rates and help intercept nutrients and sediment before they enter ground and surface waters. Encourage the management of grassland with extensive grazing regimes that reduces the input of fertilisers. Encourage farmers and land owners to adopt the management principles promoted under the England Catchment Sensitive Farming Delivery Initiative. Increase and link areas of wetlands, such as reedbeds, marshes, willow and alder carr, valley mire and wet meadows, to help filter polluted waters before they enter water courses or larger waterbodies. Restore lost Cornish hedgebanks, particularly where they can impede cross-land flows within valleys, to help prevent nitrate, phosphate and sediment run-off from areas of horticulture in the west, and intensive dairying and arable elsewhere. Increase and link areas of semi-natural woodland lining valley slopes to reduce nutrient and sediment run-off.	**Regulating water quality** **Regulating water flow** **Food provision** **Biodiversity** **Regulating soil erosion**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Rivers and streams Semi-natural habitats An area of high rainfall Hills and steep sided valleys Old mine workings	This NCA has seen a number of flood events over the past century affecting the settlements of Truro, Par, St Austell, St Blazey, Hayle and Perranporth, including a particularly widespread event in 2003. The main rivers, such as the Camel and the Fowey, rise on Bodmin Moor and Hensbarrow Downs. Here the high rainfall, particularly on the upland moor, rolling hills with steep sides, and wooded river valleys, combined with limited flood plains, underlying impermeable granite and steep gradients create a 'flashy' and rapid river response to rainfall, all contributing to high flood risk.	Regional	The nature of the catchments in the NCA makes them prone to field run-off, which can be exacerbated through inappropriate land use (this has caused flooding in the Sticker and Tywardreath areas). Tide-locking of watercourses where they drain into estuaries, high tides and rising sea levels all exacerbate flooding events. Flood risk is complicated by the presence of old mine and mineral workings that impact drainage, discharge, storage and transfer between catchments. Flood risk is expected to increase due to climate change, urban development and changes in land use. Accordingly development should be designed with this in mind, and river channels should be sympathetically maintained. Flood management is a problem in this area due to the lack of flood plain storage potential upstream of settlements, although reducing flood risk in the upper reaches (for example the Upper Fal) would reduce risk downstream.	Encourage land management practices which assist water infiltration such as increasing areas of unimproved grasslands, rough ground and supporting extensive grazing practices. In arable areas encourage grass buffer strips to reduce surface run-off from arable fields in autumn and winter. Also, encourage the use of winter cover crops where appropriate. Restore lost Cornish hedgebanks to impede cross-land flows in areas of horticulture and intensive dairying and arable farming. Develop opportunities for wetland creation providing water storage and balancing flow rates. Increase areas of semi-natural woodland lining estuaries and on steep slopes in valleys to increase water filtration and enhance water storage to reduce flood risk.	**Regulating water flow** **Regulating water quality** **Biodiversity** **Sense of place/ inspiration** **Food provision** **Regulating soil erosion**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Well-drained brown earths Unimproved pastures Semi-natural habitats	In general, the Killas rocks give rise to brown earth soils which are well-drained and moderately fertile. In places they are very productive on well-favoured sites leading to 13 per cent of soil being classified as either Grade 1 or 2 and a further 69 per cent as Grade 3.	Local	Organic matter may be lost through tillage across more intensively farmed areas away from the open moorland. Lack of organic matter makes soils more susceptible to compaction and erosion. Improving soil quality through increasing organic matter will also have potential benefits in regulating soil erosion by making it more stable and able to withstand heavy rainfall. It may also contribute towards climate change regulation, storing more carbon dioxide, though the capacity of these soils to make a significant contribution is limited.	Ensure levels of organic matter are maintained in all soils, minimising tillage operations where possible. Identify and apply grazing regimes that increase sward diversity and increase levels of organic matter. Manage with extensive, and where appropriate, mixed grazing regimes to reduce stocking densities and avoid soil compaction.	**Regulating soil quality** **Regulating water quality** **Climate regulation** **Regulating water flow** **Regulating soil erosion**
Regulating soil erosion	Wooded valleys Uncultivated areas on steep slopes Cross-field hedgebanks (in arable	Soil loss is associated with arable cropping on steeper slopes with high run-off potential leading to the sedimentation of local water courses. The West Cornwall Priority Catchment (Brighten Stream, Tresillian River, Kestle River and Allen Fall and Caerhays Stream) and the River Camel Valley Priority Catchment, identified by Defra under the England Catchment Sensitive Farming Delivery Initiative, both fall within this NCA.	Local	Soil erosion from intensive cultivation can result in high rates of sedimentation and nutrient loss which impacts on adjacent watercourses and an overall reduction in soil quality. The selection of less well suited crop types, cropping patterns, and direction of cultivation can markedly increase the risk of soil erosion. The intensive management of stock (dairy and beef) can lead to soil compaction which provides an enhanced surface for soil erosion to occur. Improving soil quality through increasing organic matter will have potential benefits in regulating soil erosion by increasing the particle size making it more stable. There is still a strong pattern of hedgebanks in the NCA. Many of these are cross-field hedgebanks which impede water flow, helping to reduce soil erosion.	Increase the amount of farmland managed under principles established under the Catchment Sensitive Farming initiative. Opportunities for enhancements such as infrastructure improvements, crop type, fencing of watercourses and introducing cross-field hedgebanks and buffer strips should be considered. Restore lost Cornish hedgebanks, particularly where they can impede cross-land flows within valleys and help prevent soil erosion, including the relocation of gateways to minimise direct flow paths. Manage and increase areas of permanent grassland and areas of semi-natural woodland to reduce soil erosion and stabilise soils, particularly on steeper slopes, especially in those areas where arable cropping on steeper slopes has resulted in an already increased risk to soil erosion. Manage grassland with extensive grazing regimes to avoid soil compaction and build up soil organic matter.	**Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Regulating water flow** **Biodiversity** **Food provision**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Grassland Heathland Cornish hedgebanks Orchards and soft fruit production in the Tamar Valley	There are around 1,500 ha of species-rich grassland and heathland as well as flower-rich Cornish hedgebanks that provide an important network of nectar sources for pollinating insects.	Local	The contribution of pollination services to food production in this NCA is currently fairly limited as there are only a few orchards and crops that require pollination. An increase in pollinators may be required in order to provide more options for future cropping, and allow for consideration of a greater range of crops in response to changes in the climate. Increases in the number and range of pollinators are also likely to be associated with an increase in biodiversity.	Further development of a network of flower-rich semi-natural habitats (including hedgerows) will provide a vector for the movement of natural pollinators through the landscape which will increase pollination potential for a diverse range of crops.	**Pollination** **Biodiversity** **Food provision**
Regulating coastal erosion and flooding	Estuaries, maritime cliffs and slopes, rias, coastal sand dunes, coastal flood plain grazing marsh, inter-tidal mudflats, saline lagoons and coastal salt marsh and other natural coastal habitats and geomor-phological fea-tures	This coast varies in local geology and structure; however, the overriding characteristics are of open lengths of sea cliff, rocky shore platforms and wave cut platforms with hard rock, resulting in slow rates of erosion, interspersed with wide sandy beaches, often sheltered by resistant headlands. Some of the exposed cliff line is naturally unstable and resultant landslides and cliff slips can result in the loss/damage to roads and footpaths. There are a number of coastal SSSI designated for their geology and nature conservation interest. The majority of the coast is identified as Heritage Coast, much of which also forms the coastal edge of the 12 separate areas that make up the Cornwall AONB. Parts of the coast also fall within the Cornwall and West Devon Mining Landscape World Heritage Site.	Regional	The overall objective of the Shoreline Management Plan is to let the coastline naturally evolve but to support adaptation and resilience of coastal settlements while maintaining the overall character. There are areas, such as Newquay, where more active management may be needed with long-term adaptation of beaches (and their retention) to allow tourism to continue.	Conserve, enhance and extend semi-natural habitats backing the coast and rias, including mudflats, coastal salt marsh and sand dunes, to increase resilience to the impacts of sea level rise and coastal erosion.	**Regulating coastal erosion and flooding** **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
Sense of place/ inspiration	Open and expansive area of undeveloped and farmed land Dramatic and varied coast of cliffs, coves, woodland and grassland Uninterrupted views Historic assets Parklands	The Cornish Killas NCA contains 43,762 ha of the Cornwall Area of Outstanding Natural Beauty (AONB), covering 19 per cent of the NCA area. The NCA also includes 8,326 ha of the Tamar Valley AONB and several stretches of Heritage Coast. The extent of these designations reflects the outstanding natural and scenic qualities of much of the area. The area also includes sections of the Cornwall and West Devon Mining World Heritage Site in the Tamar Valley and St Austell areas reflecting the strong cultural identity of the area. There is a combination of simplicity and wildness, intimacy, drama, terrestrial and maritime connections. The area has a quiet, intensely rural quality contrasting with past industrial heritage and ancient features. The landscape and quality of the light, culture and heritage of the area have long attracted artists, writers and photographers to the area.	National	A sense of place is supported by the area's gently undulating and exposed plateau dissected by numerous wooded valleys leading to a dynamic and varied coastline, most of which is recognised as Heritage Coast. The rocky exposed north coast with waterfalls plunging to the sea contrasts sharply with the more gentle, undulating and sheltered southern coastline of rias (drowned valleys) with wide estuaries, 'inland seas' and a high concentration of designed parklands with ornamental gardens and exotic woodlands. There is clear evidence of human interaction and exploitation of the area's natural resources for over 5,000 years, and cultural associations all contribute to the NCA's rich and varied landscape. Feelings of inspiration and escapism are likely to be associated with a diverse and complex coastline with panoramic views. This is a landscape that has and continues to inspire, and is reflected through the St Ives school of painters and literary links to Daphne du Maurier and John Betjeman to name but a few.	Ensure that the important aspects and features that make up the unique character of the area are conserved and enhanced, while maintaining a vibrant, viable future use and occupation of the landscape. Work in partnership to conserve and enhance the landscape through the realisation of the purpose, aim and objectives of the AONB management plans.	**Sense of place/ inspiration** **Biodiversity** **Sense of history** **Tranquillity** **Recreation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Burial mounds, hut circles and ancient village sites, cliff castles, hill forts and ancient field boundaries Internationally important mining heritage	A strong sense of history is created by a wealth of human artefacts and cultural associations relating to the occupation and exploitation of the environment since Neolithic times. This is evident through the 711 Scheduled Monuments and 8,809 Listed Buildings in the area. The sense of history is further strengthened by 32 Registered Parks and Gardens covering 2,985 ha, a Registered Battlefield and a large array of assets of local importance. The area includes sections of the Cornwall and West Devon Mining Landscape World Heritage Site in the Tamar Valley and St Austell areas.	International	The strong sense of history is created by the ever present and visible wealth of archaeological and industrial sites, buildings, structures and other evidence of past human activity, including prehistoric cliff castles, hill forts, round and bowl barrows and more recent lighthouses and relics of the china clay, tin and copper industries. Past mining activity from the 18th century has physically altered many parts of the landscape, with engine houses and chimneys forming the most prominent features. The historic character of the landscape is further reinforced by a pattern of dispersed farmsteads and hamlets often protected by small tree clumps. Small fishing villages, now popular tourist centres, consist of buildings constructed in characteristic slate and granite which are colour washed. Market towns consist of similar clusters of buildings surrounding granite and slate churches. Medieval wayside crosses, masonry bridges, isolated churches and Methodists chapels linked with mining areas as well as coastal features such as ports and slipways are all characteristic features of the landscape. There is also a high concentration of important designed landscapes including Lanhydrock, Heligan, Trelissick, Trebah, St Michaels Mount and Tintagel.	Use traditional, locally sourced materials and vernacular design in new development where appropriate to reinforce the character and locally distinctive nature of the area. Continue to conserve and enhance both the physical remains and access and interpretation of the internationally important historic environment to further complement and contribute to the diversification of business opportunities across the area. The historic assets of the area provide opportunities for increased access and recreation, learning and research and, where appropriately managed, enhanced biodiversity interest.	**Sense of history** **Sense of place/ inspiration** **Recreation** **Biodiversity** **Tranquillity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Remote and isolated areas, free from major development and infrastructure, such as Roseland Dark skies	Areas of low tranquillity are found around the main towns of Truro, St Austell, Newquay, Camborne, Redruth and Penzance as well as along the main road corridors of the A30, A39, A390, A391 and the A394. The NCA has experienced a significant decline in tranquillity since the 1960s. Undisturbed areas have decreased from 84 per cent in the 1960s to 54 per cent in 2007 Forty-three per cent of the land is now classified as disturbed.	Local	Characteristics of the landscape that are particularly important in conveying a sense of tranquillity are the varied broadleaved wooded valleys, wooded rias, coastline of cliffs and sandy beaches and small historic villages particularly along the coast.	Maintain the uncluttered and timeless quality of the network of lanes enclosed by Cornish hedgebanks, by preventing intrusive road engineering works and signage. Maintain the low levels of light pollution by encouraging the use of street lighting only when necessary, discouraging the exterior illumination of buildings such as churches and the lighting of long driveways with bright lights. Manage the impacts of tourism by dispersing activity across the NCA by, for example, promoting new and alternative routes for walking.	**Tranquillity** **Sense of place/ inspiration** **Sense of history** **Biodiversity**
Recreation	A network of rights of way and open access land More than 300 km of the South West Coast Path Scattered sheltered sandy coves along the coastline Historic assets such as parklands	The NCA offers an extensive network of rights of way totalling 2,500 km at a density of just over 1 km per km^2 as well as more than 300 km of the South West Coast Path. Open access land covers 3,300 ha or 1.5 per cent of the NCA. In addition, there is access to parklands and estates. The area is best known for its coastline, offering some of the best surfing beaches in England along its north coast and extensive sheltered waters for sailing and boating in its ria harbours of the south coast combined with sheltered sandy coves and beaches popular for family holidays.	National	The area is accessed for recreation by people from across the south-west and as a holiday destination from across the UK. This use is increasing with facilities now developing short break packages which extend the holiday period. These are often theme based using the environment as the inspiration. This is obviously providing economic benefit to the area but it is also increasing pressure on the environment with increased traffic congestion, erosion on footpaths and pressure to expand accommodation. Local food and produce, culture and tradition complement and add to the overall experience of the landscape. There is a risk that the most popular tourist sites will begin to suffer erosion which could have a negative impact on footpaths, heritage assets and biodiversity. Some sports such as horse riding can have a particularly high impact on well-used routes.	Promote the South West Coast path and develop links with the wider rights of way network and open access opportunities to decrease over use of hotspots. Increase opportunities for informal recreation by creating links from urban areas to the wider countryside and ensure new development offers opportunities for informal recreation in the wider countryside. Support and develop opportunities for cycling, linking in to the current provision.	**Recreation** **Sense of place/ inspiration** **Sense of history** **Tranquillity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	A mosaic of habitats Coastal heath Maritime cliffs and slopes Unimproved and semi-improved grassland Woodlands Cornish hedgebanks Estuaries Coastal sand dunes Coastal flood plain grazing marsh Intertidal mudflats Saline lagoons and coastal salt marsh	Woodland of nature conservation interest covers up to 8,000 ha of this NCA (lowland beech and yew, lowland mixed deciduous, upland oakwoods and wet woodland) along with 3,500 ha of maritime cliff and slope, 1,200 ha of lowland heathland, 1,200 ha of coastal sand dunes and 1,100 ha of fens. Other priority habitats include reedbeds (800 ha), coastal and flood plain grazing marsh (300 ha), purple moor-grass and rush pastures (150 ha) and lowland calcareous grassland (150 ha). Two per cent of the NCA is designated as SSSI (5,100 ha) and there are 2 SPAs and 12 SAC. More than half of the area of the SSSI is identified as being in favourable condition.	National	Connectivity of habitats and the current mosaic of habitats are essential to supporting and maintaining the numbers of the more mobile species found in the area (mammals, birds and many invertebrates). Less mobile species (many plants, lichens and mosses, and some invertebrates) will benefit from new and permanent opportunities to extend their current range, particularly in the face of climate change. There is a constant threat from non-native invasive species such as rhododendron which fills valleys, preventing the growth and regeneration of native woodland species and Himalayan balsam which extends along many river banks preventing the growth of native bankside and riparian vegetation.	Concerted action should be taken to improve the condition of all important sites and habitats. Further action should be taken to increase the area of important habitats, where possible increasing the connectivity of sites and habitats, and creating more habitats where appropriate and possible. Opportunities should be taken to work with landowners in order to encourage the preservation and creation of good semi-natural habitats, particularly within the farmed environment. Manage woodlands to provide a good mix of native species by targeted felling some sycamore and all rhododendron. Ensure there is ongoing work to identify current and new non-native invasive species and where appropriate take action to prevent their spread.	**Biodiversity** **Sense of place/ inspiration** **Regulating water quality** **Regulating water flow** **Climate regulation** **Pollination**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Mineral deposits Cliffs, caves and geological exposures Coastal geomorphology Mining heritage	The area includes sections of the Cornwall and West Devon Mining Landscape World Heritage Site in the Tamar Valley and St Austell areas reflecting the internationally important geodiversity. Inland areas contain less geodiversity, but provide the context for the igneous intrusions and coastal processes and spectacular exposures. There are 34 Geological SSSI in the area and a total of 68 Local Geological Sites.	National	The predominantly granite and slate geology of the area underpins all aspects of the landscape. It contributes significantly to the sense of place, history, recreation. The geology is clearly expressed in both the cliffs and tors and through its use as a building material. Quarries, minerals working sites and former mines provide the opportunity to explore and study the geodiversity of the area. Some sites are at risk of being obscured through scrub growth.	Identify and realise opportunities for enhanced access to study and understand the internationally important geodiversity across this landscape. Manage exposures and former quarries and workings to maintain the legibility of both the geodiversity and the past human activity.	**Geodiversity** **Biodiversity** **Regulating soil quality** **Sense of place/ inspiration** **Sense of history**

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