



Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper¹, Biodiversity 2020² and the European Landscape Convention³, we are revising profiles for England's 159 National Character Areas (NCAs). These are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.

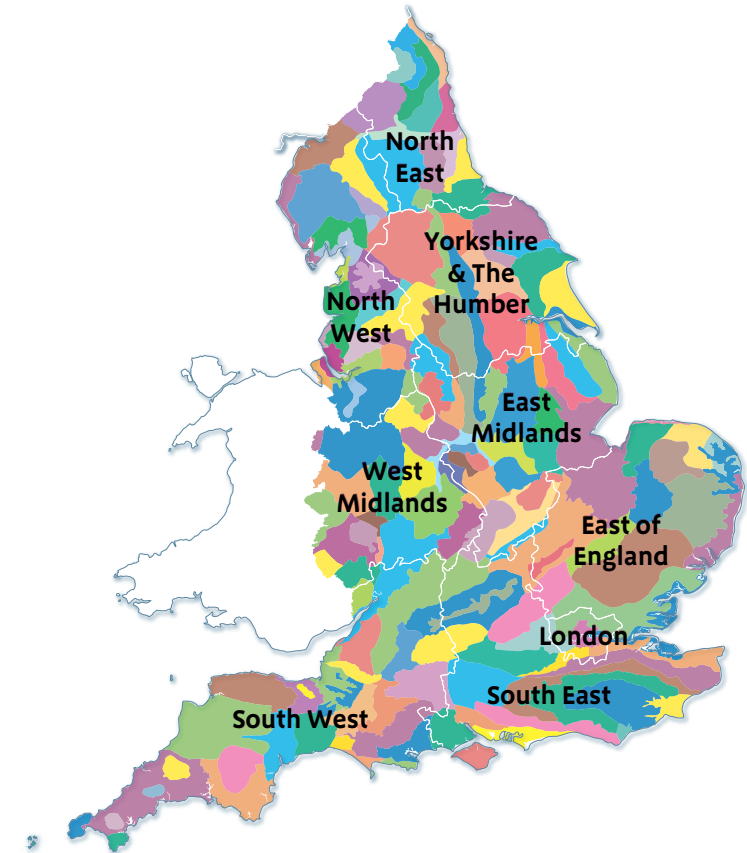
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

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

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

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

National Character Areas map



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

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

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

Summary

The Vale of Pickering is a low-lying basin of flat or gently undulating topography, lying between North Yorkshire's uplands to the north, west and south, and the Scarborough coast on its eastern side. As such it has physical links with many surrounding areas, particularly through river catchments.

Parts of the coastal area are designated as being of European importance as a Special Protection Area (Flamborough Head and Bempton Cliffs for birds) and as a Special Area of Conservation (SAC) (Flamborough Head for its chalk cliff grassland habitats). The National Character Area's (NCA's) main river, the River Derwent, is also an SAC. The archaeologically important Star Carr site is recognised by English Heritage as being of national and international significance for its completeness of record of human habitation: the Vale of Pickering was occupied by Lake Pickering during the last glacial period so its 'shores' are rich in evidence of human use from this period.

This is a landscape of rivers and wetlands which have been artificially drained and modified for productive farming. In providing essential ecosystem services, the most critical in the Vale is the regulation of water flows, through good catchment management to hold water on the land and prevent flooding in Pickering and Malton, towns which have experienced two 1-in-100-year flood events in recent years. Reconnecting the River Derwent with its flood plain and restoring wetland habitat offer opportunities to attenuate water and thus regulate flow, creating scope for climate change mitigation and adaptation, alongside food production. The uplands surrounding this NCA include substantial areas of protected landscapes in the North York Moors National Park and Howardian Hills Area of Outstanding Natural Beauty, the

latter extending into the south-western end of the Vale. The management of vegetation and soils in these uplands is also critical to regulating water flow downstream in the Vale, and thus a catchment-scale approach is needed to understand and address the severe flooding events experienced within this NCA. Preserving the archaeological record while restoring the hydrological integrity of the peat is a related issue of importance; understanding the interrelations between these, through an ecosystem services approach, enables fuller consideration of the associated costs and benefits.

Click map to enlarge; click again to reduce.



A landscape of rivers and wetlands which have been artificially drained and modified for productive farming.

Statements of Environmental Opportunity

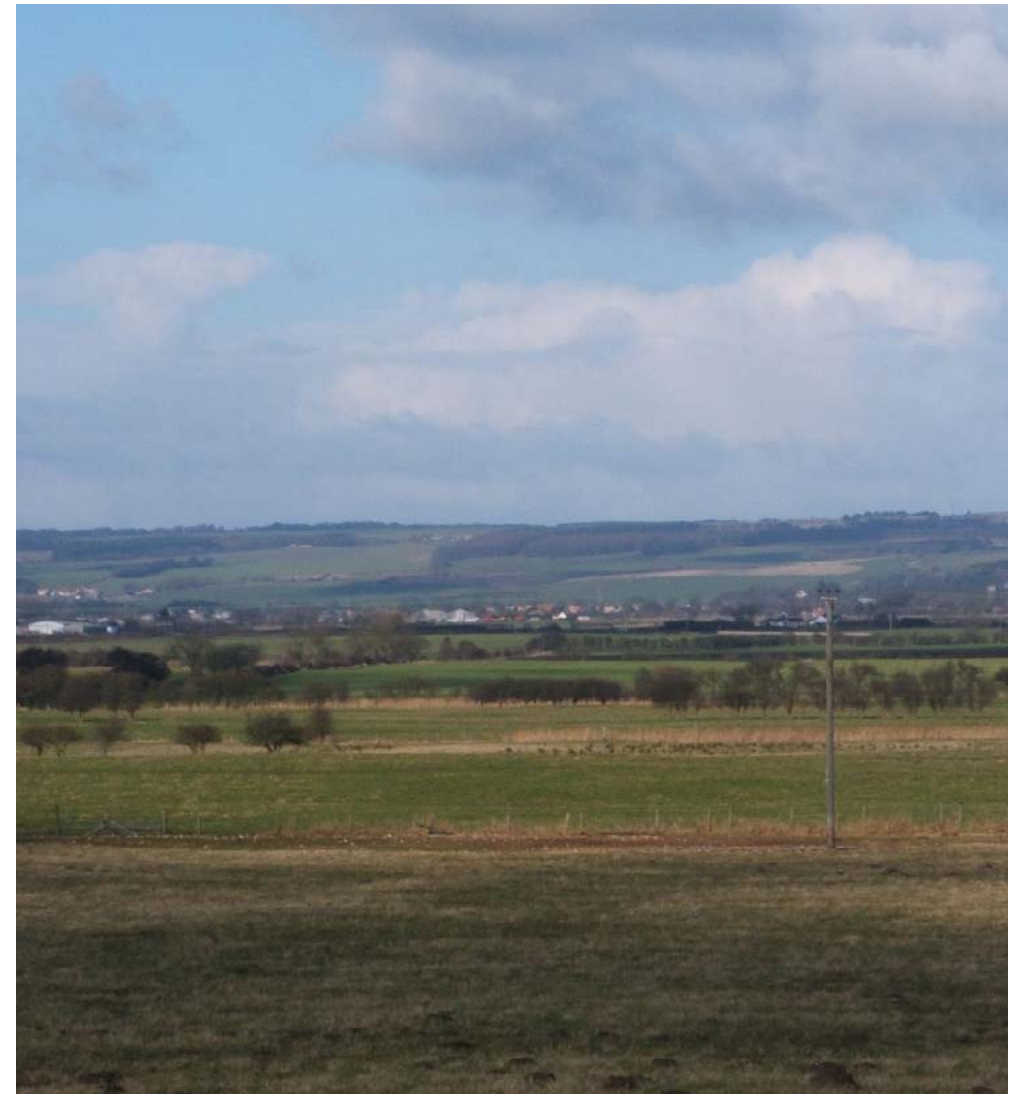
- **SEO 1:** Enhance the network of wetland habitats in the Vale to provide public benefits in improved flood mitigation and improved water quality, and to reduce habitat fragmentation and increase the resilience of habitats and species to environmental change.
- **SEO 2:** Protect and enhance the historic landscape and geodiversity of the Vale, promoting greater understanding of this to inform current and future decisions on how the landscape is used.
- **SEO 3:** Manage the agricultural landscape to enhance the sustainable future of farming, strengthen landscape character, protect soils and water, and enhance biodiversity through improved connectivity of semi-natural habitats, creating ecological networks that are resilient to environmental change.
- **SEO 4:** Ensure that developments are successfully integrated into the landscape, making a contribution to biodiversity and habitat networks, and that they do not compromise the sense of tranquillity and openness of the rural landscape, or delivery of other important ecosystem services, including mitigating and adapting to climate change.

Description

Physical and functional links to other National Character Areas

There are strong visual links between the Vale of Pickering and its surrounding uplands: the North York Moors and Cleveland Hills to the north, the Howardian Hills to the west and the scarp of the Yorkshire Wolds to the south. There are also strong physical links with the surrounding hills, most notably as the rivers draining through the Vale of Pickering rise in these uplands, particularly the North York Moors. Flooding events within the Vale of Pickering often have their origin outside of the National Character Area (NCA). The coastal eastern edge of the Vale of Pickering creates a linear link with adjoining coastal NCAs.

The topography of the Vale has enabled the development of through transport links between the coast and hinterland: the A169, A170 and A64 and the railway between York and Scarborough. The market towns of Norton, Pickering and Helmsley provide a focal point for service provision and trade with surrounding areas.



The Vale of Pickering near Flixton, rising to the North York Moors.

Key characteristics

- A low-lying flat or gently undulating vale with land rising gently to the foothills of the North York Moors and Cleveland Hills in the north, and to the steep scarp of the Yorkshire Wolds and the Howardian Hills in the south and west.
- The Vale opens to the North Sea coast between Osgodby and Filey Bay, the Vale's coastal edge comprising extensive high cliffs dominated by Jurassic sediments to the north and sand and clay to the south, with chalk cliffs extending southwards towards Flamborough Head.



Looking south across Cayton Bay, with its soft cliffs of glacial till, towards the headland of Yons Nab.

- Glacial and lacustrine deposits from the former Lake Pickering give rise to largely fertile land which has been substantially drained through history for agricultural improvement.
- The Vale is a largely farmed landscape, predominantly arable and feed grains, with some livestock.
- Woodland and tree cover is sparse and comprised of predominantly modern plantations with other trees occurring in hedgerows and along riparian fringes, and in small farmstead copses.
- In the eastern part of the Vale fields are large and geometric in shape with boundaries of low hedges or fences with drainage ditches in the lowest-lying areas. To the west smaller and more irregular fields are generally earlier in date, with more grassland, and often enclosed by full hedges with hedgerow trees.
- Despite the small extent of semi-natural habitat within the Vale, this arable landscape supports a number of priority wetland and farmland bird species, and has areas of valuable flood plain grazing marsh. At the coast, the chalk cliffs support important calcareous grassland habitat.

Key characteristics

- The western part of the Vale is drained by the River Rye and its tributaries, and the eastern end by the River Derwent. Glacial deposits dammed the Derwent's natural outflow into the North Sea near Scarborough, resulting in the proglacial Lake Pickering which eventually outflowed at Kirkham Gorge, diverting the River Derwent inland west and south, where it meets the Rye at Malton and flows southwards out of the Vale. The River Derwent has been designated as being of European importance as a Special Area of Conservation.
- The Vale of Pickering contains an unbroken and exceptionally well preserved record of human occupation going back 11,000 years, including early evidence from the Mesolithic period at the important archaeological site of Star Carr and very high potential for further sites and finds in waterlogged deposits and areas covered by blown sand.
- Architecturally important churches and other upstanding structures (castles and monastic buildings) indicate human activity from the Anglo-Saxon period onwards.
- Settlement pattern of medieval nucleated settlement following spring lines, transport routes and slightly elevated ground, along the A170 on the northern boundary of the Vale and similarly along the A64 in the south and B1257 in the west. In the centre of the Vale settlements are more dispersed and tend to be on slightly higher ground, many being established after the enclosure and drainage of the land. To the west are concentrated remnants of earlier medieval villages, moated sites and grange farms.
- The A64 along the southern boundary of the Vale is a major route from Leeds and the other communities of West Yorkshire through York to the coast at Scarborough and Filey. During the summer months and on fine days throughout the year it is used extensively by visitors to the coast. This is also an important road freight corridor for minerals and agricultural produce.

The Vale of Pickering today

The Vale of Pickering is a flat or gently undulating, low-lying basin, at the foot of the surrounding uplands of the North York Moors and Cleveland Hills to the north, the Howardian Hills to the west and the scarp of the Yorkshire Wolds to the south. This bowl-shaped vale, the location of the former Lake Pickering which occupied much of the area during, and subsequent to, the last glaciations, provides a complete contrast to these surrounding areas and has a unique sense of place. The area is characterised by flat-lying glacial-lacustrine clay and sand, deposited in the former Lake; it is often the surrounding hills which dominate the landscape rather than the Vale itself.

The Vale is drained in the west by the River Rye, and its tributaries the Riccal, Dove and Seven. In the north and east it is drained by the rivers Derwent and Hertford. The River Rye joins the Derwent just north of Malton. During the last ice age Scandinavian ice advance blocked the flow of the River Derwent into the North Sea, pushing its discharge to the south-west and creating the ice-dammed Lake Pickering. This is a landscape of heavily modified drainage: the carrs, marshes, moors and wet meadows have largely been drained so that the landscape is now crossed by a network of canalised water courses, cuts and drainage dykes which regulate the water table.

Drainage has enabled the cultivation of fertile soils, with about two-thirds of the area in arable cultivation and one-third under pasture. There are flat, open pastures, areas of intensive arable production and more varied, undulating, enclosed landscapes which create diversity within the Vale as a whole. Woodland is sparse, the western area and the Vale fringes being the most wooded. Semi-natural habitat is limited, with flood plain

grazing marsh in the lower-lying parts of the Vale and calcareous grassland along the coastal cliffs. These cliffs are recognised as being of international importance for birds and for the habitats they support, being designated respectively as a Special Protection Area and a Special Area of Conservation.

There are subtle but discernible differences between the east and west of the Vale. To the east of Malton the valley floor is very flat and low lying with peaty soils and black peat fields in the carr areas south of Eastfield. Much of the landscape arises from the drainage and enclosure of the land during the 18th and 19th centuries. The resultant medium-to-large-sized rectilinear fields are mainly used for arable cropping and are bounded by low hedges, fences and drainage ditches and dykes. As a planned enclosure landscape in a flat vale, views are long and the landscape is generally open, with long, straight roads with wide verges and remote farmsteads. There are few river crossing points, making many of these roads cul-de-sacs, and many lanes terminate at the river, increasing a strong sense of remoteness characteristic of the central Vale. Many watercourses have been straightened and embanked to provide flood protection for adjoining farmland, but are not in themselves prominent features in the landscape. Settlement is nucleated, with villages occurring along the spring line and few isolated farmsteads which mostly date from the enclosure. Buildings are constructed of brick or imported stone, such as sandstone, many with pantile roofs, but many conceal evidence of earlier timber frame and cruck construction. The former wetlands contain the remnants of many prehistoric settlements and remains of international significance for what they have revealed and potentially can reveal about human settlement over the last 11,000 years.

To the west the underlying clays result in a more undulating topography, more tightly enclosed by the surrounding hills, where settlement is more dispersed, earlier settlements being associated with the higher ground. Arable remains the predominant land use here, but there is more pasture, fields being smaller than in the east and mainly bounded by thicker hedges and occasionally fences. The west is slightly more wooded with oak, ash and holly along field boundaries, alder and willow fringing watercourses, and some small copses and game coverts. The River Rye and its tributaries form a dense network of watercourses within the flood plain and are more natural in character than the rivers in the east.

At the coast, deposits of glacial till overlying clay have created a more hummocky, undulating landform inland from Filey Bay. From Filey Brigg to Osgodby the sequence of Jurassic sedimentary rocks meets the North Sea in high cliffs. There is significant coastal erosion here, caused by a combination of rock type, folding, faulting and drainage. Cayton Bay, Filey and the smaller communities in Filey Bay have among the highest rates of coastal erosion in England. North and south of Filey the influence of coastal tourism and recreation becomes much more apparent. Urban development, holiday villages, golf courses, and caravan and chalet sites combine with the presence of the sea, beaches, cliffs and short coastal stream valleys to create a distinctive coastal character. Inland from Filey the landscape is still relatively rural, a mixture of arable fields and pasture enclosed by hedges, although tree cover is fairly limited.

The Vale of Pickering provides a key transport route along the A64 from West Yorkshire and York to the coast and for travellers along the A1 and A19 from the north along the A170 to the coast. Settlements are strung

out along these two routes, which follow the flat, slightly elevated ground along the spring lines on the southern and northern Vale sides respectively, and enable passage into neighbouring hills. In the central Vale settlements tend to be post-enclosure while to the west are remnants of earlier medieval villages, moated sites and grange farms. The most remote and tranquil areas of the Vale are found in the central and western areas away from the busy A64 and A170 corridors and the coastal strip. With the B1257 road skirting the south-western limits along the low ridge of the Howardian Hills, the Vale is more or less encircled by transport routes around its edges.

The flat, open landscapes and the limited north-south through access contribute to the remoteness, tranquillity and sense of place in the Vale of Pickering. This is further enhanced by our increasing understanding of early human occupation in this landscape. The natural and cultural heritage has inspired artistic expression: Scarborough-based artist Kane Cunningham seeks inspiration from and with her surroundings. Others such as the printmaker Paul Musgrove are inspired by the archaeological 'traces' in geophysical surveys. The abstract artist Carmen Mills takes an archaeological approach to her art, inspired by Star Carr.

The landscape through time

The landform of the Vale of Pickering has been shaped by movement along its underlying east–west faults with uplift to the south during the Jurassic of the Market Weighton Block, creating the Jurassic Cleveland Basin and lower-lying area of the Vale of Pickering. Migration of extensive rivers from the north eventually giving way to sea level rise during the Upper Jurassic increased the dominance of marine sediments in the Vale’s geology; the Vale is underlain by Upper Jurassic (Kimmeridge) and Cretaceous (Speeton) marine clays which, though not exposed within the Vale, are visible at Filey Bay where the Speeton Clay forms particularly high cliffs overlain by glacial till. Chalk overlies the Speeton Clay and the Chalk Wolds mark the southern edge of the NCA; at the coast the chalk cliffs continue south-eastwards, eventually forming Flamborough Head, the erosive force of the sea on chalk and clay manifestly shaping this coastal landscape.

During the last glaciation, the Scandinavian Ice Sheet blocked the River Derwent’s flow into the North Sea, diverting it back inland and forming the ice-dammed Lake Pickering, which eventually outflowed southwards through Kirkham Gorge, influencing the Vale’s drainage pattern. Following the last glaciation, Lake Pickering gradually filled with sediment or peat, or drained away, leaving a complex of rivers and marshes. The frequently flooded and waterlogged land led to the development of a wide variety of mottled gley soils, reflecting the range of different sediments beneath, as well as areas of deep fen peat. Names in the area bear testimony to this, with frequent mention of carrs, ings, moors and marshes. Subsequently it has been shaped by, and still exhibits, a remarkable and complete sequence of human activity, starting in the late Palaeolithic with the flint assemblages discovered at Star Carr. Palaeo-environmental evidence adds to this picture: from within the

peat itself it indicates past changes in climate and vegetation from the early Holocene onwards; earlier sediments belonging to the warm Ipswichian interglacial 120,000 years ago have been found in Kirkdale Cave and contain a diverse vertebrate fauna, including the remains of a hyena den and the most northerly remains of hippopotamus. It is known that from at least around 9,000 BC humans were modifying the natural environment to improve the quality of their own lives. Every period from the late Palaeolithic to the present day is represented and recorded somewhere within the Vale.



Small settlements were established on the slightly elevated, drier ground. Red pantiles are characteristic.

The earliest evidence from the Mesolithic period comes from the peat at the eastern end of the Vale. Star Carr is significant for remarkable organic preservation, particularly of wood and bone objects, within waterlogged peat. Recent investigations here by the Universities of York and Manchester suggest that early sedentary hunting communities lived along the edge of, and on islands within, Lake Pickering. Later, from the Neolithic and early Bronze Age there is evidence of islands within the peat fen used for settlement and burial, with trackways linking communities across the valley. These early transhumance patterns established connections between the wet areas and the adjacent slopes and higher ground. A bronze-age Beaker settlement has been excavated at West Heslerton, and a Beaker kiln was found – the only known example in the world at the time of excavation. Geophysical survey and aerial photography have identified extensive evidence of enclosed and unenclosed farmsteads with round houses and distinctive ‘ladder settlement’ on the Vale slopes. They date from the Iron Age into the Roman period, and are located in particular under the wind-blown sands along the south of the Vale, for example between Malton and Hovingham. These ladder settlements are linear settlements characterised by enclosures on either side of a central trackway.

Roman military remains are also a feature in the landscape; for example, the Roman fort in Malton is associated with a Roman town on the banks of the Derwent and the Vale was the centre of a major pottery industry in the 3rd and 4th centuries. There is evidence of a shift of settlement in the 5th and 6th centuries, and Anglo-Saxon was followed by Anglo-Scandinavian settlement in the 9th and 10th centuries.

The Vale of Pickering is also the location (and possible focus) of a large number of very early Anglo-Saxon ecclesiastical establishments, and the kingdom of Deira. The nucleated settlement pattern of open field systems surrounding medieval villages was established by the 11th century, those on the Moors–Vale of Pickering border in particular having very long infield strips set between trackways leading to outfield areas and then rough moorland grazing in the North York Moors: these have 9th- or 11th-century origin, and relate to similar strips in adjacent parts of the North York Moors, the Yorkshire Wolds and Holderness. Parish geometries on both the north and south sides of the Vale therefore form characteristic transects of land linking the higher ground of the Wolds or the North York Moors, down the slope and extending to the low grounds in the centre of the flood plain. This recalls the tradition in older pastoral communities of the seasonal shift of livestock between the fertile but flood-prone low grounds and the drier hillsides. Many of these remained as open fields into the 18th century, much of the eastern Vale being subject to enclosure, drainage and the establishment of new and enlargement of existing farmsteads after 1750. The landscape to the west is a more anciently enclosed area with well-wooded hedgerows and areas of woodland, and here are the major concentrations of pre-18th-century dispersed settlement including moated sites and the former grange farms of medieval estates.

The 17th and 18th centuries saw the development of estates and grand country homes by wealthy landowners, such as at Nunnington Hall and Wykeham Abbey, much of this wealth being invested in agricultural improvement. Agricultural enclosure occurred from the 18th century onwards, consolidating strip fields into larger units, the land then being drained to improve it for farming, creating the agricultural landscape of today. The drainage system of interlinked cuts and ditches dates to the 1800 Drainage Act, the plan being to straighten the course of the Derwent and isolate water coming off the higher land from that in the Vale in order to improve the production of cereals and roots. Developments in drainage technique have developed through time, and since the latter half of the 20th century these have been under the management of the Internal Drainage Board, which oversaw significant drainage works from the 1970s onwards. These chronological changes can be 'read' through the landscape.

Discoveries within the Vale of Pickering have contributed to understanding of our human past, some providing important advances in the history of science; for example, William Buckland's discovery and analysis of fossil remains at Kirkdale Cave in the 1820s was central to providing evidence that the bones discovered were not the result of Noah's flood but the remains of a hyena den. In the 20th century work in the Vale of Pickering has defined and advanced the discipline of landscape archaeology.

The extension of the railway from York to Scarborough in 1845 opened the coast up to tourism, and began a phase of landscape change associated with leisure and sport: the Vale of Pickering is home to one of the oldest privately owned cricket pitches, one of the few 'inland links' golf courses, and one of the earliest zoological theme parks in the UK.

After the Second World War the use of larger agricultural machinery, neglect of some farmed land and the loss of farm labour led to field boundary and hedgerow tree loss, particularly on the northern and western edges of the Vale where hedges rather than ditches are characteristic. Many remaining hedges are neglected and gappy. As a result the landscape has become more open and dynamic in structure. Changes in farming since 2000 have seen reductions in the numbers of sheep and pigs, the loss of set aside (since the end of the compulsory requirement in 2009) and a general reduction in the numbers of mixed holdings. The condition of many historic farm buildings is slowly declining as their use declines and they are not actively maintained. Development pressure along the coastal zone is causing character to change locally and there is also new development around Pickering, Malton and Norton. Aggregates are actively quarried at Knapton, Wykeham, West Heslerton and other sites. The Vale has considerable natural gas resources, with facilities currently at Kirby Misperton, Marishes and Knapton, and other locations planned. There is a growing awareness of the related opportunities within the Vale of Pickering to understand and protect the historic environment, and to restore wetland habitats as an essential part of the functioning landscape, resilient to flooding. The Cayton and Flixton Carrs Wetland Project on the peatlands at the eastern end of the Vale has resulted in the restoration and re-creation of wetland habitat including flood plain grazing marsh, supporting wetland bird interests. Significant excavations are taking place at Star Carr to record what is there before it is lost to further peat shrinkage and erosion.

Ecosystem services

The Vale of Pickering NCA provides a wide range of benefits to society. Each is derived from the attributes and processes (both natural and cultural features) within the area. These benefits are known collectively as 'ecosystem services'. The predominant services are summarised below. Further information on ecosystem services provided in the Vale of Pickering NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** The Vale contains productive land that produces good cereal yields, both for human consumption and for animal feed grains, oilseeds, stockfeed (including root crops, brassicas and fodder beet) and livestock (cattle, sheep and pigs) for the fat market. Outdoor pig production is a feature of the A64 corridor. Much of this produce is supplied to local food processors.
- **Water availability:** There is no major aquifer underlying the Vale itself; however, the Corallian Limestone forms a key aquifer locally for Scarborough, serving several bores in the Irton–Cayton area, and this is the subject of a groundwater protection zone. A significant portion of the upper Derwent's flow at East Ayton provides recharge of this aquifer just upstream of its entry point into the NCA boundary. The River Derwent is a major surface water source for public water supply with extraction points at Elvington and Loftsome Bridge 30 km downstream from Malton in the Humberhead Levels NCA.

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

- **Climate regulation:** Carbon sequestration can be increased in peat soils by re-establishing them as wetlands; in most of the area's mineral soils carbon storage may be improved by increasing organic matter inputs and/or by reducing the frequency and area of cultivation.
- **Regulating water quality:** The whole of the NCA is in the Yorkshire Derwent Priority Catchment. There are significant problems with phosphate and nitrate pollution and sedimentation, exacerbated by the high level of connectivity of the internal drainage system of the Vale. Land management practices in the catchment have a significant influence on the levels of nutrient and sediment input to watercourses.
- **Regulating water flow (flooding):** There is considerable flood risk throughout the NCA associated with both the rivers Derwent and Rye and their tributaries. Measures to increase surface roughness, infiltration and evapotranspiration will all slow surface flow across the land; preventing soil erosion reduces the sediment input which chokes watercourses, reducing their channel capacity.
- **Regulating soil erosion:** Soil erosion is particularly marked in the peat areas of the eastern end of the Vale where peat oxidation and erosion lead to significant shrinkage of the soils. Soil erosion is also a risk for the lighter sandy soils along the southern boundary of the Vale where arable production and outdoor pig rearing can lead to soil loss and the sedimentation of watercourses. Soil erosion in the upper catchment of the Rye (outside the NCA) impacts on water quality downstream within the Vale. Adopting best practice in soil management including shallow

cultivation on sandy soils, use of green manure crops, controlling livestock movement near watercourses and creating habitat buffer strips next to water can do much to reduce this, although oxidation can only be prevented by keeping peat waterlogged.

- **Regulating soil quality:** The main soil types of the Vale may be improved in quality through increasing levels of organic matter, improving peat soils by restoring the water table, and by careful timing of activities to reduce the likelihood of soil compaction where drainage is impeded and weak topsoil structure is easily damaged.
- **Regulating coastal flooding and erosion:** Cliff instability and erosion rates are particularly high at Cayton Bay, Filey and the smaller communities in Filey Bay. This erosion is one part of the natural dynamic processes operating along the east coast, which in turn supply eroded material downshore to other areas. The Environment Agency's coastal management policy is to pursue 'no active intervention' along the coast, with the exception of Filey where the policy is to 'hold the line' of existing defences for the long term (to 2105).

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** The basin-shaped topography of the Vale and its wetland landscape and the visible evidence and rich potential in the landscape for human habitation for at least the last 11,000 years all contribute to a strong sense of place. The flat, open landscapes and the limited north-south through access contribute to the remoteness, tranquillity and sense of place. The natural and cultural heritage has inspired artistic expression through time, continuing to the present day, for example in the work of the abstract artist Carmen Mills.
- **Sense of history:** The gathering of knowledge in the latter half of the 20th century in the Vale of Pickering allows us to start to understand a continuous sequence of human activity since the late Palaeolithic, making this area internationally important for its known and potential contribution to the development of communities from this period.
- **Biodiversity:** The River Derwent and parts of the Vale's coast are designated as being of international importance for their wildlife. These sites will be at the core of efforts to rebuild a resilient and functioning ecological network from which many other ecosystem services will be derived.
- **Geodiversity:** Geodiversity, both hidden and visible, has a strong influence on the cultural value of the Vale of Pickering. The contrasting landscapes of the low-lying Vale, the surrounding hills and dramatic coastal cliffs reflect its geological history. This intimately links to land use patterns and resources of today. There is a long and continuing history of research into the geology of the Vale which has been central to our local and wider geological understanding of Britain. Study of this onshore geology is also critical to understanding the offshore geology of the North Sea and its associated hydrocarbon reserves, and the Vale (particularly its coast) remains a critical area for learning about and teaching geology.

Statements of Environmental Opportunity

SEO 1: Enhance the network of wetland habitats in the Vale to provide public benefits in improved flood mitigation and improved water quality, and to reduce habitat fragmentation and increase the resilience of habitats and species to environmental change.

For example, by:

- Working at catchment scale, identifying habitat improvements within adjoining upland National Character Areas (NCAs), such as blocking of artificial drainage channels or woodland gill planting to stabilise slopes, in order to regulate the peak water flows originating in these hills which reach the Vale of Pickering, inundating properties and high-value crops.
- Restoring hydrological integrity and biodiversity of the peatlands by raising water levels within peat soils, thereby enhancing flood mitigation and protecting peat from desiccation, recording archaeological evidence where possible.
- Maintaining undeveloped flood plains as valuable wetland habitats with flood storage capacity and contributing to local landscape character, by increasing the area and connectivity of wet pastures and other wetland habitats such as reedbeds and fens, and the creation of willow and alder carrs in appropriate locations, protecting and enhancing flood plain grasslands for breeding and wintering birds, and ensuring that new winter storage reservoirs are designed to strengthen biodiversity and landscape assets.
- Restoring natural river morphology and dynamics where possible, reconnecting the River Derwent with its flood plain to absorb energy of water flows and thus reduce downstream flood events, while strengthening sense of place and increasing the opportunities for water storage and biodiversity.
- Managing the ditch network, particularly in the east of the Vale, to encourage emergent vegetation, thus supporting species such as water vole and otter, enhancing biodiversity and landscape character.
- Maintaining and extending permanent grassland and semi-natural habitats on peat soils in the east of the Vale, and seeking opportunities to revert arable farmland, re-creating wet grassland and fens especially on the peat.
- Improving the resilience of designated wildlife sites by ensuring that underlying contributors to site condition are understood and managed appropriately, including consideration of the predicted responses of species to environmental change, and building robust ecological networks around these core sites.
- Improving farm infrastructure and waste management, encouraging crops which require lower chemical input and smart use of nutrients and pesticides to avoid leaching of soil nutrients into watercourses, particularly on flood plains where the risk of pollution is greater.
- Employing best practice in soils management, use of low-pressure machinery, and careful management of livestock near watercourses and banksides, using grassland buffer strips and semi-natural habitats to enhance infiltration and protect the internationally important River Derwent and other watercourses from nutrient and sediment input.

SEO 2: Protect and enhance the historic landscape and geodiversity of the Vale, promoting greater understanding of this to inform current and future decisions on how the landscape is used.

For example, by:

- Conserving through careful management the historic environment of this area, including its designated and undesignated historic assets, and the landscape's potential to reveal the prehistoric and later archaeology of land use and settlement.
- Minimising disturbance and damage to archaeological sites resulting from cultivation, adopting shallow cultivation techniques in the sands and gravels around the edge of the former glacial lake (Lake Pickering) and the 'ladder settlement'.
- Minimising disturbance and damage to the peatland archaeology of the internationally important Star Carr site and surrounds by restoring hydrological integrity and preserving palaeo-environmental deposits in wetland areas, and hence contributing to climate mitigation, regulating water flow and restoring the wetland landscape.
- Using palaeo-environmental evidence of past climate and vegetation change in the Vale and human response to this to better inform current and future decision making on land use and landscape change.
- Developing approaches to interpret the varied soils of the Vale, explaining how these interacted with hydrology and vegetation, to tell the story of how soils have been adapted and changed by human intervention.
- Ensuring that successional vegetation on important geological exposures is actively managed so that the exposures remain visible.
- Where possible, maintaining natural coastal processes, allowing the natural 'balancing' of the coastline in line with its biodiversity and geological and recreational value, and ensuring the supply of sediment to downdrift coastlines, thus protecting both natural and man-made assets.
- Ensuring that new development respects historic settlement patterns and features, addressing the decline of historic buildings by repairing and restoring them using traditional materials.
- Strengthening historic field patterns through hedgerow or wet ditch restoration and management, especially of early enclosure field systems, hence strengthening wildlife corridors and other ecosystem services.
- Conserving through appropriate management local historic features such as traditional farmsteads, the ridge and furrow earthworks on upland fringe pasture, and the linear strip fields east and west of Pickering, thereby maintaining sense of place and understanding of cultural history, historic environment and land management.
- Taking opportunities to increase public awareness of the historic importance of the Vale, encouraging educational links with local schools and colleges, using activities such as the Star Carr Project excavations to spotlight the Vale's hidden past and interpret its drained landscape.
- Promoting awareness of geological, geomorphological and soils features including the former Lake Pickering, the nationally important exposures at High Red Cliffs, Red Cliff and Gristhorpe Bay, and the cliffs and foreshore between Scarborough and Cayton Bay, improving the long-term prognosis for these important geological sites by ensuring that underlying factors influencing their condition are properly understood and managed appropriately, for example dynamic coastal processes and scrub succession.

SEO 3: Manage the agricultural landscape to enhance the sustainable future of farming, strengthen landscape character, protect soils and water, and enhance biodiversity through improved connectivity of semi-natural habitats, creating ecological networks that are resilient to environmental change.

For example, by:

- Ensuring that greater self-sufficiency in food production is achieved in a manner which reinforces landscape character, and supports the provision of other public benefits such as protection of the soil resource and its storage of carbon, water quality and holding capacity of the land during peak flood events.
- Promoting good soil management so that the sandy soils of the Vale slopes and the fen peat soils are not depleted by erosion or damaged through compaction or needless loss of organic matter, and the archaeology held within is protected.
- Restoring and extending unimproved grasslands, particularly as buffer zones along watercourses, around existing grasslands, along cliff tops and on peat soils, to achieve a strong habitat network, increase soil quality and its carbon storage, and reduce the threats of fragmentation of these habitats.
- Managing the network of ditches to strengthen its role as a habitat network, dredging/cutting on rotation to maintain emergent vegetation, in order to support plants and animals, and to strengthen the network's contribution to landscape character.
- In arable areas encouraging increased habitat diversity, seeking opportunities to protect and enhance arable flora, and introducing permanent grassland field margins, linking these to the wider grassland resource where possible, using green manure crops within arable rotations, and creating mosaics of habitat to support farmland birds, pollinating insects and natural pest control.
- Creating small native broadleaf woodlands in appropriate locations, including characteristic copses by farmsteads, actively managing these to achieve a diverse age range and provide wider public benefits, for example by storing carbon, preventing soil erosion and attenuating peak flood waters; and within existing woodland considering reinstatement of traditional woodland management practices such as coppicing.
- Protecting, managing and thickening hedgerows, especially in the west of the Vale, to reduce cross-land flows of water during peak floods, enhance soil permeability and strengthen local landscape character and habitat networks.
- Develop opportunities for promotion of local and niche products, supporting traditional farming practices that are characteristic of the area.

SEO 4: Ensure that developments are successfully integrated into the landscape, making a contribution to biodiversity and habitat networks, and that they do not compromise the sense of tranquillity and openness of the rural landscape, or delivery of other important ecosystem services, including mitigating and adapting to climate change.

For example, by:

- Incorporating biomass crops such as miscanthus and short-rotation coppice on a small scale, particularly where they can realise multiple benefits for the environment, contributing to the local landscape character, while retaining the long views and open character of the area.
- Ensuring that developments and land use changes, from small farm scale to industrial scale including waste management facilities, minerals extraction and renewable energy, are successfully integrated, both individually and cumulatively, into the landscape, that they make a positive contribution to the character, sense of place and openness of this rural landscape, and that their location and operation can support the provision of other ecosystem services.
- Securing long-term restoration plans for sites that strengthen landscape character and achieve wider benefits, for example strengthening the wetland habitat network and enabling adaptation to climate change.
- Ensuring that water resource demands and water quality issues are adequately assessed in proposals for development or land use change, including the impact on provision of other ecosystem services, and by promoting sustainable drainage and water conservation measures.
- Ensuring that development to the south of Scarborough protects groundwater quality in the Corallian Limestone aquifer which serves the town; and working with authorities in the North York Moors and Cleveland Hills NCA to protect the upper Derwent's flow, a large part of which provides recharge of the Corallian Limestone aquifer at East Ayton.
- Planning coastal development and land use to accommodate predicted rates of coastal erosion so that essential dynamic coastal processes are allowed to continue without undue detriment to other interests.

Additional opportunity

1. Protect and enhance the natural and cultural environment of the Vale of Pickering and our understanding and enjoyment of the area.

For example, by:

- Protecting the sense of tranquillity and openness that is important to the rural character of the NCA, particularly in the centre of the Vale, on the flood plains and peat carrs, and maintaining key views across and out of the Vale to maintain the sense of expansiveness.
- Minimising light spill, particularly in areas classed as 'undisturbed' on Campaign to Protect Rural England intrusion maps.
- Supporting sustainable recreational and educational access to enable understanding and appreciation of the environment, in particular its clear evidence of historic change, establishing stronger links between recreation at the coast and recreational opportunities inland.
- Identifying opportunities to create new circular routes or links to existing rights of way, particularly to the Cleveland Way, Ebor Way and Wolds Way, and establishing the England Coast Path National Trail, ensuring that the needs of under-represented groups and the less able are recognised.

Supporting document 1: Key facts and data

Total area: 41,737 ha

1. Landscape and nature conservation designations

A small area of the North York Moors National Park (369 ha) falls within the northern boundary of this NCA around Thornton-le-Dale. At the western end of the NCA 1,620 ha (4 per cent of the NCA) lies within the Howardian Hills Area of Outstanding Natural Beauty (AONB). Along the coast, a small area of the Flamborough Head Heritage Coast (108 ha) falls within the NCA in the Speeton area.

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	Percentage of NCA
International	n/a	n/a	0	0
European	Special Protection Area (SPA)	Flamborough Head and Bempton Cliffs SPA	17	<1
	Special Area of Conservation (SAC)	Flamborough Head SAC, River Derwent SAC	50	<1

Tier	Designation	Name	Area (ha)	Percentage of NCA
National	National Nature Reserve (NNR)	n/a	0	0
	Site of Special Scientific Interest (SSSI)	A total of 9 sites wholly or partly within the NCA	190	<1

Source: Natural England (2011)

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

There are 56 local sites in the Vale of Pickering NCA covering 564 ha which is 1 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> – select 'Designations/Land-Based Designations/ Statutory'

1.2 Condition of designated sites

SSSI condition category	Area (ha)	Percentage of SSSI in category condition
Unfavourable declining	0	0
Favourable	140	74
Unfavourable no change	31	17
Unfavourable recovering	18	10

Source: Natural England (March 2011)

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



The Vale is a largely farmed landscape, predominantly arable and feed grains, with some livestock.

2. Landform, geology and soils

2.1 Elevation

Elevation within the NCA ranges from just 9 m above sea level to a maximum of 174 m. Average elevation is 31 m.

Source: Natural England 2010

2.2 Landform and process

A low-lying flat or gently undulating Vale with land rising gently to the foothills of the North York Moors and Cleveland Hills in the north, to the steep scarp of the Yorkshire Wolds to the south, and the Howardian Hills in the south-west. The Vale was glacially sculpted and was the site of the former Lake Pickering during the last glacial period.

Source: Vale of Pickering Countryside Character Area Description

2.3 Bedrock geology

The underlying bedrock consists of Kimmeridge Clay deposited in the Jurassic. There are some outcrops of Jurassic limestone to the north and west at the foot of the Tabular Hills and Howardian Hills respectively. The bedrock is covered by glacial and lake deposits and has little influence on the landscape.

Source: Vale of Pickering Countryside Character Area Description

2.4 Superficial deposits

Lake deposits from the post-glacial Lake Pickering include peat, silts and clays and give the area an almost level topography. Glacial deposits of boulder clay give the far eastern area low, undulating ground. Windblown sands, particularly along the southern slopes of the Vale.

Source: Vale of Pickering Countryside Character Area Description

2.5 Designated geological sites

Tier	Designation	Number
National	Geological Site of Special Scientific Interest (SSSI)	3
National	Mixed Interest SSSI	4
Local	Local Geological Sites	0

Source: Natural England (2011)

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

2.6 Soils and Agricultural Land Classification

Drainage by man has reclaimed the marshland left behind when the former Lake Pickering drained away after the last ice age. The sands and glacial clays deposited in the lake have produced soils of moderate fertility. The western part of the NCA, roughly west of the A169, has predominantly clay soils which are slowly permeable, seasonally wet and of moderate fertility. These soils support a mixture of arable and livestock farming. Further east the soils are mainly of alluvial origin and of moderate to low fertility and arable production predominates. There are fen peat soils around the Flixton area. Along the A64 corridor on the southern edge of the NCA is a strip of acidic sandy soils of low fertility which support arable production or outdoor piggeries. The deeper loamy soils along the coastal strip support mixed farming. Both grade 2 and grade 3 land occurs throughout the NCA although grade 2 land has its main concentration in the central area and towards the eastern end. Grades 4 and 5 land tends to be associated with poorly drained soils often along watercourses.

Source: Natural England (2012)

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)	Percentage of NCA
Grade 1	0	0
Grade 2	7,264	17
Grade 3	31,289	73
Grade 4	3,345	8
Grade 5	109	<1
Non-agricultural	0	0
Urban	1,048	3

Source: Natural England (2010)

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

3. Key waterbodies 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)
Costa Beck	12
River Seven	10
Hodge Beck	3
River Riccal	10
River Dove	8
River Rye	28
Thornton Beck	5
River Hertford	16
River Derwent	33

Source: Natural England (2010)

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

The western part of the Vale of Pickering is drained by the River Rye and its tributaries including the Costa Beck, River Seven, Hodge Beck, River Riccal and River Dove all originating in the North York Moors NCA.

The River Derwent and its tributary the Thornton Beck also originate from the North York Moors NCA and drain the eastern end of the Vale of Pickering. The River Hertford is a heavily modified watercourse which runs east to west along the southern side of the Vale also discharging into the Derwent.

The River Rye joins the River Derwent at Ryemouth and the River Derwent then flows south-westerly through Malton and into the Howardian Hills NCA.

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 41,737 ha, 97 per cent of 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=maptopic&lang=_e

4. Trees and woodlands

4.1 Total woodland cover

The NCA contains 1,180 ha (3 per cent of the total area) of which 45 ha is ancient woodland. Around a third of the woodland cover is coniferous or mixed woodland.

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

4.2 Distribution and size of woodland and trees in the landscape

The limited woodland cover is predominantly small blocks of modern plantations or, in the west, game coverts plus small areas of carr woodland at the eastern end of the Vale. The very small area of ancient woodland is found at the western end of the Vale mostly on the boundary with the North York Moors or Howardian Hills and a significant proportion has been replanted. Other trees can be found in hedgerows or along riparian fringes.

Source: Vale of Pickering Countryside Character Area Description

4.3 Woodland types

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

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

Woodland type	Area (ha)	Percentage of NCA
Broadleaved	795	2
Coniferous	158	<1
Mixed	83	<1
Other	144	<1

Source: Forestry Commission (2011)

Area and proportion of ancient woodland and planted ancient woodland sites (PAWS) within the NCA:

Woodland type	Area (ha)	Percentage of NCA
Ancient semi-natural woodland	30	<1
Planted ancient woodland sites (PAWS)	15	<1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Field boundaries to the eastern end of the Vale tend to be low hedges or fences with drainage ditches in the lowest lying areas. Towards the western end of the Vale hedges are the main boundary features. These tend to be less intensively managed with more hedgerow trees.

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

5.2 Field patterns

In the eastern end of the Vale the fields are large and geometric in shape. To the western end of the Vale there is a more varied field pattern with some fields smaller and more irregular in shape.

Source: 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

Cereals, general cropping and livestock grazing remain the predominant holding types. There has been an increase in the number of cereal holdings and a reduction in general cropping over the nine year period. The number of mixed, dairy, specialist pig, and horticultural holdings have reduced.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Relatively large size of holdings compared to the regional average. There is a wide distribution in holding sizes in the Vale although in the nine year period there has been a significant reduction in the number of holdings of less than 20 ha.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

The total number of holdings has decreased over the nine year period. Over 70 per cent of the farmed area is owner occupied.

Source: Agricultural Census, Defra (2010)

6.4 Land use

The overall ratio of arable to grassland has remained relatively stable with approximately two thirds of the area in arable cultivation. There has been a reduction in the area of cash roots – potatoes and sugar beet – partly because of the closure of the sugar beet factory in York. There has been an increase in the area under oilseeds and stockfeed, including root crops, brassicas and fodder beet. Other arable crops have also increased in area. Noticeable changes over the nine year period include significant reductions in vegetable, fruit and hardy nursery stock (HNS) growing.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

There has been a reduction in sheep and pig numbers and a slight increase in cattle numbers. Outdoor piggeries are concentrated along the sandy land of the A64 corridor.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

There has been a reduction in the number of farmers and an increase in salaried managers. Although there has been an overall slight increase in the number of workers on the land, a much higher proportion of these are now working part time.

Source: Agricultural Census, Defra (2010)

Please note: (i) Some of the Census data are estimated by Defra so may not present a precise assessment of agriculture within this area (ii) Data refers to commercial holdings only (iii) Data includes land outside of the NCA where it belongs to holdings whose centre point is recorded as being within the NCA.

7. Key habitats and species

7.1 Habitat distribution/coverage

Semi-natural habitats cover only a small area of the Vale of Pickering as arable land and improved grasslands predominate. The rivers and their tributaries are an important feature of the Vale. Flood plain grazing marsh along the river corridors is the most extensive habitat although much of this land has been drained and agriculturally improved. Along the coast particularly in Filey and Cayton Bays the chalk cliff vegetation includes areas of calcareous grassland.

Source: Vale of Pickering 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)	Percentage of NCA
Floodplain grazing marsh	3,688	9
Maritime cliff and slope	250	1
Fens	197	<1
Reedbeds	160	<1
Lowland calcareous grassland	76	<1
Lowland meadow	60	<1
Lowland dry acid grassland	19	<1
Purple moor grass pasture	18	<1
Broad-leaved woodland	361	1

Source: Natural England (2011)

- Maps showing locations of priority habitats are available at: <http://magic.defra.gov.uk> – Select ‘Habitats and Species/Habitats’

7.3 Key species and assemblages of species

- Maps showing locations of some key species are available at: <http://magic.defra.gov.uk> – Select ‘Habitats and Species/Habitats’
- Maps showing locations of S41 species are available at <http://data.nbn.org.uk/>

8. Settlement and development patterns

8.1 Settlement pattern

There are a series of settlements including Helmsley, Wombledon, Kirkbymoorside, Pickering, Thornton-le-Dale, Snainton, Brompton and West and East Ayton strung along what is now the A170 on the northern boundary of the NCA. These are just above what would have been the old lake margin along the line of springs issuing from the Corallian limestone. These settlements often have characteristic long plots known as burgages which stretch between the main street and a back lane. A similar line of villages including Rillington, West and East Knapton, West and East Heslerton, Sherburn, Potter Brompton, Staxton and Flixton occurs along the A64 on the southern boundary of the NCA where springs issue from the Wolds chalk. Earlier farmstead sites include shrunken medieval villages, moated sites and the grange farms of monastic or secular estates on the higher ground to the west of the Vale. In the central and eastern Vale, settlements are smaller and more dispersed occurring on slightly higher ground and mainly dating from the post-1750 rectilinear enclosure of the land. Towards the coast are larger settlements such as Eastfield on the outskirts of Scarborough. The coastal town of Filey originated as a fishing village but from the late eighteenth century developed as a seaside resort.

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

8.2 Main settlements

Settlements within the Vale are generally small. The largest settlement is comprised of the adjacent towns of Malton and Norton, at the point where the

River Derwent flows south out of the NCA, which have a combined population of around 21,500. Other larger settlements include Eastfield (pop. 10,000), Pickering (pop. 6,600) and Filey (pop. 6,500).

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

8.3 Local vernacular and building materials

Most historic buildings are roofed in pantiles although there is evidence from the steep roof slopes of buildings that some were originally thatched. The Victorian railway stations are a distinctive part of the built heritage of the Vale of Pickering, as are bridges, village halls, and former post offices. Buildings in the Vale of Pickering are constructed of brick or closer to the northern side of limestone, sandstone or grit stone imported from the North York Moors. In the east of the Vale and along the coast chalk is also used as a building material. There is thus a strong link between local geology and building stone; the character of the churches, towns, villages and farms is distinctive, associated with the very local nature of building stone and quarries. However, Malton is very different; the landowning family had access to building materials from across their estate, and stone was transported in to the area.

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

9. Key historic sites and features

9.1 Origin of historic features

The Vale of Pickering includes the key archaeological sites of Star Carr, Flixton, West Heslerton, and Rillington, Malton and Norton. The prehistoric remains of settlement within the landscape at Star Carr represents an unbroken and exceptionally well-preserved record of human occupation going back 11,000

years, including early evidence from the Mesolithic period. It is known that from at least c. 9,000 BC humans were modifying the natural environment to improve the quality of their own lives. Every single period from the late Palaeolithic to the present day is represented somewhere within the Vale. Historic England believe there is very high potential for further sites and finds in waterlogged deposits and covered by blown sand.

Geophysical survey and aerial photography have picked up extensive evidence of 'ladder settlement' on the vale slopes, dating from the Iron Age into the Roman period, in particular under the windblown sands along the south of the Vale, for example between Malton and Hovingham.

Roman military remains are a significant feature with the Roman fort in Malton associated with a Roman town on the banks of the Derwent.

The Vale of Pickering is home to the highest density of early (Anglo-Saxon) churches in the UK, and is the likely 'home' of the kingdom of Deira. The complexity of evidence for Anglo-Saxon settlement suggests "an Anglo-Saxon precursor to every village in the Vale of Pickering"⁴. The presence of architecturally important churches is a significant characteristic throughout the Vale. From the medieval period there is a greater legacy of upstanding structures – castle building and parish churches.

The Vale of Pickering is home to one of the oldest privately owned cricket pitches, one of very few 'inland links' golf courses, and one of the earliest zoological theme parks in the UK.

The historic landscape of the Vale of Pickering is recognised by English Heritage and others as being of international importance. Archaeologically the most

⁴ *Vale of Pickering: Statement of Significance* prepared for English Heritage by Dr Louise Cooke

significant aspect of the Vale of Pickering is the combination of wetland archaeology, with preservation of organic and wetland deposits, alongside dry land/sandland archaeology, with deposits preserved beneath blown sands.

Iconic material from the Vale of Pickering includes; Mesolithic flints and antler frontlets from Star Carr; the Folkton drums; the world's only known Beaker kiln; and a fully excavated Anglo-Saxon cemetery. Over 30 years of research within the Vale of Pickering has led Professor Dominic Powlesland to state that "The Vale of Pickering is the one place in the UK where we have enough knowledge to ask real, big questions about the past."⁴

Source: Countryside Quality Counts; English Heritage Yorkshire and Humber Region 'Vale of Pickering Statement of Significance – Stakeholder Consultation August 2011'

9.2 Designated historic assets

This NCA contains the following numbers of designated heritage assets:

- 2 Registered Parks and Gardens covering 106 ha.
- 0 Registered Battlefield/s covering 0 ha.
- 34 Scheduled Monuments.
- 783 Listed Buildings.

Source: Natural England (2010)

- More information is available at the following address:

<http://www.english-heritage.org.uk/caring/heritage-at-risk/>

<http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/>

⁴ *Vale of Pickering: Statement of Significance* prepared for English Heritage by Dr Louise Cooke

10. Recreation and access

10.1 Public access

- 1 per cent of the NCA, 304 ha, is classified as being publically accessible.
- There are 400 km of public rights of way at a density of 0.9 km per km².
- There are 2 National Trails within the NCA. The Cleveland Ways starts at Filey and runs north along the coast across the Vale until it passes into the North York Moors. The Wolds Way runs along the northern edge of the Yorkshire Wolds falling within the Vale of Pickering between Sherburn and Willerby and then following the line of the A1039 from Muston to end in Filey (11 km).

Sources: Natural England (2010)

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

Access designation	Area (ha)	Percentage of NCA
National Trust (Accessible all year)	39	<1
Common Land	27	<1
Country Parks	0	0
CROW Access Land (Section 4 and 16)	36	<1
CROW Section 15	113	<1
Village Greens	4	<1
Doorstep Greens	0	0
Forestry Commission Walkers Welcome Grants	5	<1

Access designation	Area (ha)	Percentage of NCA
Local Nature Reserves (LNRs)	0	0
Millennium Greens	0	0
Accessible National Nature Reserves (NNRs)	0	0
Agri-environment Scheme Access	32	<1
Woods for People	48	<1

Sources: Natural England (2011)

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

11. Experiential qualities

11.1 Tranquillity

Based on the CPRE map of tranquillity (2006) the majority of the NCA is of high or moderate tranquillity, with pockets of low tranquillity along the developed coast, and associated with major routeways (the A170) and urban centres at Malton and Pickering.

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

Tranquillity	Score
Highest value within NCA	48
Lowest value within NCA	-49
Mean value within NCA	13

Sources: CPRE (2006)

- More information is available at the following address:

<http://www.cpre.org.uk/resources/countryside/tranquil-places>

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 a similar pattern to that for tranquillity: the majority of the area is undisturbed, with 'disturbed areas' on the developed coast, towns and major routeways across the Vale of Pickering.

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

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	2	27	40	44
Undisturbed	95	71	58	-37
Urban	<1	n/a	2	n/a

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are a substantial increase in disturbed land from 4 per cent in the 1960s to 40 per cent in 2007. Intrusion is due to noise, primarily from traffic and urban development.

- More information is available at the following address:

<http://www.cpre.org.uk/resources/countryside/tranquil-places>

12. Data sources

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

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

Supporting document 2: Landscape change

Recent changes and trends

Trees and woodlands

- Woodland cover is low at 1,180 ha, 3 per cent of this NCA, but there has been some expansion at the western end, west of Kirby Misperton.
- Planting in the east is generally associated with existing woodland blocks.
- There has been some increase in the area of Woodland Grant Scheme agreements for management.

Boundary features

- Modernisation of agriculture has led to field boundary and hedgerow tree loss, particularly on the northern and western edges of the vale, where hedges rather than ditches are characteristic. As a result the landscape has become more open in structure.
- The estimated boundary length for the NCA is about 3,471 km, but there has been a limited extent of Countryside Stewardship agreements for boundary management. Between 1999 and 2003 Countryside Stewardship agreements for linear features included fencing (17 km), hedge management (4 km), hedge planting and restoration (36 km), restored boundary protection (8 km), stone wall restoration (1 km).

Agriculture

- The overall ratio of arable to grassland has remained stable at approximately 2 to 1.
- From 2000 to 2009 there was an increase in the number of holdings under cereal production, a reduction in the area cultivated for cash root crops - potatoes and sugar beet - and an increase in the area under oilseeds and stock feed.
- The number of holdings classified as 'mixed' and 'general cropping' has continued to decline over the period 2000 to 2009.
- The period 2000 to 2009 has seen a notable reduction in the growing of vegetables, fruit and hardy nursery stock.
- Between 2000 and 2009 there has been a reduction in sheep and pig numbers and a slight increase in numbers of cattle.
- The most extensive annual Countryside Stewardship agreements in 2003 were for lowland pastures on neutral/acid soils and over-winter stubbles (212 ha). As a result, there has been some positive change or at least maintenance of the character of the farmed landscape.

Settlement and development

- Development outside major settlements is concentrated more to the eastern end of the NCA, and particularly along the coast, where it appears to be transforming the character locally where infill development impacting on the character of rural villages is most noticeable. Elsewhere, the character of villages is sustained through strict development control.
- Sites for residential development are also being considered around Malton and Norton, Kirby Moorside, Pickering and Helmsley.
- Industrial expansion around Scarborough and Seamer are likely to continue.
- Road improvements appear to be associated with increased levels of 'intrusion' in rural areas.
- Planned large-scale offshore windfarms may have their landfall and grid connections within the area.
- Aggregates are actively quarried at Knapton, Wykeham, West Heslerton and other sites. The Vale has considerable potential for storage of hydrocarbons, with facilities currently at Kirby Misperton, Marishes and Knapton, and other locations planned.
- The Flamingoland theme park is becoming increasingly visible in the landscape of the Vale of Pickering.

Semi-natural habitat

- Between 2006 and 2011, 319 ha of wetland habitat such as floodplain grazing marsh was created or restored in the eastern end of the Vale

through the work of the Cayton and Flixton Carrs project and agri-environment agreements.

- Canalisation of rivers and streams, disconnection from their floodplains and extensive drainage of wetlands such as floodplain meadows and grazing, has resulted in reduction and fragmentation of wetland habitats; there is evidence of some recent reversal in this trend as wetland habitats have been restored resulting in an increased breeding success of wading birds through the work of the Cayton and Flixton Wetland Project and local farmers, supported by agri-environment payments.

Historic features

- The Vale's wetlands are rich in historic features including the remains of Mesolithic settlements, though some have been damaged by drainage and ploughing. Many other important archaeological and historic sites remain relatively unexplored and therefore potentially vulnerable to damage. Shrinkage of peat means that a critical point has been reached in preserving the archaeological record, such that in places a destructive survey is the best means of ensuring that a record of the remains is protected if not the remains themselves.
- The free-draining sandy soils on the southern edge of the Vale are key areas for potato growing and also for location of piggeries. This activity takes place on erodible soils which overlay the important 'ladder settlements'. Drought, drainage and deep ploughing for potatoes have caused some damage to archaeological sites in this area.
- About 64 per cent of historic farm buildings remain unconverted. Most are intact structurally. This aspect of the historic landscape appears to be eroding slowly.

Coast and rivers

- There is no evidence of Countryside Stewardship agreements (no data available for Higher Level Stewardship Scheme) for management of riparian habitats, which suggest that riparian features may not be actively managed.
- The Environment Agency classifies water quality under the Water Framework Directive. Groundwater quality has not been assessed across the majority of this NCA, but where it has it is classed as poor. The chemical quality of the River Derwent (and tributaries) is classed as good. The ecological quality of rivers in the area is mainly classed as moderate, with some stretches of good quality. The ecological potential and the chemical status of the coastline is 'good'.⁵
- Trees and wildlife habitats have been lost along river banks as a result of over engineering and river management, and drainage has caused shrinkage of peat in places, resulting in exposure of tree roots. These issues are mostly in the eastern part of the vale.

⁵ Environment Agency, *Humber River Basin Management Plan, Annex A: Current state of waters*, December 2009.

Drivers of change

Climate change is likely to result in:

- A rise in sea levels and increased storminess leading to the deepening of bays and accelerated coastal erosion.
- Periods of heavy rain may destabilise slopes for example at Cayton Cliff and Knipe Point due to infiltration of water further inland.
- Increased flooding of small towns, villages and transport infrastructure within the Vale, associated with flooding following drought, and run-off from surrounding high ground.
- Flooding can increase rates of soil erosion and may impact on the course of rivers within the Vale.
- Summer droughts leading to increase in water demand for crop growth and contributing to drying out and erosion of peat soils.
- Summer flooding impacting on high-value food and feed crops.
- A longer growing season potentially leading to double cropping.
- New crops and crop rotations leading to changes in the farmed landscape and the biodiversity it supports.
- Species migration and range expansion of southern species may bring pests and diseases as well as expanding the range of native biodiversity; potential loss of small or isolated habitats.
- An increase in frequency of storm events and flooding.

Other key drivers

- Continued dynamic movement of the coastline, in particular the softer glacial till cliffs (moving back at a rate of 0.2-0.5 m per year)⁶.
- There is likely to be increased pressure for food production in the future as a result of a national drive for greater self-sufficiency in food – this creates the opportunity to accommodate this in such a way that environmental features and other ecosystem services are not compromised.
- Likely increase in demand for water supply from increased food production, housing expansion and new developments.
- There is pressure for expansion of existing settlements, particularly Scarborough, with associated pressure to dual the A64, requiring increased amounts of sand and gravel which are extracted locally. Potential upgrading of the A64 may result in impacts on archaeology, visual impacts and loss of tranquillity. Sites for residential development are also being considered around Malton and Norton, Kirby Moorside, Pickering and Helmsley. Industrial expansion around Scarborough and Seamer are likely to continue.
- A requirement for increasing renewable energy generation could result in increased pressure for onshore wind farms, landfall and grid connection for off-shore wind energy, growth of biomass crops (DEFRA's maps show potentially high miscanthus yields in this area⁷), and possible gas exploration.
- The current poor performance of the region in terms of recycling and recovery means there is likely to be an increasing need for waste management facilities if this doesn't improve. The need for an increase in landfill capacity was previously identified by the Regional Spatial Strategy to 2026.
- The Marine and Coastal Access Act 2009 provided opportunities to protect the marine environment and ensure access to all parts of the coast. The Coastal Access trail will be created over the next 10 years.

⁶ North East Coastal Authorities Group (2007) River Tyne to Flamborough Head Shoreline Management Plan 2

⁷ <http://archive.defra.gov.uk/foodfarm/growing/crops/industrial/energy/opportunities/yh.htm>

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.



This area of lowland acid grassland near Wykeham is an unusual habitat in the Vale of Pickering.

Statement of Environmental Opportunity	Ecosystem service																		
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass energy	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/inspiration	Sense of history	Tranquility	Recreation	Biodiversity	Geodiversity
SEO 1: Enhance the network of wetland habitats in the Vale to provide public benefits in improved flood mitigation and improved water quality, and to reduce habitat fragmentation and increase the resilience of habitats and species to environmental change.	*	**	**	*	*	**	**	**	**	**	*	*	n/a	**	*	*	*	*	**
SEO 2: Protect and enhance the historic landscape and geodiversity of the Vale, promoting greater understanding of this to inform current and future decisions on how the landscape is used.	*	**	*	*	*	**	**	**	**	**	*	*	n/a	**	**	*	*	*	*

Note: Arrows shown in the table above indicate anticipated effect on service delivery: ↑ = Increase; ↓ = Decrease; ↔ = Mixed; ○ = Insufficient information. Confidence in projection (*low **medium***high) Dark plum = national importance; mid plum = regional importance; light plum = local importance

Ecosystem service

Statement of Environmental Opportunity

SEO 3: Manage the agricultural landscape to enhance the sustainable future of farming, strengthen landscape character, protect soils and water, and enhance biodiversity through improved connectivity of semi-natural habitats, creating ecological networks that are resilient to environmental change.

SEO 4: Ensure that developments are successfully integrated into the landscape, making a contribution to biodiversity and habitat networks, and that they do not compromise the sense of tranquillity and openness of the rural landscape, or delivery of other important ecosystem services, including mitigating and adapting to climate change.

Food provision	Timber provision	Water availability	Genetic diversity	Biomass energy	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
**	*	*	*	*	**	**	*	**	**	**	*	n/a	*	**	*	*	*	**
*	**	*	**	*	**	*	*	*	*	*	*	**	*	*	*	*	*	*

Note: Arrows shown in the table above indicate anticipated effect on service delivery: ↑ = Increase; ↓ = Decrease; ○ = insufficient information; * = low confidence; ** = medium confidence; *** = high confidence

Dark plum = national importance; mid plum = regional importance; light plum = local importance

Landscape attributes

- The basin-shaped nature of the Vale, which was Lake Pickering in the last glacial and post-glacial period, is the defining character of the Vale, surrounded by uplands to the north, west and south, and by the coastal cliffs and bays to the east.
 - This is the location of well preserved evidence of past human activity, and the wetland habitats which have developed within the floodplain of the main and tributary rivers.
 - The Vale has very little woodland cover and a sense of openness is characteristic particularly of the eastern end of the Vale around Star Carr.
 - A farmed landscape of productive land providing good cereal yields, both quality and feed grains, and livestock for the fat market (livestock sold on for fattening up before slaughter). Pasture is a distinctive element around the fringes of the Vale on the transition to higher ground, as are the islands of pasture around farmsteads and along the watercourses of the Vale.
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- Medieval strip field system and ridge and furrow are still evident today in pockets around Pickering and are particularly characteristic along the northern side of the Vale.
 - Large and more regular enclosures predominate in the central zone associated with the ongoing drainage in the Vale since the 19th century.
 - In the east, fields are large and geometric in shape, often demarcated and bounded by ditches. In the west fields are generally smaller, more irregular in shape, often enclosed by hedgerows with hedgerow trees.
-
- This is a wetland landscape which has been heavily drained to improve agricultural productivity. Consequently there is a low coverage of semi-natural habitats such as floodplain grazing marsh and meadow and these habitats now highly fragmented. This creates a distinctive managed character in the central Vale.
 - The remaining wetlands and the River Derwent SAC are important refuges for wetland plants and birds and their restoration to a more coherent and resilient network is an important priority for conservation as well as landscape character. Reconnecting the network of habitats will also secure wider ecosystem services such as retaining water during peak flood events, and carbon storage.

- The western part of the Vale is drained by the River Rye and the eastern end by the River Derwent. The two rivers meet at Ryemouth and flow south westerly out of the Vale at Malton.
- The form and type of agricultural drainage has varied over the past 200 years from the 1800 Drainage Act through to management under the Internal Drainage Boards in recent years. The development of land drainage through time can be 'read' in the landscape.
- Internationally important palaeo-environmental and Mesolithic deposits are associated with the wetland and riparian zone, particularly around Seamer and Star Carrs, with key archaeological sites at Star Carr, Flixton, West Heslerton and Rillington, Malton and Norton.
- The archaeological importance of the remains at Star Carr are considered to merit Scheduled Ancient Monument status; Nationally important bronze-age deposits are evident along the Vale edge contours, characterised by layers of blown sands covering the archaeological remains of 'ladder settlements'.
- Archaeological and paleoenvironmental evidence in the Vale contributes to our understanding of human occupation and past climate.
- The pattern of settlement in the Vale is closely associated with emergence of spring lines, so tends to be on the slightly elevated ground around the periphery of the NCA, and coinciding with the routes of the A170 and A64 in the north and south respectively.
- The largest settlements are the historic market towns of Pickering, Malton/Norton and Helmsley, and the coastal towns of Filey and also Scarborough to the north, which extends into the NCA.
- Early farmsteads predominate in village centres, some intermixed with 19th-century estate architecture and relating to holding and field layouts established in the medieval period. Isolated and prominent farmsteads in the Vale, the earliest on central higher ground are closely associated with enclosure and drainage of marshy lower ground in 19th century.
- In the west of the Vale are remnants of earlier medieval villages, moated sites and grange farms. Farmsteads are dominated by two-storey farmhouses and combination barns, all predominantly in brick with pantile roofs, the latter a highly visible and distinctive feature of the landscape. Some use of stone from abundant small-scale quarries and of chalk with brick dressings in the south-east close to the Wolds scarp.
- There is evidence for former longhouses (dating to before 1750) within surviving dwellings in village centres. Isolated steadings with pre-18th century fabric are very rare.
- Early Anglo Saxon churches are a particular feature of this landscape.

Landscape opportunities

- Strengthening the local landscape character and distinctiveness in the three 'sub areas' within the Vale: the eastern, central and western areas, for example by restoring traditional boundary features typical of the locality; hedgerows in the west, ditches in the centre and east.
- Restoring peat and wetland habitats, reconnecting the River Derwent with its floodplain, creating or restoring a coherent network of wetland habitats and thereby providing wider ecosystem services of public benefit such as the retention of flood water and storage of carbon in stabilised peat and soils.
- Restoring and extending unimproved grasslands to achieve a strong habitat network resilient to environmental change.
- Supporting good soils and nutrient management at the catchment scale, and supporting a sustainable future for farming which contributes to multiple ecosystem services.
- Protection and increased public awareness of the historically significant landscape of the Vale, from the high-profile sites around Starr Carr, to the hidden archaeology of the southern Vale side, buried under deposits of sand and very vulnerable to erosion, using knowledge of past climate and human occupation to inform decisions on current and future landscape change.
- Creating stronger links between the Vale and its surrounds, strengthening public awareness of the Vale as a coherent entity, for example by using the historic landscape character and geodiversity to create stronger recreational and educational links between the Vale and the coast.
- Working at catchment scale to restore and expand ecological networks across the landscape and optimise their capacity to regulate soil erosion, hold water and hence regulate flooding.

Ecosystem service analysis

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

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

		<p>Almost 93 per cent of the NCA is cultivated. 73 per cent of this is grade 3 agricultural land, 17 per cent is grade 2. Most holdings are given over to lowland cattle and sheep with cereals, as well as smaller proportions of general cropping, poultry and dairy, with outdoor pig rearing a notable feature on the sandier soils.</p>		<p>The grade 2 and 3 soil currently supports production of cereal and feed grains with livestock rearing. Future ability to increase food production will be shaped by this soil quality, and by availability of inputs, including water availability.</p> <p>Poor soil and nutrient management is associated with diffuse pollution and sedimentation which undermines other ecosystem services. Unsustainable increases in food provision could damage key natural and historic features of the Vale and would be detrimental to provision of other environmental services ultimately undermining the provision of services critical to future food production.</p>	<p>Work with the farming community to ensure good soil and nutrient management, thereby securing sustainable future for farming, protecting environmental features within the Vale, and supporting provision of other ecosystem services.</p> <p>Support sustainable expansion of food production; develop opportunities for added value and local/niche products which strengthen the sense of place within the Vale.</p>	<p>Food provision</p> <p>Climate regulation</p> <p>Regulating water quality</p> <p>Regulating water flow</p> <p>Regulating soil quality</p> <p>Regulating soil erosion</p> <p>Sense of place / inspiration</p> <p>Biodiversity</p>
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		<p>There is relatively sparse tree cover and few woodlands, with those which do occur being mainly mixed or coniferous in character and located more to the north and west of the NCA⁸. The open character and wetland within the Vale will limit suitable opportunities for expanding commercial timber production. There may be opportunities for further wet woodland, restoring traditional woodland management to reinvigorate older planting, and strengthening landscape character by copse planting around farmsteads on the northern Vale sides.</p>	<p>Expand native woodland cover through small-scale planting in locations appropriate to local landscape and biodiversity, to strengthen habitat networks and provide other public benefits, such as planting on slopes to maximise benefits in flood control and preventing erosion. Where appropriate reinstate traditional woodland management practices such as coppicing.</p>	<p>Timber provision</p> <p>Biomass energy</p> <p>Water availability</p> <p>Climate regulation</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Regulating water flow</p> <p>Sense of place / inspiration</p> <p>Biodiversity</p>
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⁸ Natural England, *National Character Area description, Vale of Pickering*, date unknown.

National Character Area profile:

<p>Water availability</p>	<p>Corallian Limestone aquifer</p> <p>Localised water sources</p> <p>River Derwent and tributaries</p> <p>Extensive network of drainage channels</p> <p>Water also received from neighbouring upland NCAs</p>	<p>The main river in the NCA is the River Derwent. It has many tributaries which include (from west to east), the Rye, Dove, Seven, Costa Beck, Thirnton Beck, and the River Hertford (which rises 1 km from the coast, but flows westwards into the Derwent). The River Derwent is a major surface water source for public water supply with extraction points at Elvington and Loftsome Bridge 30 km downstream from Malton in the Humberhead Levels NCA.</p> <p>There is 'no water available' from the River Derwent or its numerous tributaries within the NCA⁹.</p> <p>The Corallian Limestone forms a key aquifer locally for Scarborough, although this is not a major aquifer. A significant portion of the upper Derwent's flow at East Ayton provides recharge of this aquifer just upstream of its entry point into the NCA boundary.</p> <p>There are no significant reservoirs within the NCA.</p>		<p>The River Derwent is a very important source of potable water. With 'no water available' for increased abstraction it is imperative that water is used sustainably and that land management practices are employed which will increase water infiltration. Catchment management in surrounding upland NCAs is a critical factor determining water received within the Vale and hence available for use.</p>	<p>Work with farming community and businesses to improve sustainable use of water and sympathetic land management practices, including crop selection and water harvesting, and water conservation measures in new development.</p> <p>Increase areas of semi-natural habitats to increase infiltration such as grassland strips along water courses and recreation of floodplain grazing marsh.</p> <p>Work at catchment scale with surrounding NCAs to improve water availability within the Vale, including protection of flows in upper Derwent which contribute to aquifer recharge.</p>	<p>Water availability</p> <p>Food provision</p> <p>Regulating water quality</p> <p>Regulating soil erosion</p> <p>Biodiversity</p>
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⁹ Environment Agency, *Derwent Catchment Abstraction Management Strategy*, March 2006.

		<p>In total there is 1,180 ha of woodland (3 per cent of the NCA), which provides limited potential for the provision of biomass by bringing unmanaged woodland under management or as a by-product of commercial timber production. Some land has been given over for producing energy crops: miscanthus and short rotation coppice.</p>		<p>There is a high potential yield for miscanthus in the west of the NCA but medium potential yield to the east; there is medium potential yield for short rotation coppice throughout the NCA. For information on the potential landscape impacts of biomass plantings within the NCA, refer to the Natural England website¹⁰. Reinstating coppicing could provide some biomass material.</p>	<p>Work with the farming community to identify suitable opportunities to increase the net yield of miscanthus and short rotation coppice, seeking to locate these where they may be accommodated within local landscape character and realise multiple objectives for the environment.</p> <p>Where appropriate reinstate traditional woodland management practices such as coppicing.</p>	<p>Biomass energy</p> <p>Timber provision</p> <p>Climate regulation</p> <p>Biodiversity</p>
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¹⁰ Natural England website, *Opportunities and optimum sitings for energy crops* (accessed December 2010), <http://www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/areas/o26.aspx>

National Character Area profile:

<p>Climate regulation</p>	<p>Higher carbon content peat soils</p> <p>Woodland</p> <p>Other semi-natural habitats particularly wetlands and grassland</p> <p>Management of soils and cropping</p>	<p>There are small pockets of higher soil carbon content (10-50 per cent) in the east of the NCA, associated with the more peaty soils south of Eastfield. Elsewhere there is low soil carbon content of 0-5 per cent across the vast majority of the NCA, reflecting the predominance of mineral soils low in organic matter where under continuous arable cultivation.</p>		<p>Cultivation in the eastern part of the Vale has led to ongoing loss (wastage) of peat through shrinkage and oxidation, with consequent loss of carbon dioxide into the atmosphere; hydrologically-intact wetlands are net carbon stores.</p> <p>Carbon sequestration can be increased in peat soils by re-establishing as wetlands; in most of the area's mineral soils carbon storage may be improved by increasing organic matter inputs and/or by reducing the frequency / area of cultivation.</p>	<p>Restore/reconnect peatland and wetland habitats, restoring hydrological integrity and thereby protecting peat from desiccation, and ensuring that cultivation practices prevent soil erosion, particularly of peat soils.</p> <p>Expand native woodland into appropriate locations such as small farm woodland and copses, to increase the carbon storage within these habitats.</p> <p>Seek opportunities to create uncultivated margins around arable fields, minimum tillage and increased use of green manure crops within rotations, supported under agri-environment schemes.</p>	<p>Climate regulation</p> <p>Food provision</p> <p>Water availability</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Regulating water flow</p> <p>Sense of place / inspiration</p> <p>Tranquillity</p> <p>Biodiversity</p>
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		<p>Groundwater quality has not been assessed across the majority of this NCA, but where it has it is classed as poor.</p> <p>The chemical quality of the River Derwent (and tributaries) is classed as good.</p> <p>The ecological quality of rivers in the area is mainly classed as moderate, with some stretches of good quality. The ecological potential and the chemical status of the coastline is 'good'.¹¹</p> <p>Significant problems of phosphate and nitrate pollution and sedimentation have been identified, associated with agriculture and exacerbated by the high connectivity of the internal drainage system of the Vale.¹²</p> <p>The Derwent and its tributaries are an SSSI and SAC¹³ and its fish populations, dominated by brown trout, river lamprey and grayling, are generally of a high quality, reflecting the diverse physical habitat and the importance of achieving high water quality.</p>	<p>Working with the farming community to ensure best practice in soils and nutrient and pesticides management, for example using low pressure machinery , carefully managing stock movements and riparian grazing, and informed infield nutrient application.</p> <p>Encourage crops which require lower applications of fertiliser and pesticide, to help protect watercourses from chemical run-off. Promote use of buffer strips to watercourses, and creation of riparian semi-natural habitat, supporting through agri-environment schemes.</p> <p>Promote improvements in farm infrastructure and waste management.</p> <p>Ensure that new development around Scarborough protects groundwater quality in the Corallian Limestone aquifer.</p>	<p>Regulating water quality</p> <p>Food provision</p> <p>Climate regulation</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Biodiversity</p>
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¹¹ Environment Agency, Humber River Basin Management Plan, Annex A: Current state of waters, December 2009.

¹² Natural England, Capital Grant Scheme - Funding Priority Statement 2010/11, Catchment 21: Yorkshire Derwent.

¹³ Environment Agency, Derwent Catchment Abstraction Management Strategy, March 2006.

	<p>There is considerable flood risk throughout the NCA associated with the River Derwent and its tributaries. The towns of Pickering and Malton have experienced two 1 in 100 year flooding events in recent years. The Derwent's tributaries tend to respond quickly to rainfall events, the floodplain of the Derwent itself widens significantly as the river flows into the flatland of the Vale of Pickering. There has been considerable historical flood defence works along the Derwent, mainly associated with land drainage to enable agricultural development.</p> <p>The Sea Cut, located north of the NCA near Everley, prevents large scale flooding in the Vale from water arising in the North York Moors, by diverting flood waters from the Derwent into the North Sea (the Sea Cut follows the pre-glacial route of the Derwent into the North Sea).</p> <p>Continued on next page...</p>		<p>In this bowl-shaped landscape of heavily modified drainage, peak water flows off the surrounding uplands cannot be contained within the watercourses. The flooding events that ensue can have devastating impacts on homes, businesses and on high value food crops.</p> <p>In order to mitigate flood risk within this NCA, the Environment Agency's Catchment Flood Management Plan (2010) supports the restoration of wetlands in the upper catchment (outside the NCA), by blocking grips (artificial drainage channels) and creating sediment-trapping buffer strips or semi-natural habitat adjacent to water courses.</p> <p>Within the Vale itself the Environment Agency supports creation of winter storage reservoirs by the agricultural industry. The Environment Agency also supports the removal of redundant water management infrastructure in water bodies that are failing to reach good ecological status, in order to relieve the pressure on these water bodies caused by physical modification¹⁴.</p>	<p>Restore the ability of upland habitats in the North York Moors NCA to intercept and store increased volumes of precipitation and reduce water inundation of properties and high value crops within the Vale of Pickering.</p> <p>Seek opportunities to restore a more natural morphology to the River Derwent, and reconnect the river with its floodplain. The former will allow the river to naturally absorb more of the water's energy, mitigating the effects of peak flows; the latter will allow for increased flood storage in wetland habitats within the floodplain. Ensure that any new winter storage reservoirs are designed to strengthen biodiversity and landscape assets.</p> <p>Promote tree planting and creation of wet woodland habitats in appropriate locations, and improve hedgerow density where locally suitable, to reduce cross land flows of water during peak floods, improve soil permeability and the holding time of flood waters within the wider catchment before reaching main watercourses.</p>	<p>Regulating water flow</p> <p>Food provision</p> <p>Timber provision</p> <p>Water availability</p> <p>Climate regulation</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Biodiversity</p>
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¹⁴ Environment Agency, *Derwent Catchment Flood Management Plan*, July 2010

		<p>... continued from previous page</p> <p>In the west of the NCA, between Nunnington and Malton, the Rye is constrained by flood embankments which prevents the river from moving across its floodplain. Flooding in this area could spread several kilometres should these defences be overtopped or fail ¹⁵. There is extensive flood risk from the River Rye throughout the agricultural area between Pickering and Malton. There is similarly extensive flood risk in a broad area south of Brompton ¹⁶.</p>		<p>Promote sustainable drainage in developments to increase use of semi-natural habitats and permeable surfacing to reduce run-off and increase water filtration; slowing water entering the system.</p> <p>See also opportunities to address soil erosion (sedimentation).</p>	
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¹⁵ Environment Agency, *Derwent Catchment Flood Management Plan*, July 2010.

¹⁶ Environment Agency website, *Flood Map 2010* (accessed December 2010).

		<p>There are 10 major soilscape types within this NCA, the most significant by area being the slowly permeable seasonally wet clay soils (31 per cent), freely draining lime-rich loams (18 per cent), loam and clay floodplain soils (12 per cent), and peat soils.</p>		<p>The slowly permeable seasonally wet clay soils may suffer compaction and/or capping as they are easily damaged when wet. This may lead to poor water infiltration and diffuse pollution from run-off. The freely draining lime-rich loamy soils have a degree of natural resilience. The loam and clay floodplain soils with naturally high groundwater have flood storage potential, but tend to have a low bearing strength and are at risk of soil compaction from mechanised operations, stock grazing and recreational use in wetter conditions.</p> <p>Areas of peat soils are at risk of drying and oxidation, while diffuse pollution (for example from applied manures and very fine sediments) is possible as a result of local flooding.</p> <p>The main soil types described have potential for increased organic matter levels through management interventions; the quality of peat soils may be improved through restoring the water table to its former higher level.</p> <p>Careful timing of activities is required to reduce the likelihood of soil compaction where drainage is impeded and weak topsoil structure is easily damaged.</p>	<p>Working with the farming community to ensure best practice in soil management to improve structure and quality of soils. This may be achieved through actions such as using low pressure machinery, and managing stock movements, where necessary fencing watercourses/provide drinking bays to prevent bankside erosion from livestock access.</p> <p>Encourage the use of green manure crops such as nitrogen-fixing legumes within arable systems to replace nutrients and bind soil, and informed infield nutrient application.</p> <p>Promote improvements in farm infrastructure and waste management.</p> <p>Pursue opportunities to raise water levels within peat soils.</p>	<p>Regulating soil quality</p> <p>Food provision</p> <p>Climate regulation</p> <p>Regulating water flow</p> <p>Regulating soil erosion</p> <p>Biodiversity</p>
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		<p>The entire NCA lies within Defra's Catchment Sensitive Farming initiative as the 'Yorkshire Derwent' Priority Catchment . Around half of the soils covering this NCA (51 per cent) are at some risk of erosion.</p>		<p>Freely-draining soils all have enhanced risk of soil erosion on sloping land where cultivated or bare soil is exposed. This can be exacerbated where organic matter levels are low after continuous arable cultivation or where soil structure is damaged by compaction. Outdoor pig rearing can contribute to problems of soil erosion and sedimentation of water courses¹⁷. Livestock accessing stream sides increases sediment input to the water. There is widespread potential for wind erosion of the sandy soils and of the fen peat soils (4 per cent) where soils are cultivated or left bare, especially in spring.</p> <p>The River Derwent is internationally recognised as a Special Area for Conservation and its special wildlife value is threatened by increased sediment load.</p> <p>The Derwent is a focus area for Catchment Sensitive Farming (CSF) which aims to reduce sediment and nutrient input to the watercourses through good soil management and agricultural practice. This will also provide enhanced carbon storage (climate regulation), improved water quality and regulate water flows.</p>	<p>Working with the farming community, promote good soil management through Catchment Sensitive Farming and other initiatives, so that the sandy soils of the Vale slopes, and on the fen peat are not depleted by erosion, and water quality within the Derwent is improved. Such measures include promoting shallow cultivation on sandy soils, and on peat soils encouraging uptake of permanent grassland strips.</p> <p>Other beneficial measures include encouraging use of green manure crops (such as nitrogen-fixing legumes) within arable systems to replace nutrients and bind soil, using winter stubble options in agri-environment agreements, and preventing livestock access to watercourses.</p> <p>Seek opportunities to create semi-natural habitats and ecological networks within the farmed landscape which will protect soils and water and enhance biodiversity.</p>	<p>Regulating soil erosion</p> <p>Food provision</p> <p>Climate regulation</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Biodiversity</p>
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¹⁷ Natural England, *Capital Grant Scheme - Funding Priority Statement 2010/11, Catchment 21: Yorkshire Derwent*.

		<p>There is opportunity to increase food security by increasing the area and connectivity of suitable habitat for pollinators. This also contributes to climate adaptation in both food production and biodiversity.</p>	<p>Seek opportunities within the agricultural landscape to promote nectar-rich margins and species-rich semi-natural habitats within a coherent network. Support this through agri-environment agreements.</p>	
		<p>Semi-natural habitat within productive agricultural landscapes may support species which prey on pest species, thereby regulating the potential damage of these to food production.</p>	<p>Enhance the network of semi-natural habitats throughout the agricultural landscape so they may provide habitat for predator species within close proximity of main food production areas.</p> <p>Enhance the network of hedgerows in the western part of the Vale.</p>	<p>Pest regulation</p> <p>Food provision</p> <p>Biodiversity</p>

	<p>The principal issues along this coastline are cliff instability and high erosion rates, particularly at Cayton Bay, Filey and the smaller communities in Filey Bay. The Environment Agency's coastal management policy is to pursue 'no active intervention' along the coast, with the exception of Filey where the policy is to 'hold the line' of existing defences for the long term (to 2105).</p> <p>The open land seaward of Filey (Filey Brigg) will continue to erode, leading to the loss of this recreational space, and may require landward relocation of sections of Cleveland Way footpath. South of Filey, shoreline management policy 'accepts the need to allow a natural retreat of the cliff line', which will result in some losses to seaward properties in Primrose Valley (Flat Cliff) and Hunmanby Sands, as well to the Filey Golf Course and some caravan parks¹⁸.</p> <p>The A165 runs along the coast and is the main road between Filey and Scarborough. The road has in the past been moved landward when threatened by failure of the sea cliffs. There are now plans to relocate the road further in land.</p>		<p>Coastal flooding is not a significant issue in this NCA.</p> <p>Dynamic coastal processes of erosion and accretion operating along the north sea coast are naturally functioning components of this NCA.</p>	<p>Plan coastal development and land use to accommodate predicted rates of coastal erosion, so that essential dynamic coastal processes are allowed to continue without undue detriment to other interests.</p>	<p>Regulating coastal flooding and erosion</p> <p>Sense of place / inspiration</p> <p>Biodiversity</p> <p>Geodiversity</p>
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¹⁸ North East Coastal Authorities Group, *River Tyne to Flamborough Head SMP2: Non Technical Summary for Scarborough Area*, February 2007.

		<p>The topography of the Vale creates a sense of place - predominantly flat, low-lying landform enclosed by high ground on all sides, except to the east where the Vale opens out to the coast.</p> <p>Senses of inspiration and escapism are most likely to be associated with the area's remote valley pastures and woodlands, its traditional villages and parklands, peatland expanses (for example Starr Carr) and the cliffs and beaches along the less developed stretches of coastline. Awareness of the long history of human occupation in the Vale contributes to this sense of identity and inspiration.</p> <p>Continued on next page...</p>		<p>Pressure for change in this landscape, associated with infrastructure (transport and energy) and housing could erode the essential 'sense' of this landscape, erode the experience of connection to past cultures and interfere with the natural processes which contribute to its essential character .</p>	<p>Ensure that developments and changes in land use are successfully integrated into the landscape, that they respect historic patterns of development and field patterns and do not compromise the sense of place and openness of the rural landscape.</p> <p>Protect and where possible enhance, natural features and processes which continue to shape and give character to the Vale.</p>	<p>Sense of place / inspiration</p> <p>Sense of history</p> <p>Tranquillity</p>
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The natural and cultural heritage has inspired artistic expression through time, continuing to the present day: work of artists such as Scarborough based Kane Cunningham seeking inspiration from and with their surroundings; others such as the printmaker Paul Musgrove seek inspiration from the 'traces' in the geophysical surveys undertaken by the LRC, while the abstract artist Carmen Mills takes an archaeological approach to her art inspired from Star Carr. The flat open landscapes and the limited north-south through access contribute to the remoteness, tranquillity and sense of place.

See also opportunities to enhance 'sense of history', 'tranquillity' 'biodiversity' and 'geodiversity'.

National Character Area profile:

		<p>The history of the landscape is evident in extensive prehistoric features including Mesolithic remains, most notably at Star Carr, Neolithic long barrows (for example Ebberston), and bronze and iron-age sites following the vale edge contours. Remnants of the Medieval period persist in the form of castles, fortified manor houses and churches, plus notable examples of medieval strip fields at Middleton and historic linear settlements at the foot of the dip-slope in the north and along the southern NCA boundary.</p> <p>Aspects of history likely to be particularly evident to the general public include the area's large 17th- and 18th-century country houses and parkland estates such as Wykeham Abbey estate, Nunnington Hall and Ebberston Hall, as well as its traditional buildings with a varied local vernacular.</p>		<p>Historic England consider the Vale to show a very complete record of historic land use and settlement, offering a unique opportunity to ask important questions about past cultures. This historic asset may be vulnerable to land use changes and development within the Vale.</p> <p>Much of the Vale's rich archaeological heritage lies below ground. As public awareness of this heritage increases through planned work by English Heritage it is likely to assume greater importance in local identity.</p>	<p>Minimise disturbance and damage to archaeological sites resulting from cultivation, particularly in the sands and gravels around the edge of the former glacial lake (Lake Pickering) and the 'ladder' settlement, and in the peatlands – the internationally important Starr Carr site and surrounds. Ensure the preservation of paleoenvironmental deposits in wetland areas, for example by maintaining water levels.</p> <p>Increase public awareness of the historic importance of the Vale, using activities such as the Starr Carr excavations to spotlight the Vale's hidden past, and interpret its drained landscape.</p> <p>See also opportunities to enhance 'sense of place'.</p>	<p>Sense of history</p> <p>Water availability</p> <p>Climate regulation</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Regulating water flow</p> <p>Sense of place / inspiration</p> <p>Biodiversity</p>
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National Character Area profile:

		<p>Tranquillity remains an important feature in parts the NCA, with 58 per cent classified as 'undisturbed', although this represents a decline from 95 per cent in the 1960s - tranquillity is predominantly affected by the A-roads that run along the northern and southern boundaries of the Vale, as well as by the A-road and development that occur along the coast. A sense of tranquillity is most likely to be associated with the pastoral valley areas of the western area.</p>	<p>Protect the sense of tranquillity and openness important to the rural character of the NCA particularly in the centre of the Vale, on the floodplains and peat carrs; by maintaining key views across and out of the Vale to maintain the sense of expansiveness; by minimising light spill particularly in areas classes as 'undisturbed' on CPRE intrusion maps.</p> <p>See also opportunities to enhance 'sense of place'.</p>	
	<p>Recreation / access is supported by the Cleveland Way and the Wolds Way long distance routes, and the network of footpaths (399 km of rights of way at a density of 0.93 km per km²). There is just 36 ha of open access land covering under 0.1 per cent of the NCA. Tourism and recreation are prominent features of the coastline, evidenced in a plethora of holiday villages, golf courses, and caravan and chalet sites.</p>	<p>There is clear opportunity to broaden the appeal of the Vale for recreation and tourism, for example to visitors accessing Scarborough through the Vale. Further interpretation of the historic environment in the east of the Vale is one such opportunity. These opportunities need to be balanced with the other services provided by the Vale's environment, and should be pursued in such a way that they do not undermine sense of place or tranquillity, nor the capacity of the Vale to provide other essential ecosystem services.</p>	<p>Support sustainable recreational and educational access to enable understanding and appreciation of the Vale, in particular its clear evidence of historic environmental and cultural change; identify opportunities to create new circular routes or links to existing rights of way, particularly to the Cleveland Way, Ebor Way and Wolds Way; establish the Coastal Access Trail.</p>	<p>Recreation</p> <p>Sense of history</p>

National Character Area profile:

		<p>Parts of three internationally designated sites lie within the NCA. The River Derwent SAC lies in the west of the NCA, and is particularly important for its floodplain grasslands that support breeding and wintering bird populations. The River Derwent is also an SSSI. The Flamborough Head and Bempton Cliffs SPA and the overlapping Flamborough Head SAC lie along the coast in the south-east of the NCA. In total there are 9 SSSI in the NCA, totalling less than 1 per cent (190 ha) of the NCA area. The majority of SSSI (83.5 per cent) are in 'favourable' or 'recovering' condition; the remainder in unfavourable condition showing no change.</p>		<p>The main issues influencing the condition of nationally-designated wildlife sites within the Vale of Pickering are diffuse pollution largely from agriculture, control of invasive non-native species, and coastal erosion.</p> <p>The fragmentation of semi-natural habitat means that the SSSI tend to be isolated, lacking the resilience of being part of a more robust ecological network.</p>	<p>Continue to work with the farming community to increase the uptake of in-field nutrient analysis and informed application rates, improving farm infrastructure and cultivation techniques to reduce diffuse pollution and sources of eroded sediment input to watercourses.</p> <p>Seek opportunities to restore a more natural river morphology and retain floodplain grassland habitats, particularly where this supports breeding and wintering birds.</p> <p>Improve the long term condition of biological sites by ensuring that underlying contributors to site condition are being managed appropriately/addressed, and that these are also considered in light of anticipated environmental change (for example shifts in species' range and accommodating within coastal land uses, the landward habitat shifts associated with dynamic coastal processes). This opportunity should be sought both within the existing designated sites and in buffering areas and building more robust ecological networks.</p>	<p>Biodiversity</p> <p>Water availability</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Regulating water flow</p>
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The geological SSSI of the Vale of Pickering are exposures created within quarries, and the cliff and foreshore exposures and coastal geomorphology of the Flamborough Head area. The factors influencing site favourability are largely scrub succession obscuring the exposures on inland sites, and the dynamic nature of the natural processes at the coast, which can act to both obscure and reveal these geological exposures.

Develop approaches to interpret the soils in the Vale, showing how they reveal the story of Lake Pickering and exploring how they have influenced land use, settlement, and landscape in the area.

Improve the long term condition of geological sites by ensuring that underlying factors influencing site favourability are managed appropriately, for example management to keep exposures clear. For coastal sites this should be considered within the context of dynamic coastal processes.

Geodiversity
Regulating coastal flooding and erosion
Sense of place / inspiration

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