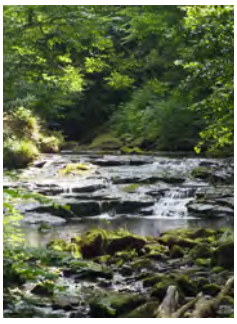
North York Moors National Park

North York Moors National Park Landscape Character Assessment Update 2021

Final Report
December 2021

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Fiona Fyfe Associates
on behalf of
North York Moors National Park Authority

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Fig.1 Glaisdale

Acknowledgements

We are very grateful to Briony Fox and Paul Fellows at North York Moors National Park Authority for their support and input throughout the project, and to the many other National Park staff who have contributed time and knowledge, and provided information so promptly. Thanks are gratefully extended to the many organisations who responded to the stakeholder consultation.

The lead consultant would like to thank all members of the consultant team for their outstanding contributions: Jonathan Porter of Countryscape for GIS and cartography; Carol Anderson for assistance with Settlement Sensitivity Studies, and Robin Lines for long days of fieldwork.

We would also like to acknowledge White Young Green, authors of the 2003 Landscape Character Assessment which our work updates.

All photos are by Fiona Fyfe unless stated otherwise

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Executive Summary

The North York Moors National Park contains an outstanding diversity of landscapes and seascapes. Its expansive heather moorland, spectacular coastline, intimate dales, picturesque settlements, rich woodlands, varied farmlands and magnificent views are very highly valued by residents and visitors.

This document is an update to the 2003 Landscape Character Assessment prepared by White Young Green. It is both an analysis and a celebration of the North York Moors' landscapes and seascapes. The earlier Assessment has been updated to reflect changes in methodological best practice, particularly the emergence of Seascape Character Assessment, and the importance of understanding (and giving sufficient weight to) the natural, cultural and perceptual qualities of landscape. Since 2003 concepts such as natural capital and ecosystem services have become mainstream, and are incorporated into the updated Landscape Character Assessment.

The updated Landscape Character Assessment puts the North York Moors within its landscape and seascape context, recognising the importance of the National Park's setting to its character. It incorporates information not available in 2003 (e.g. on remoteness, dark skies and tranquillity) and reflects changes which have occurred on the ground in the last 18 years. Updating the Landscape Character Assessment also provides an opportunity to look afresh at current and future issues and forces for change affecting the National Park, and to identify strategies to address these challenges. There are guidelines on how to address climate change through mitigation and adaptation (for example by increasing tree cover), and how to respond to the biodiversity crisis, whilst enhancing landscape character. Other challenges facing the National Park's landscapes and seascapes include development, infrastructure, visitor pressure, agricultural change and tree disease.

The diversity of landscapes we see today has been created by complex geology shaped by ice, rivers and seas, and overlain by thousands of years of human activity. The area's rich geological, ecological and cultural heritage, and its dark skies, is reflected in the numerous local, national and international designations. The updated Landscape Character Assessment identifies 10 distinctive Landscape Character Types within the National Park: Moorland; Moorland Dales; Forest; Coastal Hinterland; Limestone Hills; Glacial Channels; Limestone Dales; Central Valley; Western Escarpment and Coast. The 10 Landscape Character Types are sub-divided into 38 smaller Landscape Character Areas, each of which has a distinctive sense of place. A series of profiles describe the Landscape Character Types in more detail, including a summary description; key characteristics; natural landscape features; cultural landscape features; perceptual qualities and views; ecosystem services; Landscape Character Area descriptions; forces for change, and landscape guidelines.

The updated Landscape Character Assessment is intended for use by a wide range of people, including National Park Authority staff, land owners and managers, utility companies, government agencies, developers, and members of the public interested in learning more about the landscapes of the North York Moors and how they can be protected and enhanced in the future.

Settlement Sensitivity Studies for Helmsley and the 16 Larger Villages within the National Park were undertaken at the same time as the Landscape Character Assessment update, and form a companion document.

Part 1: Introduction and Background

Fig.2 Danby Dale

1.0 Introduction

1.1 Background and purposes

The North York Moors Landscape Character Assessment Update 2021 was commissioned by North York Moors National Park Authority (NYMNPA) in April 2021, and was prepared by Fiona Fyfe Associates and Countryscape between April and December 2021.

The previous Landscape Character Assessment was published in 2003. It was in need of updating to ensure that it remained a robust and up-to-date evidence base to support decision-making on planning and landscape management. The updated Landscape Character Assessment reflects current best practice in landscape and seascape assessment methodology. It takes into account the changes which have occurred within the National Park and its setting over the past 20 years. It considers the forces for change acting on the National Park's landscapes now, and looks ahead to those likely to occur over the coming decade.

The updated Landscape Character Assessment is both a technical document and a celebration of the North York Moors landscapes. The overall aim of the document, as stated in the brief, is to *create a practical tool that can be used to inform and guide positive landscape change that will help to inform and achieve the vision for the North York Moors Management Plan. It should assist in the development of policy (e.g. Local Plan); the delivery of National Park Management Plan objectives; the delivery of NYMNPA programmes and projects (e.g. woodland creation); assist in prioritising conservation activity spatially, and promote understanding and enjoyment of NYMNP's landscape by the public.*

It is therefore intended to be used by a wide range of people, including NYMNPA staff; land owners and managers; conservation organisations; developers and those submitting planning applications; utility companies; Government agencies; community groups, and members of the public keen to know more about the area.

Para 20 of the National Planning Policy Framework (NPPF) states that *Strategic Policies should...make sufficient provision for...conservation of the natural, built and historic environment, including landscapes*... Using this updated Landscape Character Assessment helps to fulfil that obligation.

1.2 Format

Part one (Introduction and Background) defines key terms used in the Assessment and sets out the methodology used. It then describes the location, setting, purposes and special qualities of the North York Moors National Park, and provides its landscape and seascape character context.

Part two (Story of the North York Moors Landscape) presents a short summary of the North York Moors' natural environment, archaeological and historical background, perceptual qualities and views. It then describes the forces for change (both positive and negative) acting on the landscapes now, and those likely to occur in the future. These include the impacts of climate change.

Part three (North York Moors Landscape Character Descriptions) contains a map showing the Landscape Character Types and Areas present within the National Park, and a series of profiles describing them. These

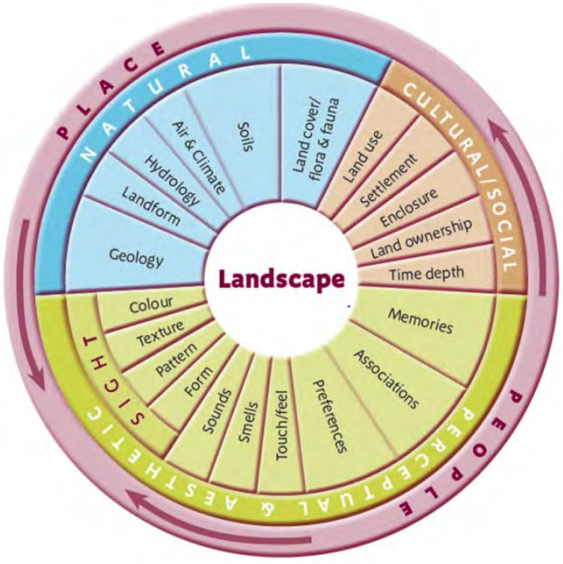
profiles include landscape guidelines for each Landscape Character Type.

Appendices include references, boundary changes, list of consultees, and glossary

1.3 Landscape Character Assessment

Landscape character assessment is *the process of identifying and describing variation in the character of the landscape. It seeks to identify and explain the unique combination of elements and features (characteristics) that make landscapes distinctive. This process results in the production of a Landscape Character Assessment*[1]

The European Landscape Convention provides a holistic description of 'landscape' as *an area of land, as perceived by people, whose character is the result of natural and/ or human factors*[2]. This definition refers to natural, human (cultural) and perceptual factors. The constituents of these three factors are shown in the following diagram.



'Landscape Wheel' showing landscape components[3]

The process of landscape character assessment seeks to identify the distinct and recognisable patterns of physical, cultural and perceptual elements in the landscape, which make one landscape different from another, rather than better or worse. To do this it defines distinctive Landscape Character Types (LCTs) and Landscape Character Areas (LCAs).

Landscape Character Types (LCTs) are distinct types of landscape which are relatively homogenous in character. They are generic in nature in that they may occur in different areas...but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, historical land use and settlement pattern.

The LCTs are subdivided into locally-distinctive Landscape Character Areas.

Landscape Character Areas (LCAs) are single unique areas which are the discrete geographical areas of a particular Landscape Character Type. Each LCA has its own individual character and identity, even though it shares the same generic characteristics with other Areas of the same Type.

For the coastal stretch of the North York Moors National Park, the methodology reflects the current best practice methodology for Seascape Character Assessment[4]. This involves the same principles as landscape character assessment, dividing seascapes into Types and Areas.

A note on boundaries:

It is important to note that the boundaries on the ground between LCTs or LCAs are rarely abrupt or clear cut. It is more usual to have a

[1] An Approach to Landscape Character Assessment (Natural England, 2014)
[2] European Landscape Convention, 2000 p.5
[3] An Approach to Landscape Character Assessment (Natural England, 2014) p. 8
[4] An approach to Seascape Character Assessment (Natural England, 2021)

'zone of transition' between them, where the landscape character gradually changes. During the mapping process, the boundary lines are drawn at an appropriate point in the transition.

In addition, a location within one LCT may be strongly influenced by another nearby or visible LCT. An example is the Moorland LCT forming the surroundings to the farmland of the Moorland Dales LCT. It is therefore important to understand the characteristics and guidelines for surrounding LCTs, as well as the site being considered.

Fig.3 A scene within Glaisdale, showing how the surrounding Moorland LCT is visible from within the dale and forms its horizons.

During the update process a small number of locations were identified where amendments to LCT/ LCA boundaries would strengthen the Assessment or make it easier to use. In these cases (set out in Appendix B) changes were made to LCT/ LCA boundaries. Once example is the identification of a new 'Coast' LCT, reflecting current best practice in seascape character assessment. Some of the LCT/ LCA names were also updated to make them clearer. Rectifying minor anomalies resulting from past mapping or digitisation of the LCT boundaries did not form part of the brief.

1.4 Natural Capital and Ecosystem Services

There is a wealth of Natural Capital contained within the North York Moors National Park, including the inherent scenic beauty of its landscapes and seascapes which provide an important resource for people's wellbeing.

Natural Capital can be defined as the *'world's stock of natural assets' which include the elements of nature that directly and indirectly produce value or benefits to people, including ecosystems, species, fresh water, land, minerals, the air and oceans, as well as natural processes and functions.'*[5]

From this Natural Capital we derive a wide range of services, often called ecosystem services, which make human life possible. The most obvious ecosystem services include the food we eat, the water we drink, and the plant materials we use for fuel, building materials and medicines. There are also many less visible ecosystem services such as the climate regulation and natural flood defences provided by forests, the tons of carbon stored by peatlands and the pollination of crops by insects. Even less visible are the cultural ecosystem services, such as the inspiration we take from wildlife and the natural environment. [6]

The ecosystem services associated with each of the North York Moors' LCTs are described in the profiles in Part 3, along with opportunities to strengthen them. Planning and management decisions affecting ecosystems and Natural Capital will impact on the future provision of ecosystem services, so they should be considered in decision-making.

[5] Natural Capital Committee, 2017
[6] World Forum on Natural Capital Conference, Edinburgh 2015

Ecosystem services are divided into four categories:

Cultural Services

The non-material benefits people obtain through ecosystems

e.g. recreation, aesthetic experiences, tourism, sense of history, learning, experiencing tranquillity, remoteness and dark skies

Provisioning Services

Products obtained through ecosystems

e.g. food, fuel, timber, water

Regulating Services

Benefits obtained from the regulation of ecosystem processes

e.g. Climate regulation, water purification, flood prevention, air quality regulation, noise masking

Supporting Services

Services that are necessary for the production of all other ecosystem services

e.g. soil formation, photosynthesis, pollination, water cycle

1.5 Methodology

The methodology for the North York Moors Landscape Character Assessment Update 2021 is in line with current best-practice guidance, namely *An Approach to Landscape Character Assessment* (Natural England, 2014) and *An Approach to Seascape Character Assessment* (Natural England, 2012). There are four key stages of work, shown below:

Stage 1: Project start-up

Initial meeting to discuss scope of project

Exchange of documents and data

Setting-up of project GIS (Geographic Information System)

Stage 2: Desk Studies

Extensive background reading of relevant research documents and books

Research of other sources e.g. historic maps, designated site citations etc.

Thorough reading of 2003 *North York Moors Landscape Character Assessment*

Stage 3: Fieldwork

Visiting each LCT and LCA to verify/ update descriptions in existing *Landscape Character Assessment*

Boat work for Coast LCT and LCAs

Noting forces for change and issues affecting landscape condition

Photography

Stage 4: Writing-up

Bringing together all the desk study and fieldwork findings into the written draft report

Incorporating the findings from online stakeholder consultation (held 17th September - 1st October 2021 - See Appendix C)

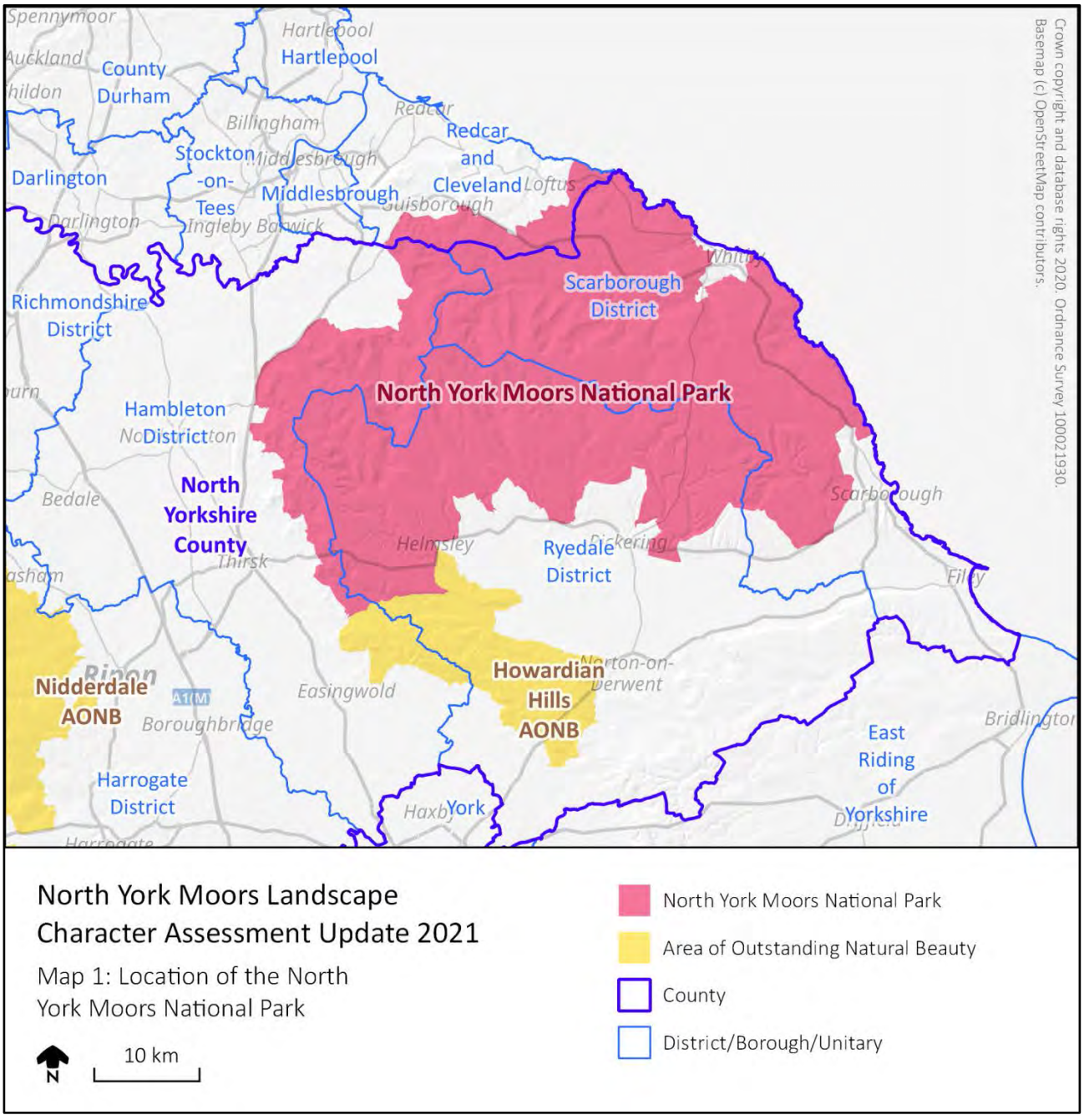
Client team review of draft report

Editing and issue of the final report

2.0 North York Moors National Park

2.1 Location

The North York Moors National Park covers an area of 1436km^2. It comprises an isolated area of elevated land which includes moorland (the largest area of heather moorland in the country), farmland, woodland, forest and dramatic coastline. It is located within the County of North Yorkshire (with a small part in the north within the borough of Redcar and Cleveland), and includes land within the districts/ boroughs of Scarborough, Redcar & Cleveland, Ryedale and Hambleton (See Map 1). The coastal boundary of the National Park follows the low tide line, so the National Park includes marine areas. The Howardian Hills Area of Outstanding Natural Beauty adjoins the National Park to the south.



2.2 Setting

From the high land of the National Park there are panoramic views across the surrounding areas of lower land and the sea which form the setting to the National Park. The western setting is formed by the Vales of Mowbray and York. There are magnificent views across these areas from the Western Escarpment of the National Park, including the famous viewpoints of Sutton Bank and Roseberry Topping.

Fig.4 View south-west from Roseberry Topping, across the Vale of Mowbray

The southern setting includes the Howardian Hills and the Vale of Pickering. From elevated land in the south of the National Park there are views across the Vale of Pickering to the higher land of the Yorkshire Wolds. The eastern setting is largely marine, and includes the coastal waters visible from the National Park. It also includes the lower land outside the National Park boundary associated with settlements such as Whitby and Scarborough. The northern setting also includes marine areas, as well as land around Loftus, Guisborough and the Tees lowlands.

These long views are part of the character and experience of the North York Moors National Park. They are vulnerable to development or other land use changes which could result in significant impacts (including cumulative impacts) on views from the National Park. Developments will be seen from above, and therefore conventional mitigation, such as tree planting, will only have limited effect. Extensive developments such as solar farms and large-scale sheds are likely to be particularly prominent because their full extent will be visible.

Para 176 of the NPPF states that *...developments within [National Parks'] setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.*

2.3 National Park Purposes

The North York Moors were designated as a National Park in 1952 in recognition of the national significance of its landscapes. The 1947 Report of the National Parks Committee, chaired by Sir Arthur Hobhouse recommended its designation and said of the North York Moors, *"it contains, within a relatively small compass, an amazing wealth and variety of beauty. Indeed there are few places elsewhere in Britain which can offer such extensive and remote tracts of wild and unspoilt scenery within such easy reach of populated areas."*

The statutory purposes of National Parks, as set out in the 1995 Environment Act, are to:
Conserve and enhance the natural beauty, wildlife and cultural heritage of the Park
and **Promote opportunities for the understanding and enjoyment of the special qualities of the National Park by the public.**

The 'Sandford Principle' within the 1995 Environment Act states that *if there is a conflict between those purposes, the National Park shall attach greater weight to the principle of conserving and enhancing the*

natural beauty, wildlife and cultural heritage of the area.

In pursuing these two purposes, the 1995 Act also places a duty on National Park Authorities to '**seek to foster the economic and social wellbeing of local communities**.'

In addition, the 1995 Environment Act makes it a duty for all 'relevant authorities' working in the National Park to have regard to National Park purposes.

2.4 Special Qualities

The second National Park purpose refers to the promotion of opportunities for the 'understanding and enjoyment of the special qualities'. The North York Moors National Park's special qualities are set out in the current North York Moors Management Plan and Updates. The special qualities of the National Park relate strongly to its landscape character.

Some special qualities are associated with a single LCT ('Coast' for example), whilst others are associated with several LCTs.

The special qualities as set out in the 2012 North York Moors Management Plan are as follows:

Great diversity of landscape;
Sudden dramatic contrasts associated with this

Wide sweeps of open heather moorland;
Distinctive dales, valley and inland headlands

An abundance of forest and woodland;
Ancient trees and woodland rich in wildlife

Special landforms from the Ice Age;
Exceptional coastal geology

Majestic coastal cliffs and sheltered harbours;
Distinctive coastal headlands

A special mix of upland, lowland and coastal habitats;
A wide variety of wildlife dependent on these

Settlements which reflect their agricultural, fishing or mining past;
Locally distinctive buildings and building materials

Long imprint of human activity;
A wealth of archaeology from prehistory to the 20th Century

A rich and diverse countryside for recreation;
An extensive network of public paths and tracks

Strong religious past and present;
Ruined abbeys and ancient churches

Strong feeling of remoteness;
A place for spiritual refreshment

Tranquillity;
Dark skies at night and clear unpolluted air

Distinctive skills, dialects, songs and customs;
Strong sense of community and friendly people

A place of artistic, scientific and literary inspirations;
A heritage of authors, artists, scientists and explorers

3.0 Landscape and Seascape Character Context

3.1 Other relevant Landscape and Seascape Character Assessments

This landscape character assessment sits within a 'nest' of other landscape and seascape character assessments made at a variety of scales. All are easily available online.

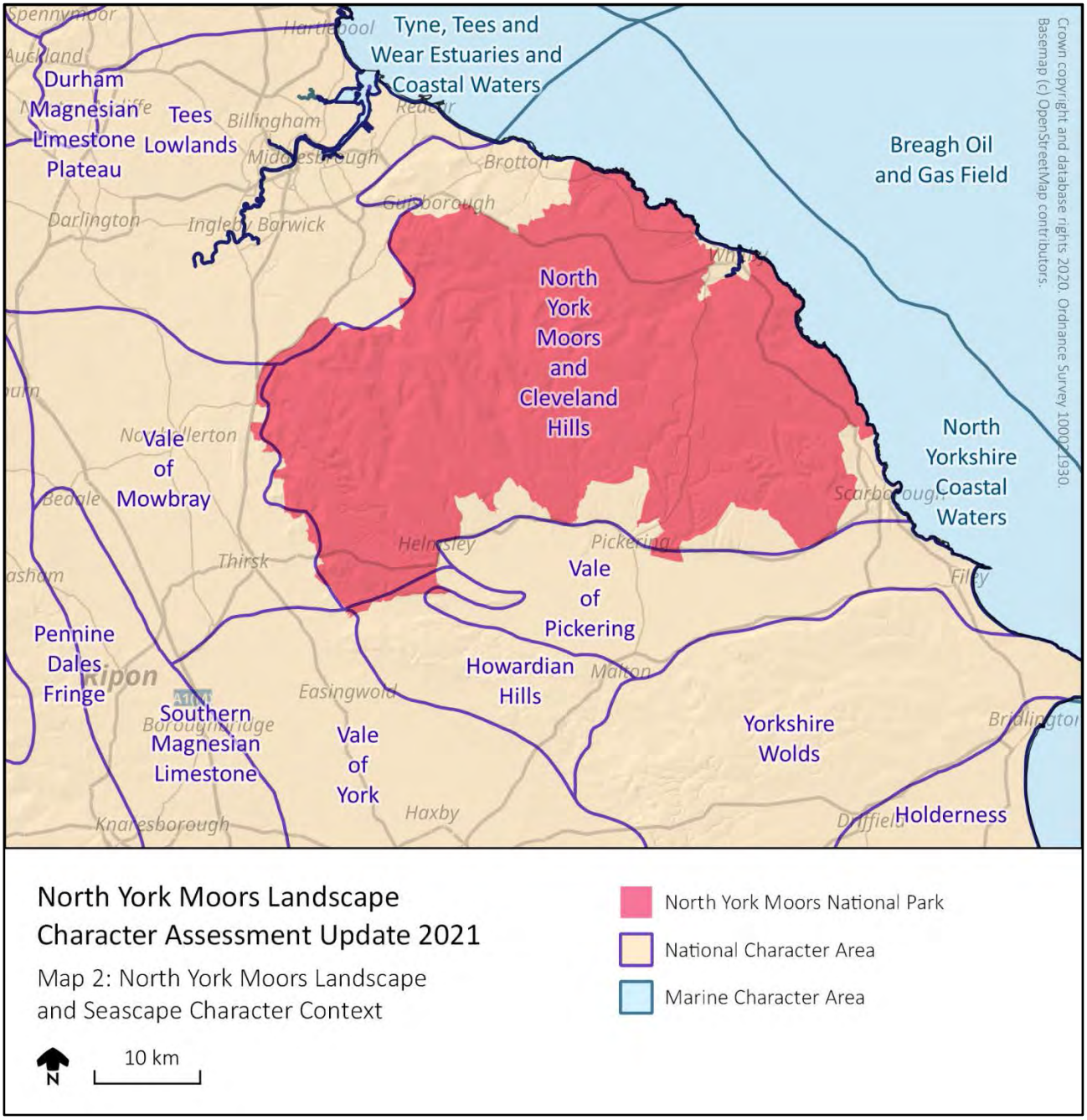
3.2 National Level

England's National Character Areas (NCAs) provide an overview of landscape character across the country. There are 159 National Character Areas in total. As shown in Map 2, the North York Moors National Park is almost entirely within NCA 25 *North York Moors and Cleveland Hills.* Tiny sections around the edges are within the adjacent NCAs of the *Vale of Mowbray, Vale of York, Howardian Hills, Vale of Pickering* and *Tees Lowlands*.

The key characteristics of the North York Moors and Cleveland Hills NCA (from NCA 25 profile, Natural England) are as follows:

- Upland plateaux, generally below 400 m, dissected by a series of dales – some broad and sweeping but others narrow, steep sided and wooded – creating strong contrasts between open moors and enclosed valleys.
- Extensive areas of heather moorland on plateaux and hills, largely under sporting ownership, including large expanses of upland heathland and blanket bog habitats, creating a sense of space, expansiveness and openness.
- Upland plateau landscape underlain mainly by sandstone and mudstone of Middle Jurassic age and calcareous sandstone and limestone of Upper Jurassic age.
- Mosaics of upland heathland vegetation supporting internationally important populations of breeding merlin and golden plover.
- Some areas of extensive conifer and mixed plantations, especially in the south-east, and broadleaved woodland on steep valley sides.
- Valley landscapes characterised by pastoral farming, with a clear demarcation and strong visual contrast between the enclosed fields with some species-rich grasslands and wetlands, farms and settlements, and the bracken-fringed moorlands above.
- Drystone walls and hedgerows enclosing the small pastures and meadows in dales and fringing farmland, often replaced by fences in arable areas.
- Large-scale arable landscapes to the south and east.
- Jurassic sandstones, mudstones and limestone forming a dramatic coastal landscape of high cliffs, high vegetated maritime slopes, and small coves and bays, with coastal towns and compact fishing villages.

- Sparsely settled, with scattered farmsteads and small villages, and traditional buildings constructed of local sandstone or limestone and with red pantile roofs, creating a strong visual unity.
- A rich archaeological heritage from many different periods, especially on the moorland plateaux.
- Panoramic views over moorland plateaux, ridges and dales and out over surrounding lowland landscapes and the North Sea.



The marine parts of the National Park are all within Marine Character Area (MCA) 21 *North Yorkshire Coastal Waters.* Its key characteristics are below, taken from the MCA profile (with minor edits):

- Gently shelving coastal waters off the rugged coast of North Yorkshire between Flamborough Head and Saltburn-by-the-Sea.
- Flamborough Head, a prominent headland, is the northernmost coastal outcrop of chalk in Europe, forming a complex coastline of cliffs with numerous caves, arches and platforms.
- Low-lying coast south of Scarborough, including the broad and shallow crescent-shaped Filey Bay, contrasting with the high cliffs to the north.
- Unique combination of coastal and seabed limestone geology, with exposures of internationally important Jurassic and Cretaceous strata along the coast and evident in associated plant and animal fossil sites.
- Underlying seabed geology of chalk below Flamborough Head, and mudstones and limestones elsewhere.
- 'Aggressive' North Sea currents and tides actively erode the coastline, particularly at Scarborough, Runswick Bay, Staithes and Skinningrove, requiring intervention with extensive man-made sea defences.
- Important vegetated sea cliffs, chalk reef and sea cave communities around Flamborough Head (SAC). The area is also internationally important for its seabird populations (designated as a part of the Flamborough Head and Bempton Cliffs SPA) with nesting colonies of kittiwake, guillemot, fulmar, razorbill and puffins.
- Offshore, the Runswick Bay MCZ recognises diverse rocky and sediment seabed and sea cave habitats.
- Complex tidal patterns associated with Flamborough Head and Filey Point, as well as submerged rocks form hazards to navigation.
- This area was formerly part of Doggerland: dry land connecting the UK with Europe during Palaeolithic times – inundated after the last Ice Age.
- Lighthouses (Flamborough Head and Whitby) provide prominent navigation marks, as do the ruined Whitby Abbey and Scarborough Castle which are prominent landmarks in views to and along the cliffs.
- Large number of wrecked merchant and fishing vessels, and minor warships – including casualties of WWI and WWII, are testament to hazardous sea conditions. The protected site of the Filey Bay Wreck *Bonhomme Richard* (an American privateer) dates from the late C.18th.
- Major historic fishing ports include Scarborough and Whitby as well as smaller ports at Filey, Flamborough, Staithes and Robin Hood's Bay where large quantities of shellfish (crab and lobster) are landed. Brightly painted vernacular open coble fishing boats are still in use along parts of this coast.
- Historic importance of fishing to the local communities along the coast including whaling from Whitby, the great herring fleets of the 19th and early 20th Centuries, and sport fishing for tuna out of Scarborough in the 1930s.
- War Channels of the East Coast (WWI & WWII) - essential routes for the maritime traffic of coal and civilian shipping via mine-free channels - connect the Tyne to the Thames and beyond. The coast at Scarborough and Whitby was subject to bombardment by German warships in 1914.

- Important industrial heritage associated with coastal mining of both of alum and ironstone. A number of quarries are designated Scheduled Monuments; Boulby quarry being one of the best national examples of a technically advanced alum quarrying complex. A railway tunnel and harbour at Port Mulgrave are reminders of the area's important ironstone industry and links to coastal trade/shipping.
- Hilda of Whitby, Christian saint and founding abbess of Whitby Abbey, played a significant role in establishing Christianity in the North East. Coastal religious centres at Lindisfarne (MCA23) and Wearmouth-Jarrow (MCA22) were linked by waterborne route ways.
- Whitby, Filey and Scarborough are important historic ports/harbours and key religious/military sites and centres of trade, recognisable in their built heritage and character. They have a long heritage as popular tourist destinations; today, the area continues to attract visitors exploring the local history, literary heritage or natural environment, with whale watching tours operating from Whitby.
- Popular walking route – the Cleveland Way National Trail forms part of the Filey Brigg to Newport Bridge section of the England Coast Path.
- Expansive views from the coast across undeveloped North Sea horizons, frequently marked by cargo ships, tankers and fishing vessels. Vistas along the coastline to settlements clinging to the cliffs such as to Robin Hood's Bay and Runswick Bay, as well as views back from the sea to the rugged coast with distinctive landmarks.
- The smooth elevated moorlands of the North York Moors National Park provide a remote and dramatic backdrop to the MCA. In turn this largely undeveloped seascape forms part of its setting, particularly views north of Flamborough.
- North Yorkshire and Cleveland Heritage Coast defines stretches of undeveloped coast, characterised by dark skies and elevated levels of tranquillity.

3.3 County Level

The North Yorkshire and York Landscape Character Assessment is county-wide and was completed in 2011. It covers a larger area than the National Park Landscape Character Assessment, and is therefore less detailed. It is broadly consistent with the National Park Assessment, but contains fewer LCTs. For example, it does not distinguish between Limestone Hills and Limestone Dales, instead including them both within a 'Limestone Foothills and Valleys' LCT. Nor does it identify a 'Coastal Hinterland' LCT; instead the 'Sandstone Moors' LCT meets the 'Rugged Cliffs, Coastal Valleys and Bays' LCT.

3.4 District Level

District-level Assessments have been prepared for Scarborough, Hambleton, Redcar & Cleveland, and Ryedale, covering their areas outside the National Park. All were done at different times to slightly different methodologies, but all are local-level Assessments containing a high level of detail. As a result they contain a greater number of smaller LCTs/ LCAs than the National Park Assessment. Where there are abrupt changes in landscape character at the National Park boundary, these are reflected in the District Assessments. For example, the sharp boundary between the Limestone Hills LCT and Limestone Dales LCT at Raincliffe Woods also appears in the Scarborough Assessment.

Part 2: The Story of the North York Moors Landscape and Seascape

Fig.5 Runswick Bay

4.0 The Natural Environment

4.1 Geology

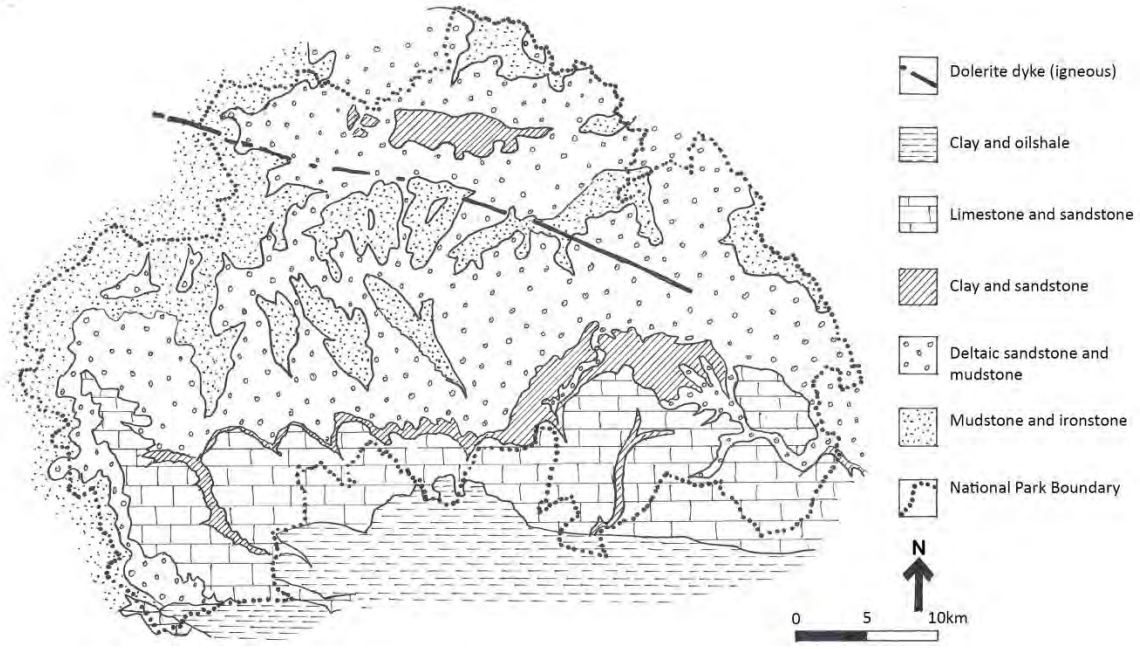
The oldest visible rocks in the North York Moors National Park are the Lower Jurassic mudstones and ironstones which are revealed in the deeper moorland dales, Esk Dale, at the base of the Western Escarpment, and in the coastal valleys and bays. These form bands of soft Lias mudstones, Cleveland ironstones, and thin beds of fossil-rich limestones. They contain deposits of alum, jet, cement stone and seams of ironstone.

Above the Lias rocks is a deep layer of mid-Jurassic deltaic sandstones and mudstones. These rocks form the highest land in the National Park, and give rise to acidic, peaty soils supporting heather moorland. The rocks were deposited in deltas and rivers, and contain dinosaur footprints.

As sea levels rose, Oxford clay layers were deposited over the sandstone. Areas of Oxford clay are found in the north of the National Park, in the forested areas around Newtondale, and in a narrow band along the edge of the limestone.

The southern end of the National Park comprises younger Corallian limestone rocks. These limestones were laid down in a tropical shallow sea with coral reefs, and contain shelly fossils and fossil burrows. These hard rocks form the Hambleton hills, and the flat-topped Tabular Hills, and are cut by steep-sided valleys. Their soils are light and easy to work, and so the limestone areas have a long history of settlement and agriculture. The Corallian limestones dip down towards the south, and their northern edge is marked by a prominent escarpment which runs east-west across the National Park.

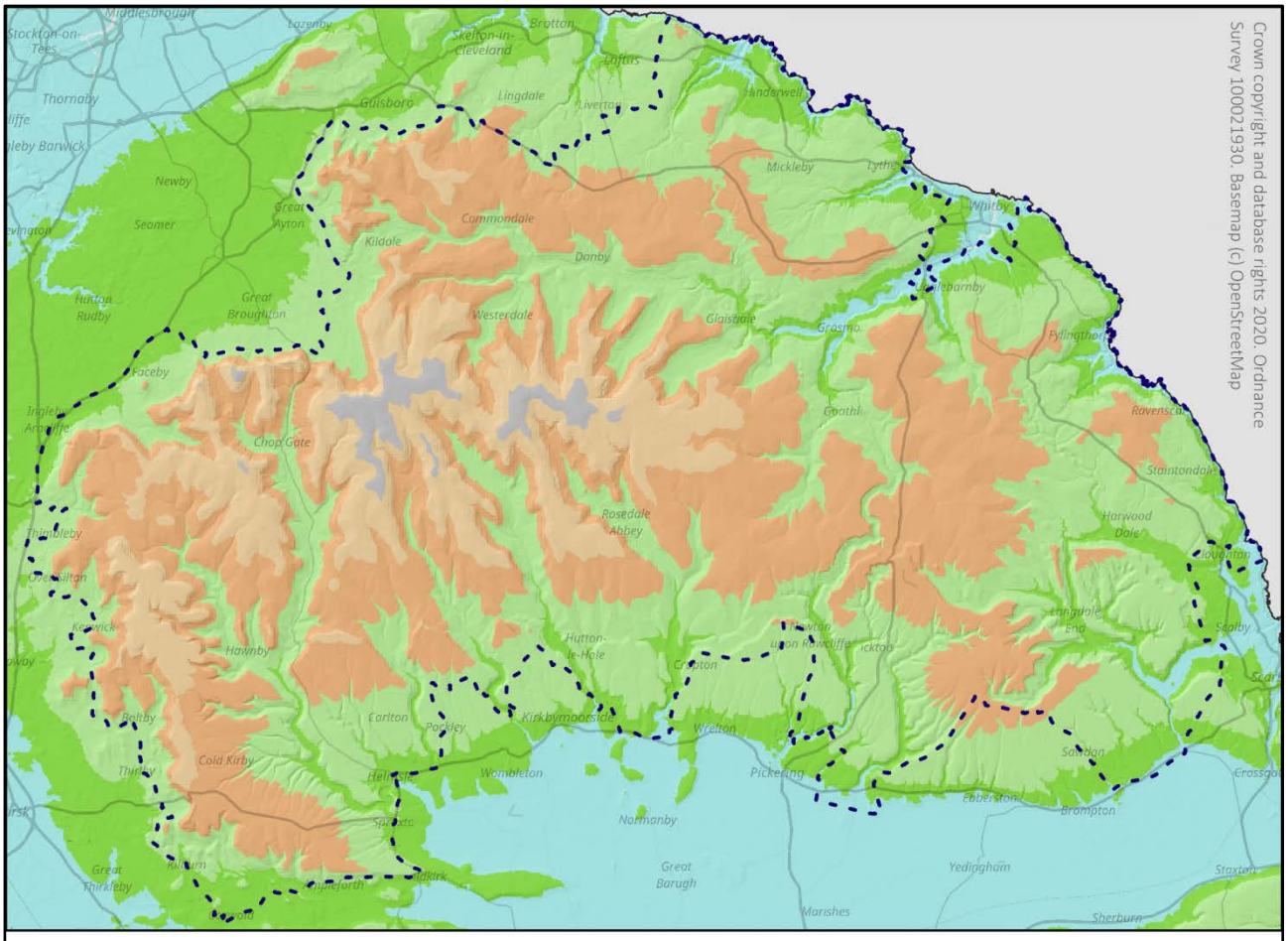
One of the youngest geological features in the National Park is the Cleveland Whinstone dyke. This formed when hot molten rock was pushed up into a giant vertical fissure, forming a linear feature which runs from Eaglescliffe in the west to Fylingdales Moor in the east. This igneous rock is exceptionally hard and has been quarried for roadstone along much of its length. It now appears as a V-shaped gash of disused quarries.



Simplified Geology Map of the North York Moors

4.2 Topography and geomorphology

The topography of the North York Moors is shown on Map 3. They form a dome shape, rising to 454m above sea level at Round Hill (the highest point in the National Park). The land drops steeply down to the west, creating a dramatic escarpment. To the north and south the descent is more gradual. The eastern edge forms a dramatic coastline, which includes the highest sea cliffs on the east coast at Boulby, deep coastal valleys, and broad bays. Many different strata of rocks are visible in the cliffs, and it the coast is famous for its fossils and geological exposures.



Glacial activity has had a pronounced effect on the creation of the North York Moors landscape. Glacial deposits (either from a glacial lake or glacier are found in Esk Dale, visible as a hummocky topography. The deep gorges of Newtondale and Forge Valley formed when glacial lakes at Esk Dale and Hackness were blocked by ice from reaching the sea and overtopped, forcing their way through weaknesses in the rocks to the south.

Water has played an important part in forming the landscape, eroding the sandstones, limestones and mudstones to create the larger valleys, such as Esk Dale, and the narrow moorland dales. The dramatic bowl of the Hole of Horcum has been formed by thousands of years of spring sapping, where water dissolves the limestone causing the rock to erode. These processes of erosion are still happening. This is most obvious at the coast, where coastal erosion by waves, and cliff falls, create a dynamic environment. Coastal geomorphological features include wave-cut platforms, caves, beaches and slumped cliffs.

Fig.6 Wave-cut platform at Kettleness

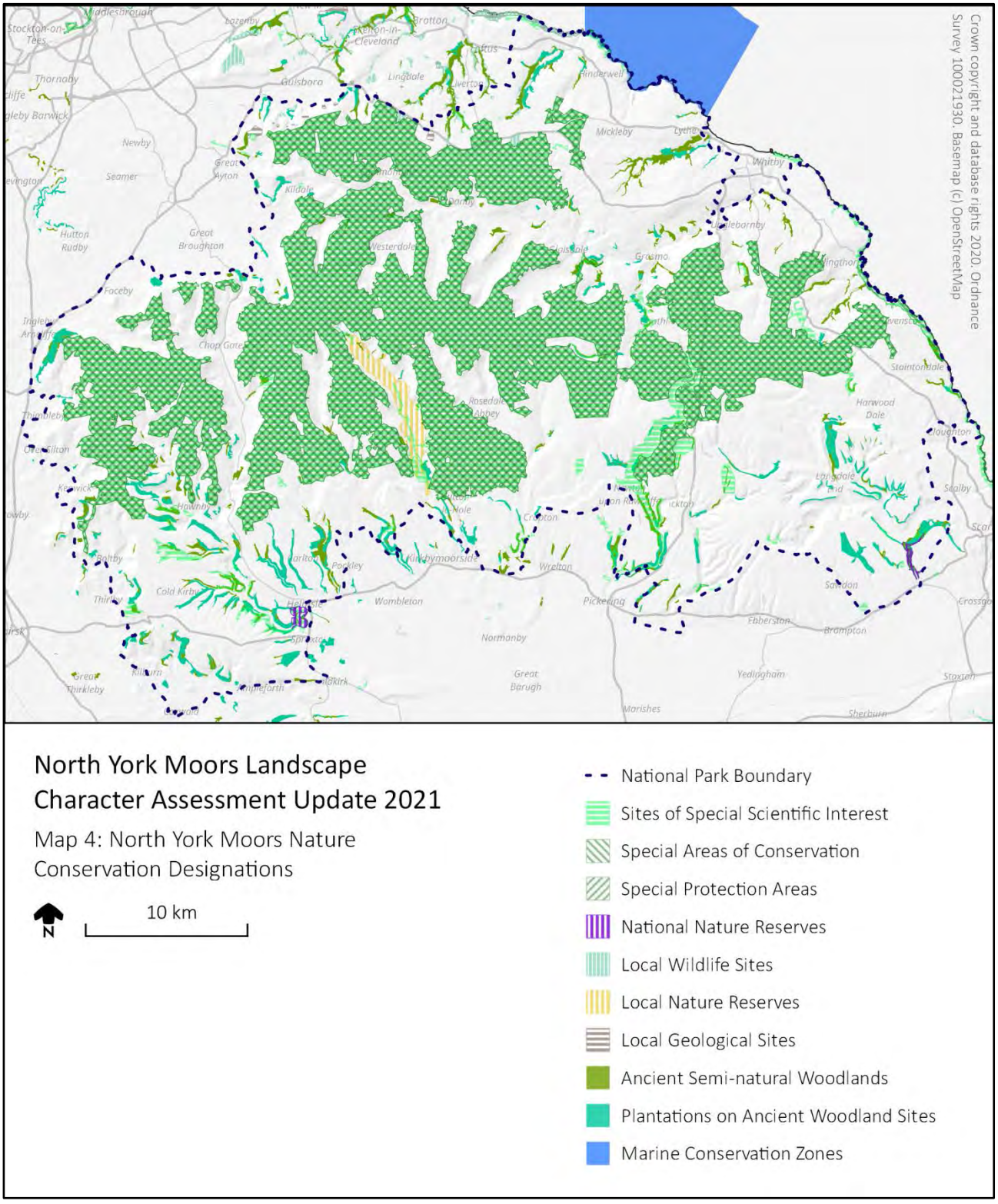
4.3 Semi-natural habitats

The North York Moors contains the largest continuous expanse of heather moorland in England and Wales. The dominant heather (*Calluna vulgaris*) thrives on the acidic peaty soils in an area of relatively low rainfall while cotton grass and other species of rush and heath occur on more boggy ground. Sphagnum moss occurs in the wettest areas. The moorland supports a range of moorland birds such as curlew, golden plover and merlin. Traditionally it has been used as common land and for grazing sheep, with grouse-shooting also taking place since the mid-19th Century. Since the Second World War much moorland has been reclaimed to grow arable crops or planted with conifers. Bracken represents a distinct transition zone, occurring as a fringe to the moorland, on the free-draining side slopes of the moors and valleys.

Fig.7 Heather on moorland, Glaisdale Rigg

Woodland occurs in various forms throughout much of the National Park, including some areas of ancient woodland in steep sheltered valleys. Valley sides and floors also contain important habitats such as wet flushes, fens, unimproved grassland, heaths, mires and veteran trees. Coastal habitats include vegetated cliffs, rocky intertidal environments, beaches and coastal grasslands. Freshwater habitats include streams, rivers, lakes and riparian (river bank) habitats. These all support an array of plants, birds, insects and animals, many of which are rare in the UK.

The importance of the area for biodiversity, geodiversity and nature conservation is reflected in the number and extent of sites designated at international, national and local level. These are shown on Map 4.



5.0 Archaeological and historical background

5.1 Introduction

A wealth of information is available regarding the cultural heritage of the North York Moors, including the Historic Environment Record, Historic Landscape Characterisation, and citations of designated sites. Our understanding and appreciation of the historic environment is growing all the time, and there is still much learn.

5.2 Early inhabitants

Signs of settlement and activity from prehistoric times onwards are still visible, particularly on the moors where the remains have not been damaged by ploughing. There are barrows, the earliest dating from the Neolithic period, and the moors are also rich in cairns, rock art, enclosures and other monuments of the Bronze Age, indicating that the area was populated at a time when the climate was warmer and drier.

There are a number of Iron Age hillforts and enclosure sites, the largest of which is the promontory fort on the edge of the Western Escarpment at Roulston Scar. Other striking prehistoric features include impressive linear earthworks and boundary ditches which cut across the upland and lowland parts of the National Park.

Fig.8 'Thieves Dyke' linear earthwork near Silpho

Notable Roman sites which have been found include Cawthorn Camps (a complex of apparent training camps) and signal stations along the coast. There have been significant finds of Roman material at numerous locations within the National Park.

5.3 Medieval

Many villages and hamlets in the National Park have their origins in the early medieval period, and there are both Anglian and Norse-derived place names. The whole of the area fell within the Danelaw. Following the Norman Conquest in the 11th Century new castles and planned villages were established.

Major changes came with the arrival of monasteries in the 12th Century, seeking to benefit initially from the remoteness of the area and then from the opportunities for sheep rearing. Many of the distinctive stone crosses – which form striking landmarks along moorland roads and tracks – date from the medieval period and relate to monastic routes and land tenure.

Fig.9 Old Ralph Cross, near Rosedale Head

Rievaulx and Byland Abbeys were the most dominant, controlling extensive areas of moorland, and establishing outlying granges. Rievaulx Abbey, the ruins of a Cistercian

monastery established in the 12th Century, has become one of the most famous sights of the area. Set in its own small twisting valley it is picturesque and evocative of times past, and has inspired many artists and poets.

A royal hunting forest, centered on Pickering, stretched far to the west and north, with small villages existing within it. Private hunting forests also occurred within the North York Moors, for example at Danby. In some cases park pales (boundaries to prevent animals escaping from the forest) existed, and are still visible as walls and ditches.

5.5 Post-medieval

Following the dissolution of the monasteries by Henry VIII in 1538, many of the ecclesiastical estates were given away or sold off to private owners. Some became country houses, such as Mount Grace Priory and Baysdale Abbey. Other significant estates within the National Park include Mulgrave Castle and Duncombe Park. Both have extensive landscaped grounds including parkland trees and woodland. There are many smaller parkland grounds, and extensive moorland estates which have been used for grouse shooting since the mid-19th Century. Grouse shooting areas are identified by the lines of butts across the moorland, and the mosaic patterns of heather of different ages within the moorland.

Fig.10 Ruins of Mount Grace Priory

5.6 Industry and infrastructure

From medieval times small scale industrial workings, of stone quarries, coal and ironstone, have supplemented the agricultural economy. The legacy of this activity, including disused railways, is still visible on the moors and hillsides. Lime kilns were used to burn limestone to create lime, for use as an agricultural fertilizer.

Fig.11 Lime kiln, upper Ryedale

Along the coast jet has been extracted since the Bronze Age although the industry intensified massively in the 19th Century. Alum, for use in tanning and dyeing, was extracted by open quarries which have locally altered the landform, especially along the coast. Mineral extraction continues today, with an existing potash mine at Boulby, and a new fully-underground polyhalite mine under construction near Whitby. Other visible infrastructure within the National Park includes the TV transmitter at Bilsdale, and the pyramidal military communication structure at RAF Fylingdales which replaced the earlier 'golf balls' on the site.

5.7 Agriculture and forestry

Farming, particularly rearing of sheep, has long been an important part of the area's economy. Crops and livestock also provide for local needs. It's likely that the open fields which surrounded many of the villages were enclosed as part of wider land-use changes

following the dissolution of the monasteries – a process which carried on in a piecemeal fashion for about 300 years. Most of the larger enclosures, dividing up the outlying pastures and common grazings of the moorland, took place in the 18th and 19th Centuries as a result of Parliamentary enclosure. However, much of the moorland still remains unenclosed and used as common grazing land (alongside management for grouse shooting). The patterns of stone walls and hedgerows are one of the most striking features of the valleys and dales. The variations in field patterns – from intricate, higgledy-piggledy mosaics to large, regular rectangles - reflect different stages of enclosure. Also present in the landscape are the many tracks, hollow ways and drove roads used to move animals, either between lower and upper pastures, or over much longer distances to reach markets. The Hambleton Street track is part of a droving route between Scotland and London.

As production of wool and meat became more important, the upland villages turned more of their fields over to permanent pasture and hay making, and this, in turn led on to the pattern of mixed agriculture currently in operation, albeit with silage replacing hay. Arable crops were favoured on lighter soils at lower altitudes, and have covered large areas since the 1960s, especially in the south and east. This has led to localised loss of field boundaries where fields have been amalgamated.

Considerable planting of conifers took place from the 1920s to the 1980s. These plantations include the extensive forests found in the south-east of the National Park, and smaller plantations found throughout, particularly on valley sides. Some of these were planted over former ancient woodland sites. Dalby Forest has subsequently become a popular recreation destination. In recent years work has been undertaken to soften the edges of plantations with deciduous trees or by creating more sinuous edges. Some plantations have been felled and replanted or restored to peat moorland.

5.8 Travel and recreation

The 19th Century saw passenger railway lines reach the North York Moors. The line from Middlesbrough to Whitby via Kildale and Esk Dale still runs as a regular passenger service. The line between Pickering and Whitby via Newtondale and Goathland is now the popular North Yorkshire Moors Railway. There were also lines along the coast north and south of Whitby. These were closed in the 1960s, but their embankments and piers remain, and the Cinder Track between Scarborough and Whitby is a well-used path and cycle track. Ease of travel by roads and railways led to greater tourism in the National Park, particularly along the coast. This tourist infrastructure, including caravan parks, visitor centres, car parks etc., also leaves its mark on the landscape.

Fig.12 North Yorkshire Moors Railway, Newtondale

The National Park contains many opportunities for visitors to travel on foot. These include several long distance footpaths

such as the Cleveland Way, Tabular Hills Walk, Lyke Wake Walk, England Coast Path, and Wainwright's Coast to Coast route.

5.9 Buildings and settlement

The scattered farmsteads, villages and walls characteristic of the area are constructed from local stone. This creates a visual unity and links the settlements closely to the surrounding landscape. The villages are small and mostly nucleated or linear in form. They are built of local sandstone or limestone, and roofed with red pantiles which are unusual in an upland area (although buildings would originally have been thatched). The local materials, coupled with the careful control of new development, have resulted in strikingly attractive small villages which retain many vernacular buildings.

Fig.13 Traditional inn, Langdale End

Longhouses are a distinctive building form within the National Park, and some date back to the 15th Century. Their plan is long and narrow, with one end for people and one for animals. Most have been extended and adapted over the years, with an additional storey added, but at Raw there is an example of a longhouse in its largely original form.

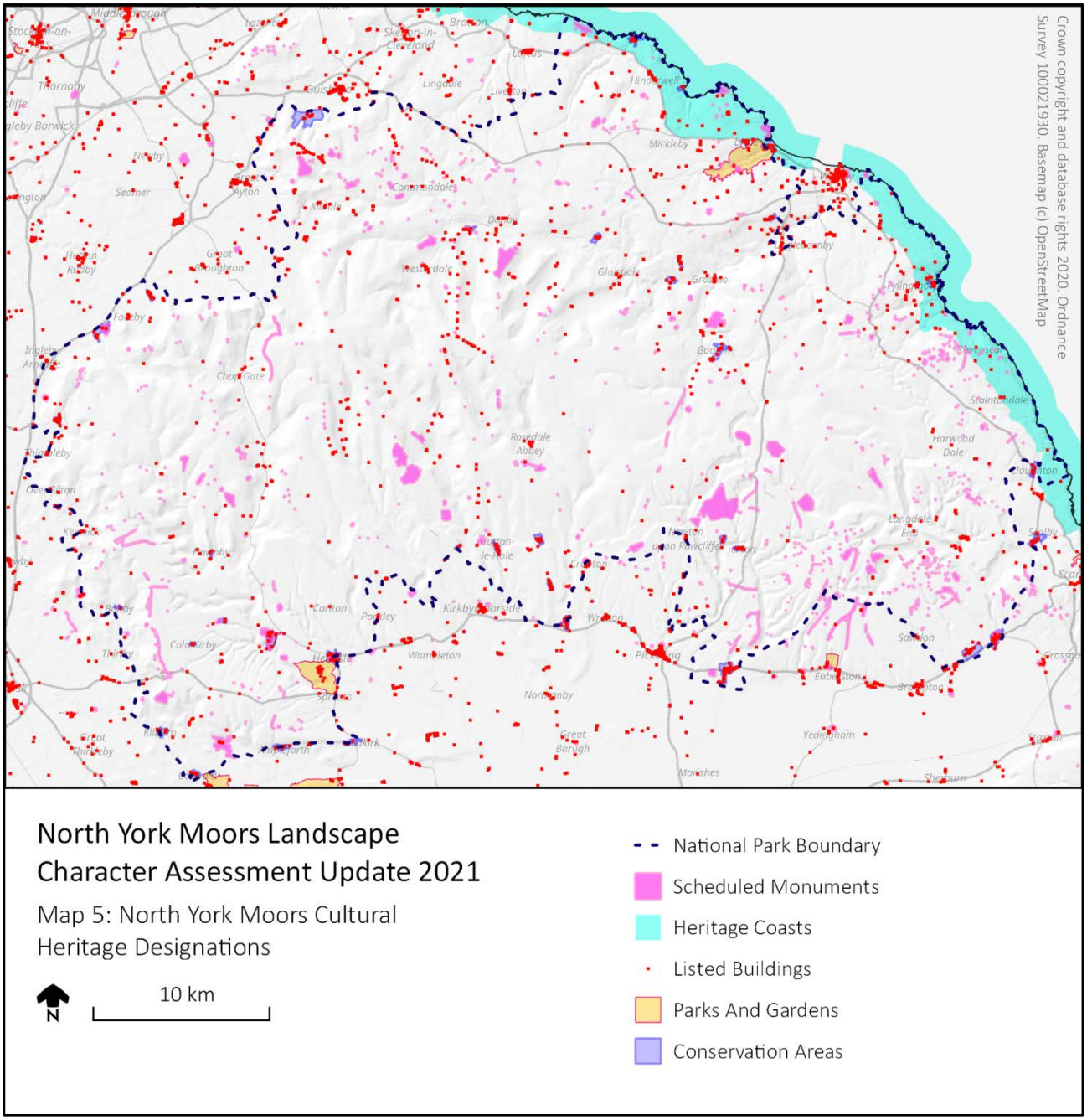
Fig.14 Traditional longhouse, Raw

The main market towns are located around the fringe of the upland block, and include Helmsley, Pickering, Whitby and Guisborough. Helmsley, Pickering and Guisborough are attractive inland market towns closely linked with the surrounding rural area, while Whitby is a coastal town, with its economy based on tourism and fishing.

The tight-knit fishing villages tucked into bays on the coast are first recorded later than the inland farming villages, with Sandsend first recorded in 1254 and Staithes in 1415. Dwellings in the coastal fishing villages, such as Staithes and Robin Hood's Bay, are tightly packed together in narrow valleys leading down to the bays. Without gardens, and built almost on top of each other, the houses are connected by alleys and stepped lanes. These picturesque villages have been (and remain) popular with artists seeking to capture their unique character and relationship with the coast.

Fig.15 The fishing village of Staithes

This rich cultural heritage is reflected in the number of local and national designations including Listed Buildings, Conservation Areas, Scheduled Monuments, Registered Historic Parks and Gardens and Heritage Coast. These are shown on Map 5.


Crown copyright and database rights 2020. Ordnance Survey 100021930. Basemap (c) OpenStreetMap
North York Moors Landscape Character Assessment Update 2021
Map 5: North York Moors Cultural Heritage Designations
N
10 km
National Park Boundary
Scheduled Monuments
Heritage Coasts
Listed Buildings
Parks And Gardens
Conservation Areas

6.0 Perceptual qualities and cultural associations

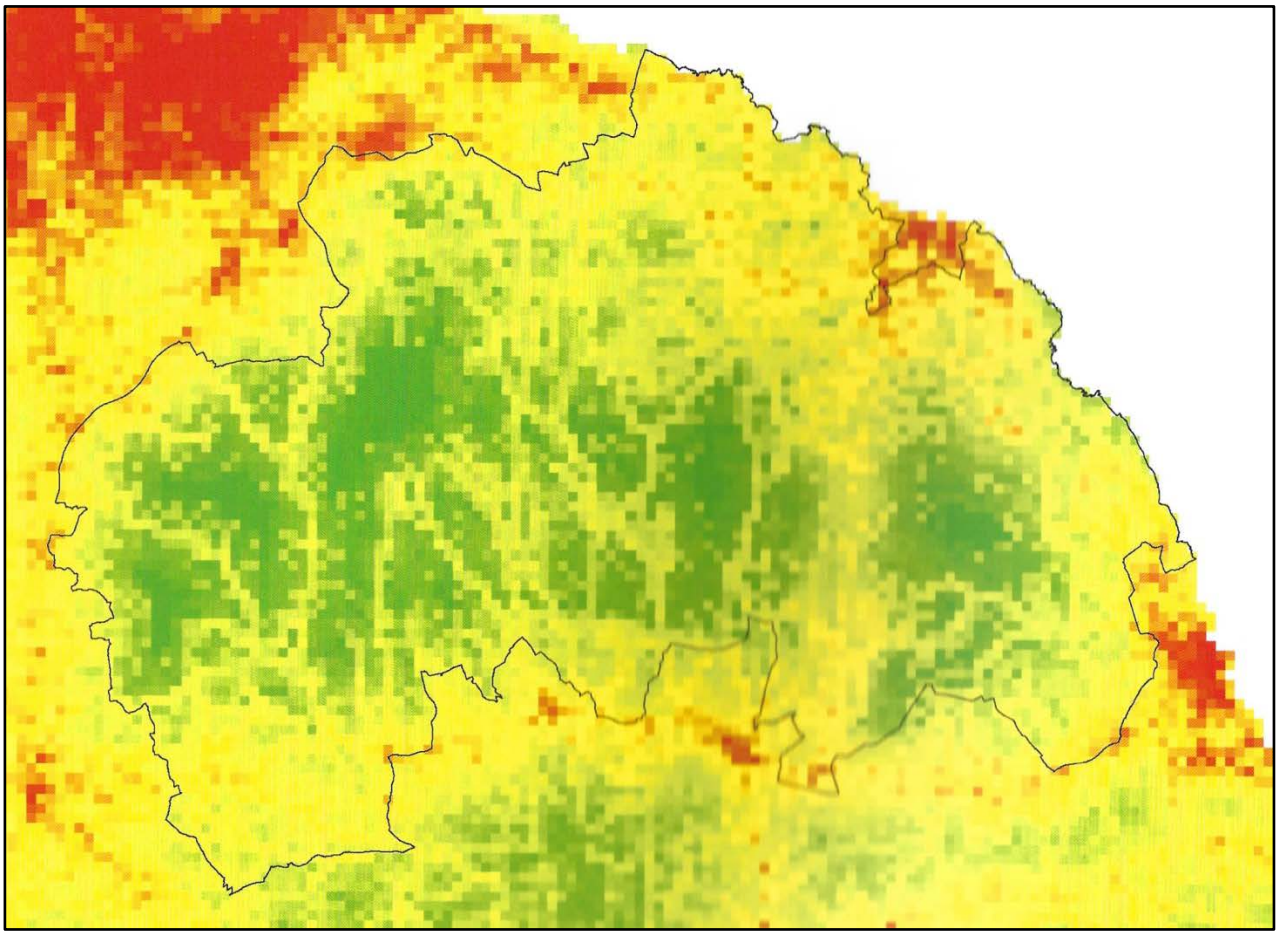
6.1 Introduction

The intangible – or perceptual – qualities of landscape, and how it is experienced, are important parts of its character. The perceptual qualities are therefore described in this Landscape Character Assessment, which aims to capture the perceptual qualities associated with the various Landscape Character Types. Understanding the perceptual qualities of landscapes is an important part of protecting and enhancing them for the future.

The need for protection of tranquil areas and dark skies is set out in para 185 of the NPPF which states: *Planning policies and decisions should...identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for the recreational and amenity value for this reason, and limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

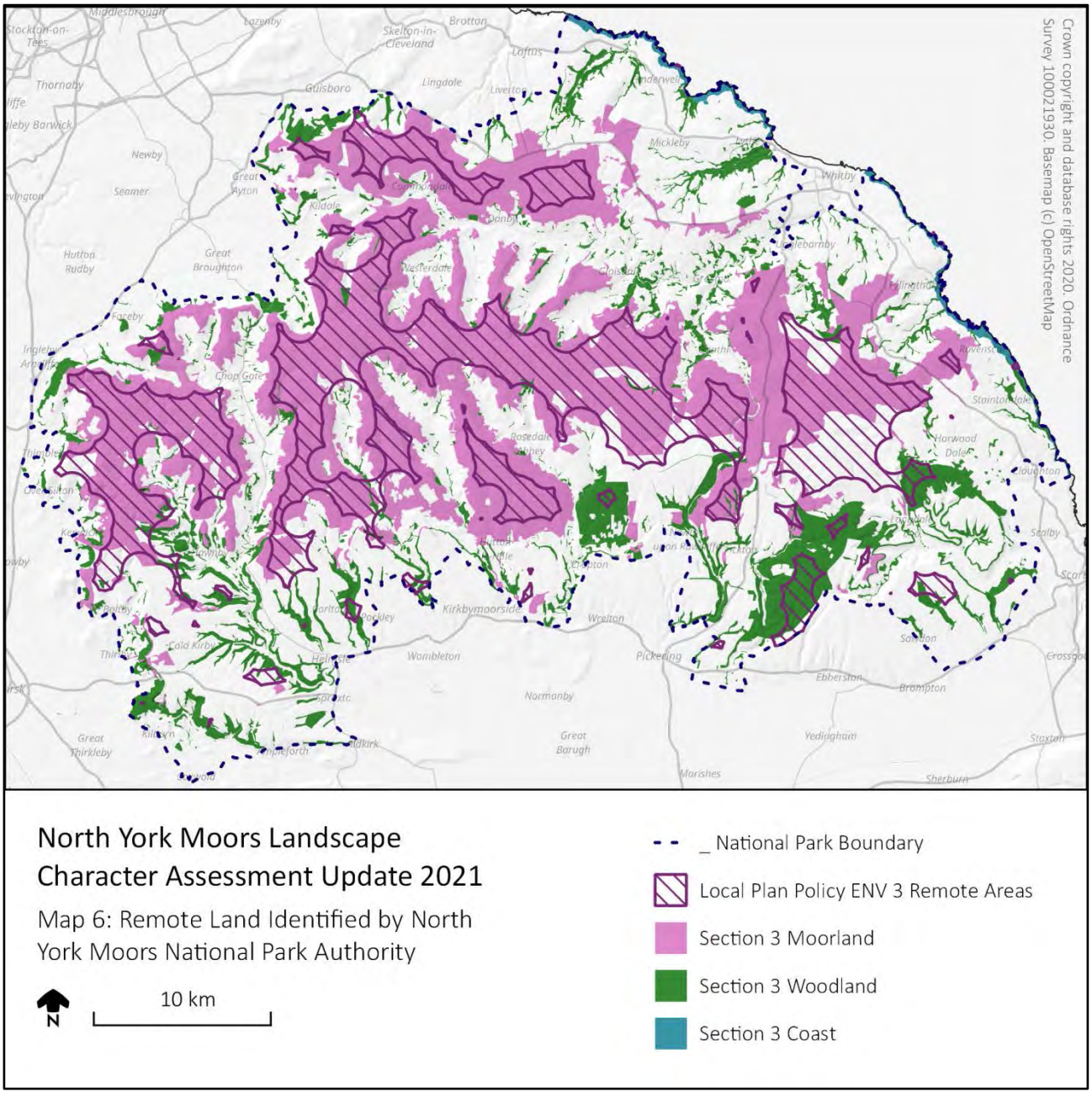
6.2 Experiential qualities

The North York Moors is renowned for its high levels of tranquillity, as shown on the CPRE tranquillity map (below) of the National Park and its surroundings. Green indicates the areas of highest tranquillity; red the lowest. It is based on a complex modelling process which assesses and weights a wide range of factors based on what can be heard or seen. These include positive factors such as remote and wild landscapes, streams and rivers, and native trees, and those that are considered to be negative, such as urban development, people, powerlines and traffic noise.



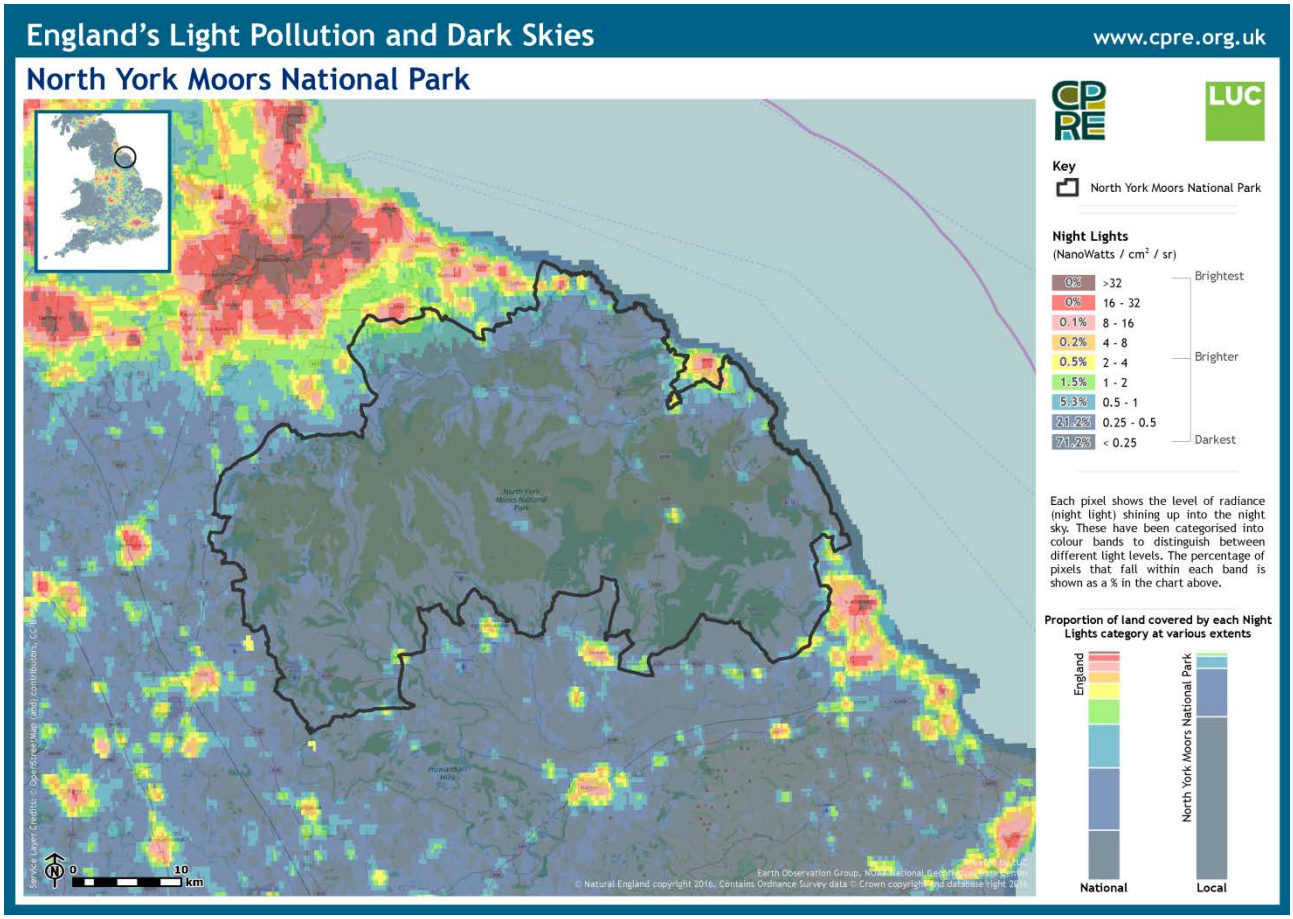
CPRE Tranquillity map of the North York Moors National Park and surroundings. From National Park Management Plan

The North York Moors also provide opportunities for people to experience wildness (particularly in the moorland and at the coast), a sense of history, closeness to nature, and a sense of remoteness. Remote land, based either on land cover (moorland, woodland and coast) or on its distance from main roads and settlement, has been identified by the NYMNPA for Policy ENV3. Remote land is shown on Map 6. Escaping from urban environments, and having the space to experience landscapes and nature first-hand, is vital to people's health and wellbeing. Of course as well as being inspirational and uplifting, the moors can also feel inhospitable and dangerous, particularly in poor weather. Experiencing the full power of the elements (for example crashing waves in a storm) can be both exhilarating and frightening. The moods of landscapes and how they are perceived often change with weather and season.



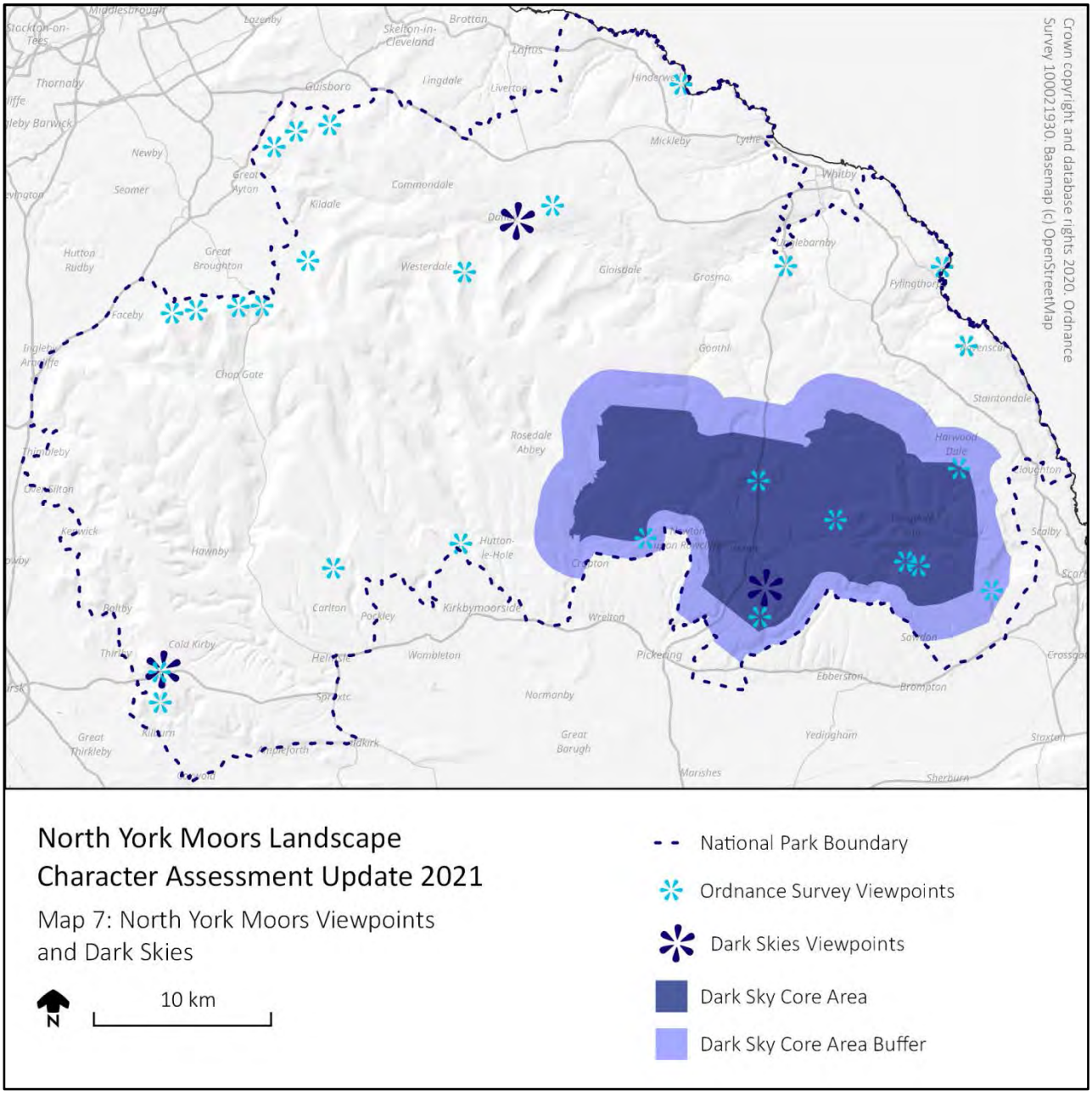
6.3 Dark night skies

Dark night skies are an important component of tranquillity and landscape character, and the North York Moors' dark skies are celebrated and protected. The CPRE dark skies map illustrates how dark the skies are, especially when compared to surrounding areas. It also shows that the part of the National Park with the lightest skies (i.e. greatest levels of light pollution) is Boulby Mine, followed by Helmsley, West and East Ayton, Staithes, the environs of the towns immediately outside the National Park boundary, and RAF Fylingdales.



CPRE Dark Skies map of the North York Moors and surroundings. From www.nightblight.cpre.org.uk

In December 2020 the National Park was designated an International Dark Sky Reserve, and there are dark sky observation The Moors National Park Centre near Danby, Sutton Bank National Park Centre, and Dalby Forest Visitor Centre (all shown on Map 7). The area around Dalby Forest forms the Dark Skies Core Area, which is surrounded by a Buffer Zone (both shown on Map 7).



6.3 Aesthetic and sensory qualities

The landscapes of the North York Moors contain an array of colours, patterns, scales and textures. This variety, and the contrasts between them, is part of the National Park's character and appeal. For example, the small-scale pattern of winding walls and green fields of the dales contrasts with the expansive of smooth purple heather of the moorlands above. Whilst some elements remain unchanged (e.g. field walls), others change with the seasons (e.g. heather changing colour from near-black in winter to purple in summer to brown in autumn). Changes in the landscape may be slow, such as the changing seasons, or quick, for example with changing tides or weather.

Landscape is not all about the visual. Sounds such as birds (e.g. gulls, curlews or skylarks) add to the sense of place. Smells such as the scent of gorse, salt spray, pine resin or bog, are also highly evocative and place-specific.

6.4 Views and viewpoints

The topography of the North York Moors results in countless views – either within the National Park, or over the surrounding land and sea. The visual connections with the surrounding lowlands which form its setting are described in section 2.2.

Some of the best viewpoints are identified on the Ordnance Survey 1:25000 map. These may be within or looking out of the National Park, but all are from relatively high points. They are shown on Map7. Some of the viewpoints contain facilities for visitors such as benches or interpretation boards.

Fig.16 Toposcope at Danby Beacon viewpoint

Some viewpoints are linked by paths. This is a particular feature of the Cleveland Way, especially along the top of the Western Escarpment, and also along the coast. Viewpoints, both official and unofficial, provide people with opportunities to stop and savour the landscape of the National Park and its setting.

6.5 Cultural associations

The landscapes and seascapes of the North York Moors have been a source of inspiration to writers and artists for centuries. Today, sculptors, glass makers, textile creators, painters, photographers and poets – among many others – continue this long tradition.

Robin Hood's Bay, Yorkshire by John Wilson Carmichael (1799-1868) York Art Gallery

Rievaulx Abbey from the South by Edward Henry Holder (1847-1922) York Art Gallery

7.0 Forces for Change

7.1 Introduction

This section describes the general forces for change affecting the North York Moors National Park now and which are likely to increase over the coming decade. The local manifestations of these changes are described in the Landscape Character Types profiles (Part 3).

Changes may be large in scale (a large new building) or small (a house extension). They may be sudden (a new structure being built) or incremental (scrubbing-up of moorland). Some changes may result from natural processes (coastal erosion) whilst others are man-made (footpath erosion). Changes can occur across the National Park, or be limited to a particular locality / Landscape Character Type. Change may also be cumulative. Changes happening outside the National Park can have consequences within it.

Not all changes are negative; a range of positive changes are also taking place in the National Park, and it is hoped that the new Environmental Land Management scheme will be beneficial, particularly in addressing the climate and biodiversity emergencies, and promoting positive land management.

7.1 Climate change

We are already seeing the consequences of climate change within the North York Moors National Park. Examples include intense periods of rainfall leading to flooding; summer drought affecting vegetation, soils and river levels; increased fire risk; new pests and diseases which thrive in a warmer climate; increased coastal erosion (exacerbated by sea level rise), and changes in the growing cycle of crops. Increased concentration of carbon dioxide in the air is likely to lead to increased plant growth rates, and there may also be impacts on soils from atmospheric nitrogen deposition, disrupting the current ecological systems. Climate change will exacerbate many of the changes described below.

Whilst the consequences of climate change will be profound, the National Park is in a position to contribute to mitigation and adaptation measures to address climate change. For example through enabling healthy peat soils to store carbon, and by supporting Natural Flood Management schemes to reduce downstream flooding.

7.2 Loss of habitats, biodiversity and soils

Intensification of farming systems from the mid-20th Century resulted in a significant loss of habitats including moorland, hedgerows, meadows and coastal grasslands. Although these losses have now largely ceased, the resulting intensive agricultural systems are less habitat rich and more polluting. Habitats are also much more fragmented, making it harder for wildlife to move around. Fragmented habitats are also more vulnerable to loss through climate change.

There has been a dramatic nationwide reduction in many farmland species of birds, flowers and insects, including butterflies and the pollinating insects which are essential for our food crops. Ploughing of light soils has made it more vulnerable to erosion, which is exacerbated by the loss of hedgerows. Soil can then run off into streams and rivers, causing problems with siltation. The switch from hay to silage for animal feed has reduced the biodiversity of herbs, grasses and insects present in the crops. Watercourses are polluted by nitrates from fertilizer and

livestock, with consequences for their biodiversity and use for drinking water.

Artificial drains were dug in some moorland areas in the 20th Century. This has caused the peat to dry out, making it more vulnerable to erosion, and affecting the wetter moorland habitats such as blanket bog. Work is now underway to remove or block these drains to enable the peat to re-wet and function as a carbon store. Changes in grazing intensity by animals affect the composition of moorland vegetation. For example fewer sheep grazing on the moorland in recent years has resulted in increased coverage of bracken, affecting the appearance and ecology of the moorland. Intensive management of moorland for grouse shooting can lead to loss of moorland diversity, and there is concern over the decline in moorland birds. Heather beetle is a major problem, and wildfires a constant threat during dry weather.

Between the 1920s- 1960s, many of the area's deciduous woodlands were replanted as conifer plantation, resulting in significant biodiversity loss of trees, ground flora, and the species dependent on them. In some locations, a decline in the active management of native woodland (such as coppicing) has led to changes in ground flora, but lack of active woodland management is generally not a major issue within the National Park.

Intensive management of land for pheasant shooting can impact on the landscape and biodiversity.

7.3 Natural processes

These include processes such as coastal erosion, fluvial (river) erosion, flooding, and weathering of rocks. The rates of many of these natural processes are exacerbated by climate change and the associated increases in extremes of temperature, rainfall and sea level rise.

Fig.17 Coastal erosion affecting the Coast Path, near Staithes

7.4 Tree diseases and invasive species

Ash Dieback (*Hymenoscyphus Fraxineus*) is a fungal infection which causes slow death of ash trees. It is already prevalent in parts of the National Park, visible in woods and hedgerow ash trees. The ecological and visual impacts of losing ash trees will be profound. Many other tree pests and diseases are now present in the UK (for example *Phytophthora Ramorum* affecting larch trees), potentially affecting a wide range of native species.

Fig.18 Ash trees affected by Ash Dieback, Dalby Forest

Invasive plant species can out-compete the native vegetation and result in loss of habitats and species. Examples include rhododendron

in woodlands, which shade out the native ground flora, and Himalayan balsam along river banks. Like Japanese knotweed, its seeds are carried downstream so it spreads quickly along a watercourse. Non-native animals such as grey squirrels also damage trees and affect establishment of new ones.

7.5 Increasing tree cover

Increasing tree cover has many benefits, including carbon storage, increasing biodiversity, improving air quality, and reducing flooding. As a result, there are currently many initiatives to encourage tree planting. However, if the wrong tree is planted in the wrong place, it can have unintended negative consequences and may do more harm than good. For example, planting trees on sites which are already biodiversity rich, such as flower-rich grasslands, will result in a loss of habitats which currently support bats, birds and insects. Deep peat stores more carbon than trees, so should be kept as peat rather than planted. Planting large swathes of trees can obliterate features which contribute to landscape character, such as the patterns of walls and field systems. Trees can also obscure views so people can no longer see or appreciate them. One of the key characteristics of moorland is its scale and openness, and it's therefore important that the sense of openness of the central high moors is retained (that doesn't rule out increasing tree cover in lower areas and moorland valley sides).

Advice on how tree cover can be increased within the various LCTs is provided in the Landscape Guidelines sections of the LCT profiles. Natural colonisation and deliberate tree planting both have roles to play in increasing tree cover. Natural colonisation often produces healthy and resilient trees, but it can be a threat to existing valuable habitats and may result in invasive or non-native species becoming established. Planting gives greater control over the species and locations of new trees.

7.6 Changing farming practices

Past changes in agricultural practices resulting in an ongoing loss of biodiversity are described in section 7.2. Ongoing changes to farming practices are also affecting the requirements for farm buildings, with some traditional farm buildings no longer suitable for their original purpose. Many traditional farm buildings have therefore been repurposed for alternative uses, such as holiday accommodation. This can lead to loss of features and context of historic buildings. New farm buildings are generally much larger than their predecessors, and built of non-local materials. They are therefore often more visible in the landscape. Traditional field boundaries of walls and hedgerows may no longer be required for their original purpose and so may fall into disrepair, or be replaced with post-and-wire fencing. This has consequences for landscape character, heritage, and biodiversity networks.

Fig.19 Dry stone wall under repair, Raw

Much positive work has been done on the restoration of field boundaries through grant payments. It is hoped that the new Environmental Land Management grants will further enhance biodiversity and landscape features on farms.

7.7 Changing forestry practices

Modern forestry practice is moving away from the monoculture conifer planting of the early and mid-20th Century. The range of tree species planted is becoming much more diverse, including more native species, and more care is taken to fit forests into their landscape surroundings, for example by avoiding straight edges. Forests contain a greater diversity of habitats, including glades, and woodland edge areas. Some plantations on peat or other sensitive habitats, or in visually sensitive locations, are being felled and restored to their former habitats. Restoration of ancient woodland is being promoted in Plantations on Ancient Woodland Sites (PAWS).

7.8 Recreation and Visitor Pressure

Whilst it is a good thing that people want to visit the North York Moors National Park, large numbers of visitors (or even small numbers in very sensitive locations) can put pressure on the environment. This creates a number of problems which require careful management and education of visitors, such as path erosion, litter, trampling, wildlife disturbance, wildfires, traffic, parking, and illegal vehicles. Visitor accommodation and facilities such as caravan parks may be visually intrusive and reduce tranquillity. Pressure can be particularly acute at 'honeypot' sites which have concentrations of visitors, especially along the coast.

Fig.20 Damage to moorland vegetation and soils by illegal off-road vehicles, Fylingdales Moor

7.9 Loss/ damage to the historic environment

Archaeological earthworks are at risk of damage by visitors, erosive processes and the roots of trees/ shrubs. Bracken is a particular threat as its rhizomes attack buried archaeology both physically and chemically.

Historic structures such as walls and bridges are at risk of incremental loss. This is also a potential issue when historic buildings are converted to new uses, resulting in a loss of their integrity, and the small historical details and fittings associated with their original uses.

7.10 Loss of tranquillity and dark skies

Development, increased numbers of people, traffic, noise and lighting all impact on the area's sense of tranquillity and its dark skies. The landform and long views can mean that changes can have an impact over a wide area.

Light pollution has many different sources, including streetlights, flood/ security lighting (in the National Park this is generally associated with infrastructure sites such as Boulby Mine and RAF Fylingdales), traffic, houses and agricultural buildings. The extraordinarily dark skies within the National

Park mean that they are vulnerable to even small increases in light pollution.

7.11 New development

This can take many different forms, and can occur at very different scales. Ongoing examples within the National Park include housing, village facilities, telecommunication masts, mines, sea defences, roads, and farm buildings. All will have different issues and impacts. Very careful siting, design and screening can often help to reduce visual impacts and integrate new development into the landscape, but cannot usually remove impacts entirely. Impacts may be visual (particularly where the development is in a prominent location such as on a skyline), and/or result in loss of tranquillity or dark night skies.

Fig.21 RAF Fylingdales on the horizon, Fylingdales Moor

Fig.22 Well-sited and designed mobile phone mast, Houlsyke

7.12 Loss of rural character

Small changes (often incremental) can lead to a gradual erosion of rural character, and a more suburban feel. They often occur alongside roads and at the edges of settlements. Examples of such changes include roadside signage (advertising or highways signage); traffic calming schemes; use of urban materials such as tarmac pavements and concrete kerbs, and lighting columns. Suburban-style property boundaries can also reduce the rural character, for example through the use of ornamental gates, close-boarded fencing, and non-native hedges such as laurel or *Cupressus leylandii.*

7.13 Changes outside the National Park or in adjacent LCTs

Intervisibility, or ecosystem connectivity, means that a change within one LCT may affect another LCT.

The National Park is also affected by changes happening outside it. Changes within the setting may affect views from within the National Park, or they may impact on the levels of tranquillity or dark skies experienced within the National Park.

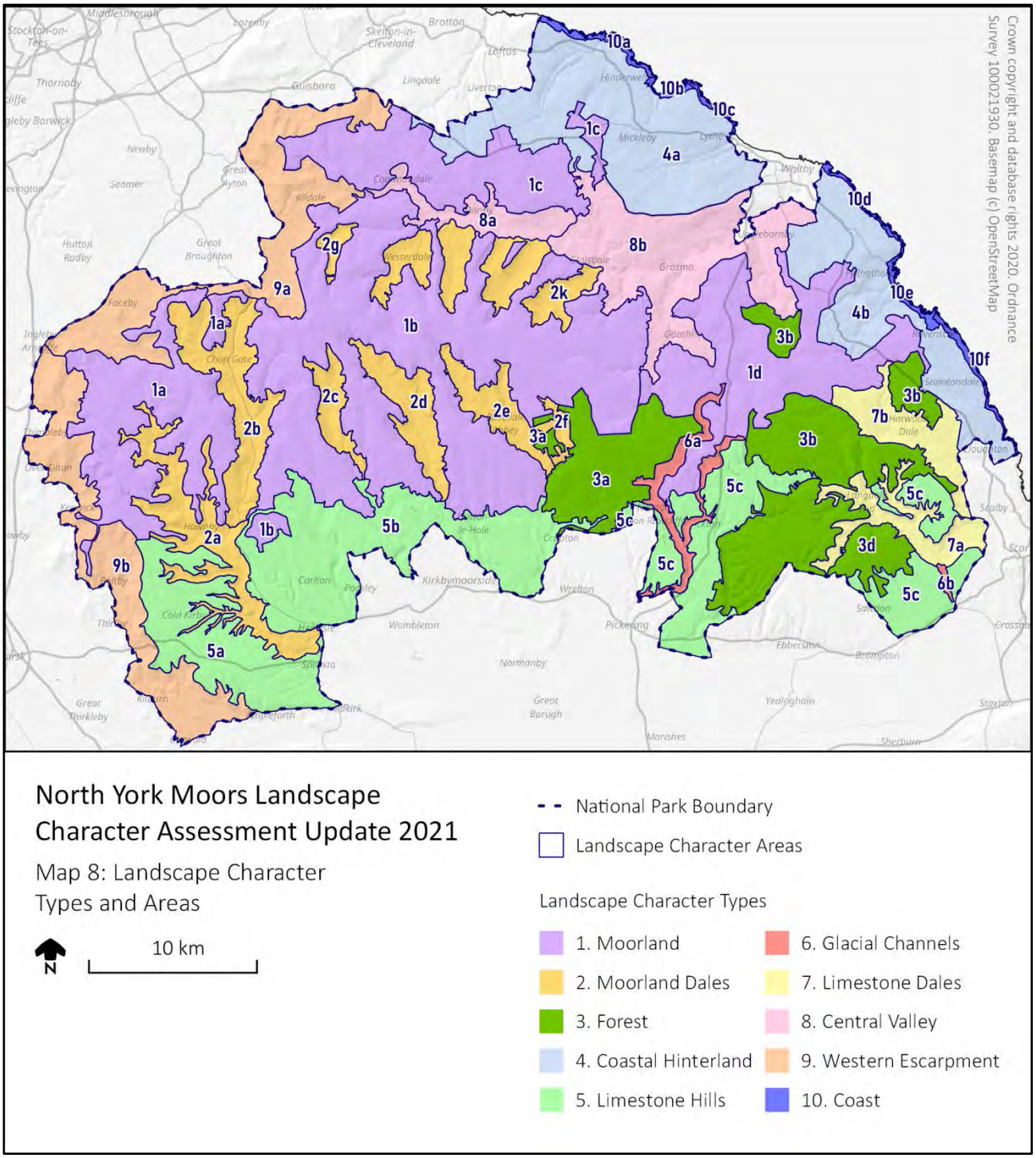
Part 3: Landscape Character Descriptions

Fig.23 Roseberry Topping

8.0 Landscape Character Types and Landscape Character Areas

The table below shows the Landscape Character Types (LCTs) and Landscape Character Areas (LCAs) within the North York Moors National Park. Their locations are shown on Map 8. The following pages contain descriptive profiles for each of the LCTs, including the LCAs within them.

LCT 1	**Moorland**	LCA 1a LCA 1b LCA 1c LCA 1d	Western Moors Central Moors Northern Moors Eastern Moors
LCT 2	**Moorland Dales**	LCA 2a LCA 2b LCA 2c LCA 2d LCA 2e LCA 2f LCA 2g LCA 2h LCA 2i LCA 2j LCA 2k	Ryedale Bilsdale Bransdale Farndale Rosedale Hartoft Baysdale Westerdale Danby Dale Fryup Dale Glaisdale
LCT 3	**Forest**	LCA 3a LCA 3b LCA 3c LCA 3d	Cropton Forest Langdale Forest Dalby Forest Wykeham Forest
LCT 4	**Coastal Hinterland**	LCA 4a LCA 4b	Boulby – Whitby Whitby - Cloughton
LCT 5	**Limestone Hills**	LCA 5a LCA 5b LCA 5c	Western Limestone Hills Central Limestone Hills Eastern Limestone Hills
LCT 6	**Glacial Channels**	LCA 6a LCA 6b	Newtondale and Hole of Horcum Forge Valley
LCT 7	**Limestone Dales**	LCA 7a LCA 7b	Hackness Harwood Dale
LCT 8	**Central Valley**	LCA 8a LCA 8b	Commondale – Upper Esk Dale Lower Esk Valley
LCT 9	**Western Escarpment**	LCA 9a LCA 9b	Cleveland Foothills Hambleton Foothills
LCT 10	**Coast**	LCA 10a LCA 10b LCA 10c LCA 10d LCA 10e LCA 10f	Staithes Coast Runswick Bay Kettleness to Sandsend Saltwick to Ness Point Robin Hood's Bay Ravenscar to Burnistone Point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North York Moors Landscape Character Assessment Update 2021
Map 8: Landscape Character Types and Areas
10 km
N
National Park Boundary
Landscape Character Areas
Landscape Character Types
1. Moorland
2. Moorland Dales
3. Forest
4. Coastal Hinterland
5. Limestone Hills
6. Glacial Channels
7. Limestone Dales
8. Central Valley
9. Western Escarpment
10. Coast

LCT 1: Moorland Landscape Character Type

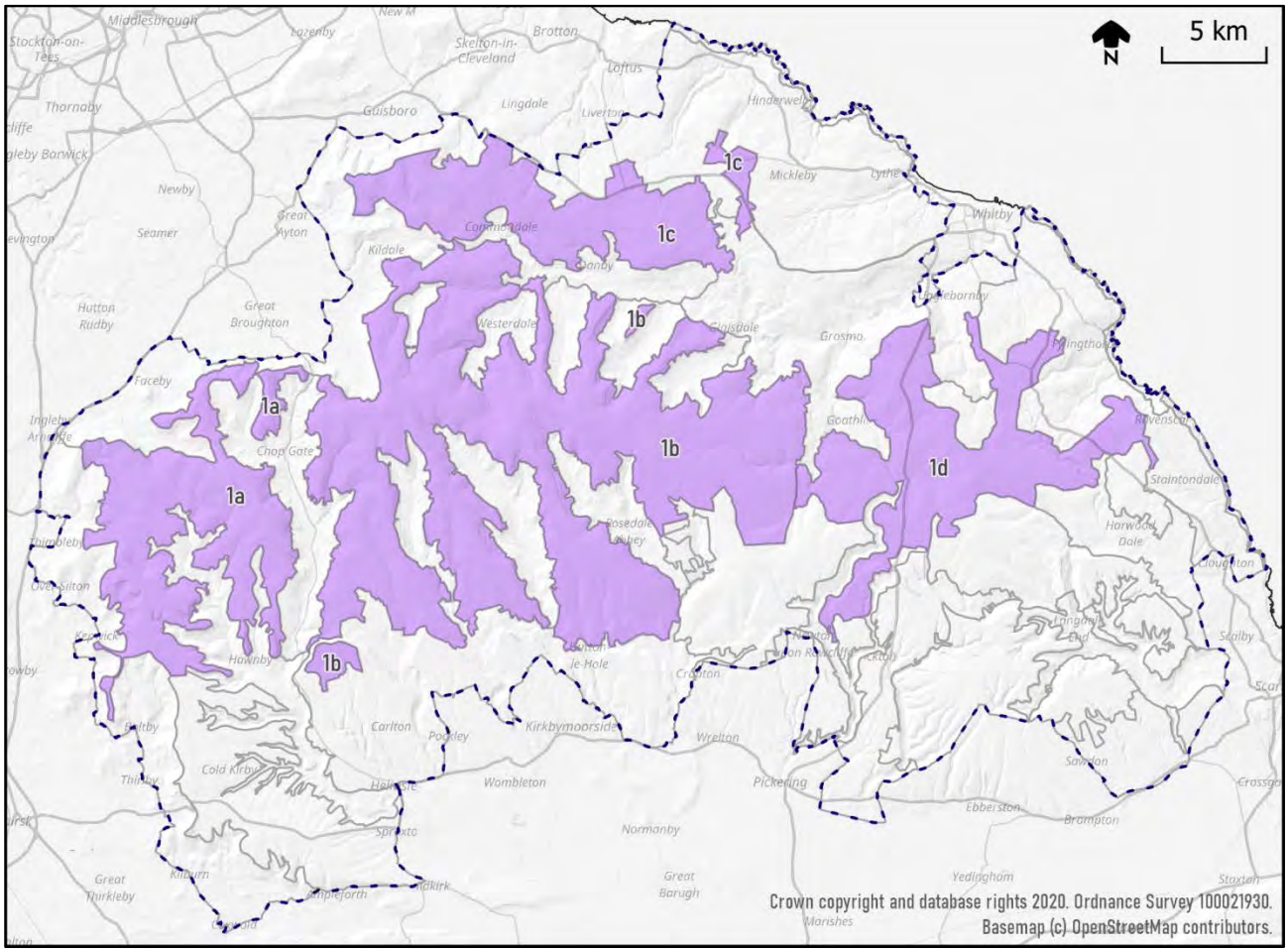
Fig.24 A typical scene within the Moorland Landscape Character Type, Young Ralph Cross. (National Park logo)

Location, Context and Setting

This Landscape Character Type (LCT) is the largest in the National Park, covering about a third of its total area. It comprises the unsettled open moorland on the highest land including the Cleveland Hills. It covers much of the centre of the National Park, extending in all directions almost to the National Park boundaries. Its size and shape mean that it borders all other LCTs within the National Park except LCT 10 (Coast). It therefore has strong visual, physical and cultural relationships with all surrounding LCTs, and also with land outside the National Park to the west and north – and the sea to the east – which contribute to its setting. The distinctive horizons created by the Moorland LCT are key to the views, character and sense of place of North York Moors National Park and beyond.

Summary Description

The Moorland LCT covers the unenclosed moorland which forms the heart of the North York Moors National Park. Its rolling ridges form strong, smooth, open horizons in views throughout the area. In summer, the flowering heather creates vast purple carpets, interspersed with patches of grass, moss and bracken. The LCT is almost entirely undeveloped, crossed by occasional roads and many tracks; isolated stone crosses form waymarkers. Since the late C.19th moorland has been managed for grouse shooting and sheep grazing. Its diverse habitats support a wide range of plants, insects, animals and birds. It is designated nationally and internationally for its biodiversity importance, with potential to become even more abundant and varied. It is also rich in archaeology, particularly prehistoric and industrial sites. Ridge-top barrows remain prominent features in today's landscape, as they have been for millennia. The North York Moors contains the largest expanse of heather moorland in England. Many visitors come to see it, to savour the moorland's colours, wildlife, views and dark skies, and to experience the senses of remoteness, wildness and tranquillity it provides.



Location map for Moorland Landscape Character Type (LCT)
1a = Western Moors; 1b = Central Moors; 1c = Northern Moors; 1d = Eastern Moors

Key Characteristics

- Underlying geology of Jurassic deltaic sandstones, overlain by peat.
- Topography forms an elevated, undulating plateau, with ridges extending outwards.
- Bogs, mires, wet flushes and springs on the moorland, with streams in V-shaped valleys.
- Unenclosed moorland primarily managed for sheep grazing and grouse shooting.
- Internationally-designated semi-natural habitats of heather moorland, grass moorland, bog and scrub supporting many species of plants, insects, animals and birds.
- Few trees, largely limited to valley sides and lower slopes, and occasional isolated plantations.
- Occasional walled fields carved out of open moorland, but generally unenclosed.
- Largely unsettled, with very few buildings or structures. Those which exist often very visible.
- A few straight roads following watersheds, but a denser network of tracks and paths, many ancient. Extensive areas of access land, and also several long-distance trails across the moors.
- Outstanding surviving prehistoric archaeology, including prominent barrows on ridgelines.
- Wayside crosses identifying routes across the moor are distinctive and evocative features.
- Magnificent seasonal colour from purple flowering heather, and diversity of colours and textures from variations in moorland vegetation.
- Long views across moorland, and over surrounding lower land. Many viewpoints.
- Forms open, smooth horizons in views from surrounding lower land.
- Outstanding senses of tranquillity, wildness, remoteness and dark skies.

Natural landscape features

The Moorland LCT covers the highest land within the National Park, rising to 454m above sea level between Bilsdale and Bransdale. It comprises a gently undulating plateau which gradually drops in height towards the edges. Dales cut through the moorland, leaving flat-topped ridges of moorland between them, locally known as riggs. Often the upper dale sides are covered by moorland, and so are included in this LCT.

Fig.25 The gently rounded form of Glaisdale Rigg, between Glaisdale (right) and Great Fryup Dale (left)

The LCT is generally underlain by Mid-Jurassic deltaic sandstones, with occasional patches of clay and sandstone in the north and south-east of the LCT, and limestone and sandstone on its southern fringes. The geology creates a smooth profile, with occasional sandstone outcrops marking moorland edges. Rocks can be seen on the surface as scattered boulder fields on the moor tops, or where the overlying peat has been eroded.

One of the most recent geological features in the National Park is the Cleveland Dyke, or Whin Sill. This is a band of igneous rock, which was intruded along a giant vertical fissure in the Tertiary period (about 55 million years ago). The resulting dolerite rock is exceptionally hard. It has largely been quarried away, leaving a V-shaped scar running for miles across the moors.

Fig.26 Cleveland Dyke quarry, Goathland Moor

The moorland is drained by a series of wet flushes, springs and minor gills, which have eroded V-shaped valleys into the moorland. There is very little open water.

The combination of geology, elevation and rainfall has led to formation of acidic peaty soils. They support a range of moorland plants including heathers, sphagnum moss, cotton grass and rough grassland (all generally occurring in wetter areas), and bracken and scrub (generally occurring on drier and more free-draining soils on valley side slopes). Often the vegetation types occur in mosaic, and together they support many species of plants, insects, reptiles, birds and animals. Moorland composition is affected by a combination of environmental conditions and management. Much of the moorland is managed for grouse shooting, and is used for grazing sheep.

Fig.27 Peat soils eroded by a moorland stream to reveal underlying sandstone. Vegetation is a mosaic of heather, grassland and moss. Fylingdales Moor

The richness and diversity of these nationally-rare upland habitats mean that the vast majority of the LCT is designated SSSI and SAC, as well as SPA for the bird life which it supports (including red grouse, curlew, lapwing, snipe. merlin and golden plover). The area has also been included in the European Natura 2000 series of sites, confirming it as an internationally important site for merlin, golden plover, and heathland and bog habitats. Small areas of moorland are within local nature reserves.

Designation	Sites
SAC	North York Moors SAC covers vast majority of LCT
SPA	North York Moors SPA covers vast majority of LCT
Natura 2000	North York Moors
SSSI	North York Moors SSSI covers vast majority of LCT; Newtondale, Scar End Wood (Wheeldale)
LNR	Harland Moor (part of Farndale LNR); part of Fen Bog LNR, Newtondale

Key designated nature conservation sites

Cultural landscape features

Although it appears natural, the moorland is the result of generations of management, most recently for sheep farming and grouse shooting. Thousands of years of use have left their marks on the landscape.

The earliest prehistoric sites comprise scatters of flint left by Mesolithic hunter-gatherers. There are traces of prehistoric enclosures and huts, and the cairns created by clearance of stones from the ground. Many of these are now hard to see amongst the vegetation. More prominent today are the monuments dating from the early Bronze Age, including standing stones, and the barrows (burial mounds) sited on hill tops and ridges. Later prehistoric sites on the moorland include the massive earthworks of dykes, thought to divide the land into different territories.

Fig.28 Louven Howe Bronze-Age barrow, with a boundary stone on top, Fylingdales Moor

The moorland is crossed by a network of tracks, some of which may date back to the prehistoric period. The 'Roman Road' at Wheeldale is not of standard Roman construction, and may have been built earlier or later. Other tracks include medieval 'pannier tracks' used to carry goods, drove roads, and the roads or tramways used to remove iron ore and stone from quarries. Many of these routes are now followed by recreational trails, such as the Lyke Wake Walk, and the Cleveland Way. The routes of some tracks are marked by crosses, many of which are named after people, including 'Old Ralph', 'Young Ralph', 'Lilla', 'Margery' and 'Fat Betty'. As well as aiding navigation, the moorland crosses are likely to have been connected with the local medieval Abbeys.

Fig.29 Wheeldale Roman Road

Since the Later-19th Century, much of the moorland has been managed for grouse shooting. This involves the controlled burning

of small patches of old heather to encourage new heather shoots (which the grouse feed on) to grow. Other visible landscape features are lines of grouse butts, tracks and isolated shooting lodges.

There are few other buildings or structures within the LCT. There are very occasional isolated upland farms, surrounded by fields which have been carved out from moorland and are often surrounded by stone walls. The Lion Inn sits in a prominent position by the road on Blakey Ridge. Straight lines of boundary stones follow parish boundaries, and there are also surviving park pales which demarcated medieval hunting estates. Moorland roads are usually straight, and follow watersheds or ridges. Sometimes they are lined with snow posts. The roads across the moorland tend to run north-south, and there are no east-west routes across the higher parts of the National Park.

There are many former industrial sites across the moorland, including the remains of iron ore and coal workings. Sometimes the shafts themselves may be seen, or it may only be the spoil tips and access roads/ tramways which survive. There are occasional limekilns (where limestone was burnt to create lime for building materials and as a fertilizer) but the most impressive remains are the ironstone kilns above Rosedale.

Fig.30 Bank Top iron kilns and railway, above Rosedale

Designation	Sites
Scheduled Monuments	Numerous, including cairnfields, enclosures, barrows, field systems, standing stones, promontory fort, dykes, Roman Road, wayside crosses, mines, kilns,
Listed Buildings	Lines of boundary stones

Key designated heritage conservation sites

Perceptual qualities and views

There are many perceptual qualities associated with moorland which make it so unique and special. To some, being here brings a sense of joy and closeness to nature; in others it instils a sense of awe or fear. Either way, people cannot fail to respond emotionally to this place.

One of the most remarkable features is its sense of scale and openness. Views are long, and in some views the moorland appears to extend uninterrupted as far as the eye can see. The elevated landform creates a sense of closeness to the sky, which forms a dramatic and ever-changing backdrop, and can transform the mood of the moorland. Weather and season can also create dramatic changes. In winter, white snow, frost and mist can create an ethereal quality. In late summer, the flowering heather creates carpets of purple, extending into the distance and creating colourful horizons.

Fig.31 Carpets of heather in full flower, Ana Cross, Spaunton Moor. Credit – Ebor Images.

Different varieties of heather and ling create a range of pink and purple flowers. Further colour and texture is created by the mosaic of other moorland plants, including grasses, bracken, scrub and mosses. In addition to the spectacular sights of the moors, the evocative sounds of the moorland birds overhead, and the smell of heather, gorse, bracken and peat all add to the sense of place.

The Moorland LCT provides deep senses of remoteness, wildness and tranquillity, particularly away from roads. The dark skies enable magnificent displays of stars, and the south-east of LCT is within the Dark Sky Buffer Area. There is a strong sense of isolation here, and its elevation creates a feeling of detachment from the surrounding lowlands and towns which can be seen in distant views. Walking here, it is possible to feel entirely cut off from the rest of the world. The moorland is identified as remote land and contains the majority of the remote areas identified in National Park policy ENV3.

Because of the openness of the landscape, and the lack of built features, those that exist are very prominent. Such features include ancient barrows and wayside crosses, but also more modern features such as Bilsdale TV transmitters, the Lion Inn, and the radar early warning system on Fylingdales Moor.

Views from the moorland are magnificent, particularly from the edges of the LCT where they overlook land with contrasts in colour, texture, scale, pattern and settlement.

Fig.32 View south from Harland Moor towards the Corallian Escarpment and wooded valleys of the Limestone Hills LCT

The moorland, and the views from it, can be appreciated from the roads and paths which cross the moors, and also from the access land which covers most of the LCT. There are numerous viewpoints marked on the OS map, and many are linked by the popular Cleveland Way and other routes.

Fig.33 View to Robin Hood's Bay from OS viewpoint on Stoup Brow/ Scarborough Road, Brow Moor near Ravenscar

The presence of moorland is fundamental to views from surrounding LCTs, and land outside the National Park. It provides strong, smooth, open, seasonally colourful horizons which are intrinsic to the character of the North York Moors.

Ecosystem Services provided by the Moorland LCT

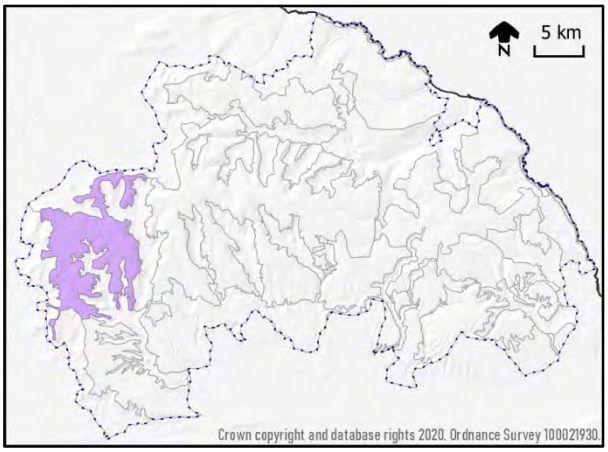
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	Exercise and recreation within the Moorland LCT allows people to benefit from high levels of tranquillity, remoteness, wildness and dark night skies, and to enjoy magnificent views. This promotes good health and wellbeing, and enables people to obtain non-material benefits such as reflection, aesthetic experiences and spiritual enrichment. Moorland contains a rich archaeology and history which contributes to cultural heritage and provides educational opportunities to increase archaeological understanding.	This LCT can continue to contribute to people's good health and wellbeing. There are opportunities to enhance viewpoints and remove vegetation which is currently blocking views. There are also opportunities to enhance cultural services through improved access and sensitive interpretation of historic sites.
Provisioning Services	Grazing sheep provide food and fibre, and grouse are also a source of food. Streams originating on the moors supply fresh water. In the past, moorland would have provided other provisioning services, as traditional uses of common-land included peat for fuel; heather and gorse for animal fodder, and bracken for animal bedding. Gorse was traditionally used for cooking because it burns at high temperatures.	There are opportunities to carefully introduce grazing animals to reduce bracken encroachment.
Regulating Services	Moorland plays a vital role in the water cycle, absorbing rainwater like a giant sponge, and slowly releasing it into streams and rivers. By slowing the amount of time it takes for rainwater to get into rivers, moorland helps to reduce the risk of flooding downstream. Moorland plants provide habitat and food for pollinators.	Improving natural water regulation (e.g. by removing artificial moorland drains and allowing colonisation of trees in upland valleys) will become ever more important as storms intensify due to climate change. Supporting threatened pollinators is key.
Supporting Services	Peat soils store carbon, preventing its release into the atmosphere and thereby helping to prevent climate change. They also support rare moorland habitats for many species of plants, insects, animals and birds.	Increasing the depth and health of peat, and preventing its loss, will help it to store additional carbon, and also to support healthy moorland habitats.

Landscape Character Area Descriptions

There are four distinctive Landscape Character Areas (LCAs) within the Moorland LCT, each with a unique 'sense of place'. These are described on the following pages.

Landscape Character Area 1a: Western Moors

Fig.34 A typical scene in LCA 1a, looking up at Carlton Bank and south to the ridges of Whorlton Moor. A former quarry site is visible on the hillside, which is also the route of the Cleveland Way.



Map showing the location of LCA 1a within the National Park

This LCA is located in the west of the National Park. It comprises the elevated, open and expansive uplands of the Cleveland and Hambleton Hills. It forms an undulating plateau, but with a repeating pattern of 'shoulder' shapes such as Carlton Bank, above.

Its location at the edge of high ground means that there are panoramic long views out across LCT 9 (Western Escarpment) over the Vale of York to the west. These can be experienced from the Cleveland Way, and from a series of viewpoints close to the National Park boundary. One of these is at the Wainstones, a series of sandstone outcrops which have been eroded by wind and rain to create pillars and buttresses.

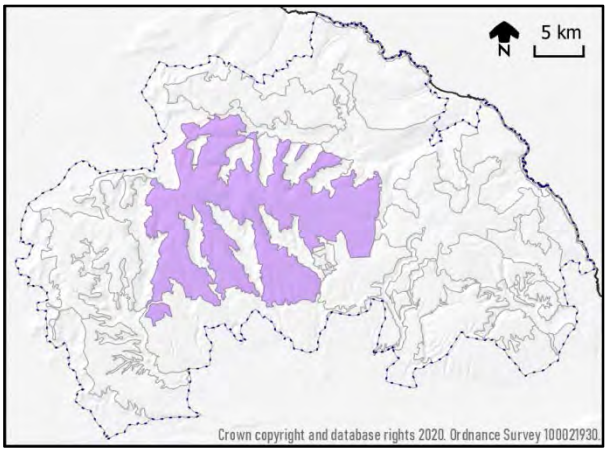
There are also views into Ryedale (LCA 2a) and Bilsdale (LCA 2b) from the east and south of the LCA. Moorland forms the horizon in views from these valleys below, and lines of prehistoric barrows are features on the skyline.

Arden Great Moor is underlain by younger limestone rocks (similar geology to the Limestone Hills - LCT 5) rather than sandstone. It is one of the most inaccessible parts of the LCA, and rises as a steep escarpment on the western side of Ryedale.

There are very few roads within LCA 1a, with the few roads which do pass through it often at the periphery. However, there are many paths and tracks, including the Cleveland Way. Some of these tracks are ancient in origin, and some were associated with the many mines and quarries (for alum, ironstone, jet) which were formerly present here, and which have left their marks on the landscape.

Landscape Character Area 1b: Central Moors

Fig.35 A typical scene in LCA 1b at Rosedale Head, the watershed between Danby Dale and Rosedale. Moorland extends as far as the eye can see, and forms an unbroken horizon. The stone (engraved on the other side) was placed here by the North York Moors Association to mark the millenium.



Map showing the location of LCA 1b within the National Park

This LCA comprises the largest and most elevated part of the Moorland, in the centre of the National Park. It reaches 454 m above sea level and stretches from Bilsdale Moor to Wheeldale. It forms a broad east-west band, from which numerous ridges extend to the north and south. Between these ridges are the Moorland Dales which form LCT 2. There are close visual, physical and cultural connections between this LCA and the dales within it. At the peripheries of the LCA, other LCTs have a localised influence, including Central Valley (LCT 8) to the north; Limestone Hills (LCT 5) and Forest (LCT 3) to the south and Western Escarpment (LCT 9) to the west.

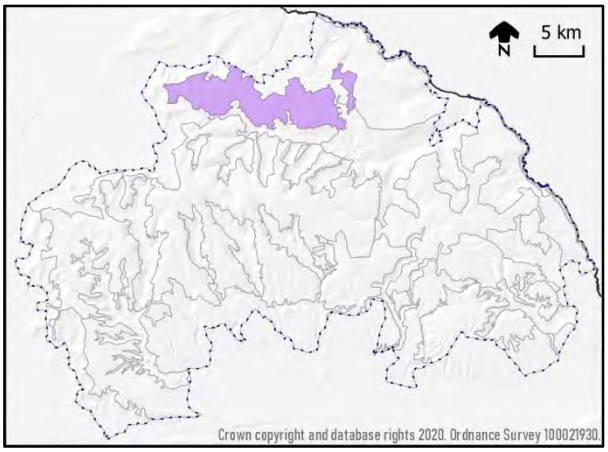
Despite the strong connections with intervening lower land, in some views the dales cannot be seen, and the moors appear as a series of ridges stretching into the distance.

There are few roads across the moor, although those which exist have a strong character and are popular with motorists. Much of the LCA can only be reached on foot, and consequently forms some of the most remote land within the National Park. This LCA is also notable for the extensiveness and scale of the unbroken moorland which can be experienced here.

The archaeology is exceptional, with several of the largest Scheduled Monuments within the National Park contained here. Most are prehistoric (including cairnfields, barrows, stone circles, standing stones and field systems), but there are also the remains of mine workings and evocative medieval crosses.

Landscape Character Area 1c: Northern Moors

Fig.36 A typical scene in LCA 1c, at Danby Beacon. The coast and sea are just visible at the right of the picture.



Map showing the location of LCA 1c within the National Park

This LCA is located in the north of the National Park and is generally lower than the moorland of LCAs 1a and 1b. It contains a small outlier on the eastern side which includes Newton Mulgrave and Ugthorpe Moors. Its topography forms an undulating plateau which slopes gradually down towards the west, north and east, and drops more sharply to the south towards Esk Dale.

LCT 1c contains the well-known landmark of Danby Beacon, which has magnificent 360 degree panoramic views and is very popular with visitors. It can be enjoyed on foot, or by those who prefer to access the location by car.

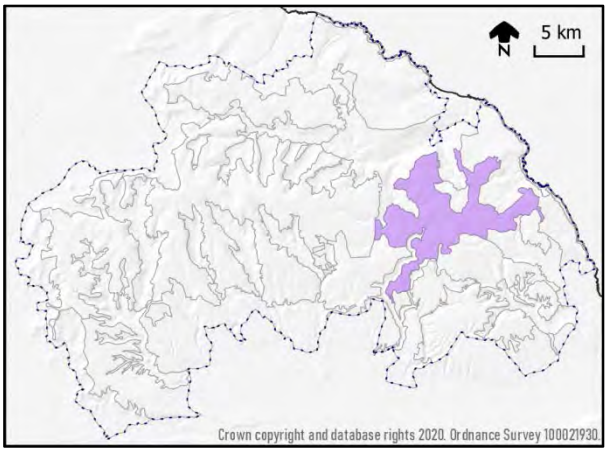
Views and sense of place are influenced by the surrounding LCTs of Coastal Hinterland (LCT 4) to the east, Central Valley (LCT 8) to the south and Western Escarpment (LCT 9) to the west. The LCA is located close to the National Park boundary, and therefore contains many views out over the setting of the National Park, including Teesside to the north and the Vale of York to the west.

One of the most striking features of this LCA is the strong, open moorland horizons which form the backdrop to surrounding lower land. Lines of prehistoric barrows can be seen on some ridgelines, but horizons are generally devoid of buildings or trees.

There are occasional straight roads lined with snow posts which add to the sense of remoteness. There is a sense of detachment from the surrounding lowlands and towns which can be seen in distant views.

Landscape Character Area 1d: Eastern Moors

Fig.37 A typical scene in LCA 1d, from Lilla Cross, looking south towards Langdale Forest



Map showing the location of LCA 1d within the National Park

This LCA comprises the eastern part of the Moorland LCT, to the east of Wheeldale Road. It is generally lower than the moorland further west, giving a sense of being 'in the moor' rather than 'on the moor'. It includes a number of moorland 'fingers' which extend into surrounding LCTs: The ridges of Greystones Rigg and Stony Marl Moor extend into LCT 4 (Coastal Hinterland) almost to the coast and have a strong visual connection with the coast. Goathland Moor/ Sleights Moor has a strong connection with LCT 8 (Central Valley) and Levisham Moor is surrounded by LCT 6 (Glacial Channels). The proximity of these LCTs, as well as LCT 3 (Forest) and LCT 7 (Limestone Dales) all have local impacts on its setting, views and sense of place.

This LCA contains the natural north-south route across the North York Moors between Pickering and Whitby using the topography of the valleys and a relatively low section of moorland. The route is likely to have been exploited since prehistoric times, and the Wheeldale Roman Road has various conjectured dates for its construction. The Pickering-Whitby railway (now the North Yorkshire Moors Railway) and the A169 between Pickering and Whitby also run north-south across the LCA. The distinctive linear feature of Cleveland Dyke/ Whinstone Ridge runs roughly east -west. Its hard igneous stone has been quarried away for use in road building, leaving a V-Shaped scar across the moor. Levisham Moor contains the most extensive Scheduled Monument in the National Park; half-hidden in the heather are traces of human occupation stretching back thousands of years, from Bronze Age barrows to late Iron Age boundary dykes. The mounds, ditches, banks and ridges are evidence of burial sites, fortified farmsteads, enclosures and field systems.

RAF Fylingdales Early Warning Station is a prominent and distinctive feature in the landscape, visible from the A169. Its famous 'golf ball' radar domes were replaced by the current truncated pyramid structure in 1992.

Levisham Moor is within the Dark Sky Core Area, and much of the southern part of the LCA is within the Dark Sky Buffer. Dark skies are an important characteristic of the LCA.

Forces for Change acting on the Moorland LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Loss of moorland habitats and soils	Past drainage of moorland has led to drying-out and loss of peat and associated habitats. Work is now underway to block moorland drains to re-wet the moorland. This encourages healthy peat which absorbs carbon; enables the moorland to act as a 'sponge' in times of high rainfall, and also reduces rates of soil erosion in times of drought. Occasional 20th Century forestry plantations in isolated moorland locations are visually prominent and have resulted in loss or damage to moorland habitat. However, some conifer plantations have been reverted to moorland. Controlled burning associated with grouse management results in a 'patchwork' effect of small rectangular patches of burnt vegetation, which can appear artificial and detract from the moor's 'wild' feel. In a few areas, reduced grazing has resulted in bracken and scrub encroachment. This has tended to occur on steeper slopes at the edges of moorland, and is noticeable from many of the dales below. Bracken can be hazardous to animals and humans, has limited ecological value, and creates thick layers of persistent litter which provide an ideal environment for tick – carriers of diseases affecting people, livestock and wildlife. The recent infestation of heather beetle is leading to loss of heather, and limiting its flowering, which impacts on the health of the heather and its appearance as purple carpets across the moors. It is likely to lead to a shift away from heather-dominated habitats to grass-dominated habitats, with potentially significant and long-lasting consequences for the landscape and ecology. There is also concern over declining numbers of moorland birds such as waders and merlin.	All
Uncontrolled fires	Damaging fires are most often started accidently by barbeques or discarded cigarettes landing on tinder-dry vegetation. Uncontrolled burning often leads to the peat itself catching fire, which releases carbon into the atmosphere, and also reduces the peat's ability to store carbon in the future. Uncontrolled moorland fires are difficult to extinguish, particularly in remote areas far from sources of water. Over much of the National Park, heather (not peat) is currently burnt on a cycle to prevent a build-up of old heather. This helps to prevent uncontrolled fires, and produces a diversity of heather of different ages. There is ongoing discussion regarding the environmental consequences of heather burning.	All
Development and structures	Features on open moorland (for example isolated buildings or communications masts) can be seen for miles, particularly when they break otherwise smooth skylines.	All
Loss of tranquillity, remoteness and dark skies	As well as visual impacts, development and structures can impact on the sense of remoteness and tranquillity, and affect dark skies. RAF Fylingdales is a notable source of light pollution within this LCT. Tranquillity can be affected by increases in numbers of people, noise	All, but esp. 1d

	and traffic. Impacts associated with activities such as off road motorcycling, mass participation events and sport shooting can affect these qualities.	
Damage to/ loss of archaeology	Moorland archaeology is vulnerable to exposure through erosion (both natural and resulting from human activity) and loss of peat. It may also be impacted by re-wetting schemes or tree / scrub colonisation. Hidden archaeology may be unintentionally damaged. Bracken damages buried archaeology physically and chemically.	All
Recreation and visitor pressure	Moorland habitats are often fragile, and vulnerable to erosion. Well-used footpaths may become wider, with multiple tracks, or deeper through use. Path erosion is exacerbated by bicycles and off-road vehicles (particularly scrambling bikes). Parked and moving vehicles are often highly visible in open moorland, and informal parking (for example on narrow roads or in passing places) causes problems for other road users. Signage and interpretation panels can create visual 'clutter' in an otherwise open landscape. Litter and antisocial behaviour damages habitats and wildlife and increased wildfire risk.	All
Overgrowing of viewpoints	Some viewpoints marked on the Ordnance Survey map, particularly along roads at the edges of moorland, are no longer managed, and are overgrown with vegetation	All
Additional tree cover	There are opportunities to accommodate additional tree cover in moorland valleys, edges and steeper slopes, particularly where bracken has become established. However, woodland creation on open moorland may have negative consequences on protected moorland habitats, deep peat, long views, archaeology, and the sense of openness which is so fundamental to the moorland's character.	All
Changes in adjacent LCTs or outside the National Park	Views from moorland are often long and elevated. They often include land/ sea within other LCTs, or outside the National Park. This intervisibility means that developments outside the Moorland LCT are likely to affect views from moorland, particularly if there is a cumulative impact. The moorland/ forest boundary is particularly noticeable. The inherent qualities of the Moorland LCT (including long views, tranquillity and dark skies) make it particularly sensitive to developments beyond its boundaries.	All
Climate change	Moorland habitats are vulnerable to changes in climate, with moorland becoming increasingly vulnerable to damaging fires if peat and heather are dry. Dry peat is also at increased risk of soil erosion. However, moorland also has a vital role to play in reducing the impacts of climate change, for example through storing carbon in peat, and absorbing water to reduce downstream flood risks.	All

Landscape Guidelines for the Moorland LCT

Protect

- Protect the open, smooth, moorland horizons.
- Protect the rare and diverse moorland habitats recognised through international designation.
- Protect peat soils to enhance the moorland's function as a store of carbon and water.

- Protect moorland archaeology through integrated management and a clear understanding of the implications of change for physical remains. Target Scheduled Monuments at Risk with appropriate management wherever possible.
- Protect the qualities of remoteness, wildness and tranquillity, and the dark night skies.
- Protect views from summits and viewpoints from intrusive development or land use changes.

Manage

- Manage moorland to maintain and enhance its diversity of rare habitats and species. Moorland Management Plans should be bespoke for specific localities, responding to their context and unique combinations of habitats and conditions. Management Plans should be prepared collaboratively by landowners, land managers and conservation organisations.
- Manage moorland to minimise the risk of damaging fires, for example by encouraging the re-wetting of mires, and preventing extensive areas of flammable old heather. Continue with a programme of public education regarding the risks of fires from barbecues and dropped litter.
- Continue to try and prevent bracken encroachment into heather and grass moorland.
- Consider opportunities for dynamic boundaries between trees, scrub and moorland where this LCT adjoins other LCTs.
- Manage key viewpoints, ensuring that they are kept open and free from vegetation growth.

Plan

- There are strong landscape objections to the siting of structures such as communications masts within this LCT, due to the open and undeveloped character of the landscape and the importance of the uninterrupted horizons. This is in addition to the restrictions on permitted development rights associated with SSSI, SPA and SCA designations. Proposed developments or changes associated with existing buildings (for example isolated upland farms) should be evaluated on a case-by-case basis.
- Promote Natural Flood Management Techniques where appropriate.
- Where change to historic buildings / structures is enabled through the planning system, ensure that it protects / enhances the significance of the heritage asset in question and is informed by a proper understanding of the asset in advance.
- Developments or activities which appear to bring human influences closer should be avoided.
- Seek opportunities to revert conifer plantations on deep peat to moorland habitat. In particularly fragile locations it may be more appropriate to let nature take its course than to use heavy machinery.
- Encourage native wooded habitats where suitable, especially on bracken slopes at the edges of the moorland. Reduce downstream flooding and increase habitat diversity by encouraging native woodland and scrub to develop in moorland valleys. However, specialists should first be consulted to check for archaeological, ecological and public access constraints. The impact on views from lower land, including moorland dales, should also be considered.
- Engage in collaborative research to understand the conditions leading to the current outbreak of Heather Beetle (climate change, increased nitrogen levels and wetter moorland are all possible causes). Identify solutions to prevent attacks and help moorland recover quickly.

LCT 2: Moorland Dales Landscape Character Type

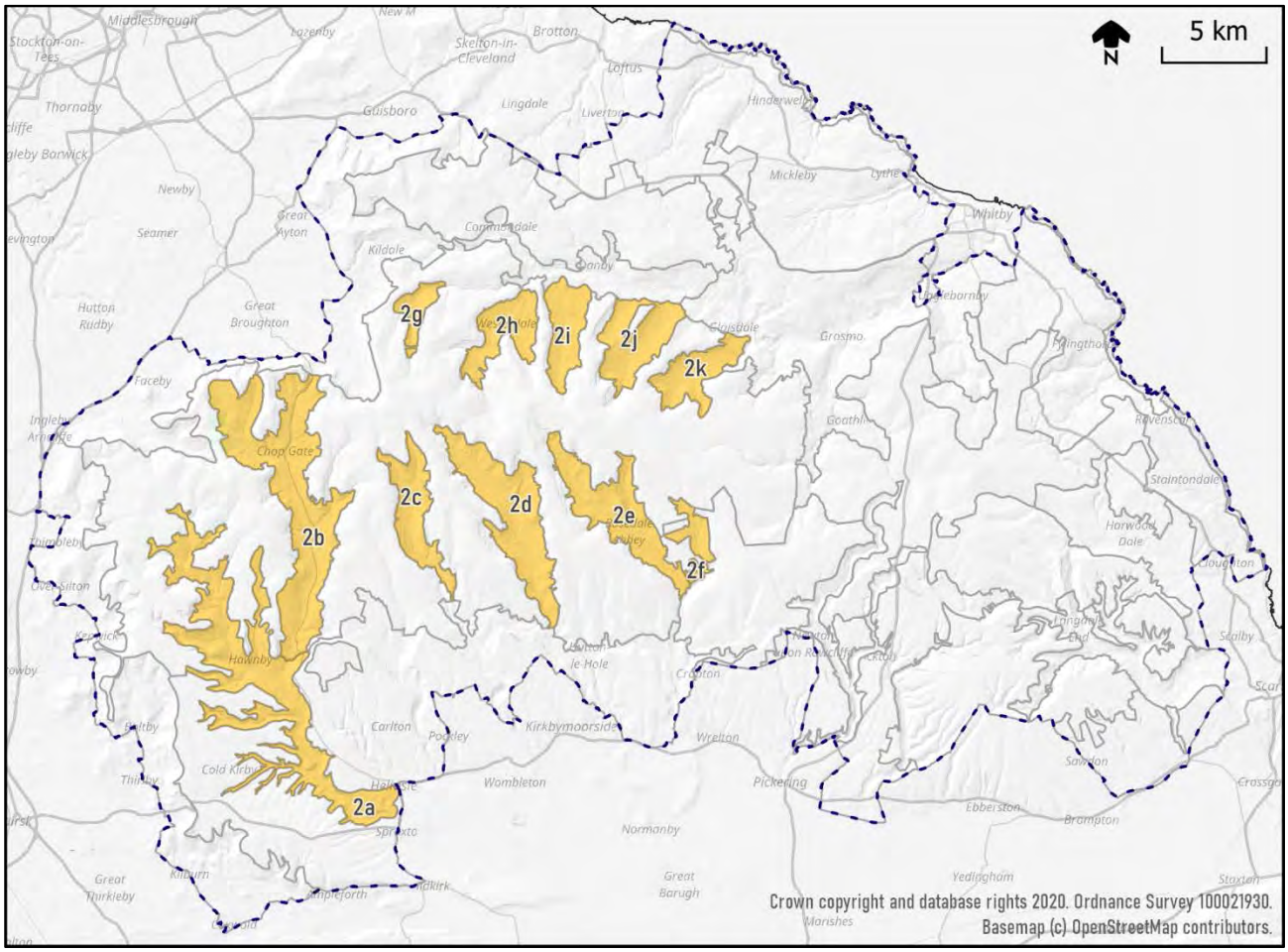
Fig.38 A typical scene within the Moorland Dales Landscape Character Type, Great Fryup Dale

Location, Context and Setting

This Landscape Character Type (LCT) is located in the centre and west of the North York Moors National Park, and comprises a series of separate farmed dales cut into the surrounding moorland. They form two rows, running north and south from the central watershed. Most settlements within the Moorland Dales are farms and hamlets, but there are a few villages, including Rosedale Abbey and Chop Gate. The character of all the Moorland Dales is strongly influenced by the surrounding Moorland (LCT 1) which forms their setting, horizons, and often the upper Dale sides above the enclosed fields. There are also localised influences from other surrounding LCTs: Forest (LCT 3); Limestone Hills (LCT 5) and Central Valley (LCT 8).

Summary Description

The Moorland Dales LCT comprises a series of narrow, farmed, dales incised into the moorland. Their irregular mosaics of small green fields, divided by stone walls or hedgerows, create a marked contrast with the colour, texture and scale of the surrounding open moorland. Historic winding lanes connect farms and hamlets, passing over narrow bridges and through bands of woodland on valley sides and alongside streams. The lack of main roads and traffic creates a sense of isolation and tranquillity, despite the settled and managed feel of the Dales. There is a strong sense of continuity with the past, which is further enhanced in places by large historic buildings and estates, such as Rievaulx Abbey. The surrounding moorland is ever-present in views, sometimes forming the skylines of the dales, and sometimes dropping right down into them. Often there is a gradual transition between the farmland and the moorland, with rough grassland, forest planting, scrub or crags above the enclosed fields of the valley floor and lower sides. The Dales are often seen from above, looking like landscapes in miniature.



Location map for Moorland Dales Landscape Character Type (LCT) 2a = Ryedale; 2b = Bilsdale; 2c = Bransdale; 2d = Farndale; 2e = Rosedale; 2f = Hartoft; 2g = Baysdale; 2h = Westerdale; 2i = Danby Dale; 2j = Fryup Dale; 2k = Glaisdale

Key Characteristics

- Deltaic sandstones eroded to reveal underlying Lias mudstones and Cleveland ironstone.
- Topography of shallow V-shaped valleys incised into surrounding moorland/ limestone hills, often with tributary valleys. Steep crags often visible at top of dale sides.
- Fast-flowing streams and tributaries flowing from springs or moorland mires.
- Land use is predominantly pasture, with patches of rough grass, meadow, arable and trees.
- Semi-natural habitats include patches of woodland, meadows, flushes, moorland and streams.
- Trees primarily found in forestry blocks, valley-side woodlands, hedgerows and along streams.
- Field patterns vary in size and irregularity, and are important to character, creating mosaic patterns. May be hedges, stone walls or occasional fences.
- Settlement mostly isolated farms or hamlets, with a small number of villages. Usually constructed of local stone in traditional styles, with fine examples of vernacular farms.
- A network of lanes, generally narrow and winding in valleys, running between walls or hedges. Few main through routes, so generally little traffic. Lanes popular for walking and cycling.
- Many historic buildings, and a sense of continuity in the landscape. Larger historic sites and designed landscapes include Rievaulx Abbey and Duncombe Park, both in Ryedale.
- Striking views into the dales from surrounding high land, and long views within enclosed dales.
- Contrasts between the open, smooth heather moorland and the green mosaic of fields.
- Strong sense of tranquillity away from busier roads and villages.

Natural landscape features

In the Moorland Dales, the Deltaic sandstone rocks which cover most of the surrounding moorland have been eroded to reveal the underlying soft Lias mudstones and Cleveland ironstones with bands of thin limestone. In some Dales the sandstone is visible as crags around the tops of the valley sides.

Fig.39 Scene in Rosedale, showing upper valley side crags and tree-lined tributary streams.

The Moorland Dales are deeply incised into the surrounding Moorland and Limestone Hills LCTs. Their topography has some local variation, but in general they are V-shaped in profile, with valley sides getting steeper towards the top. The Moorland Dales have been (and continue to be) eroded by the becks which flow through them, sometimes joined by tributary streams from side valleys. Some of the becks are meandering within flatter valley floors, whilst others have straighter courses. Waterfalls are common, especially on steeper valley sides. The becks are either spring fed within the Dales, or have their origins in the surrounding moorland. They can often be identified by the lines of trees which follow their courses.

Other trees occur in hedgerows, alongside rivers, around buildings and settlements, and in larger patches of valley-side woodland. There are numerous veteran and parkland trees, as well as patches of Ancient Woodland such as Ashberry Wood. The ancient trees and woodlands are important for their biodiversity and aesthetic value, and also provide a living link with the past and a sense of longevity and permanence in the landscape.

Coniferous planting has taken place on Dale sides, particularly on steeper land, although some is now being felled and/ or replanted. There is a small amount of Plantation on Ancient Woodland Sites.

In some Dales, the transition between farmland and the surrounding moorland is abrupt, and in others it is more gradual. The moorland edge habitats (including heather, rough grass, crags, bracken and scrub) around the tops of the Dales are important semi-natural habitats, and some are included in the SSSI/ SPA/ SAC designation which covers much of the Moorland LCT. Occasionally moorland extends down the dale sides. Other semi-natural habitats include meadows, hedgerows, riparian habitats, flushes, streams, woodland, veteran trees and verges.

Fig.40 Caydale, a tributary of Ryedale, is designated SSSI for its diverse habitats including grassland, mires, fen, heathland and woodland

Farndale is famous for its wild daffodils, and almost the entire Dale is a Local Nature Reserve. Duncombe Park, at the southern end of Ryedale, contains numerous veteran trees which provide habitats for many birds, bats, insects and fungi. The River Rye is home to otters, trout, and rare birds including kingfisher, grey heron and sand martin.

Fig.41 Riverside bluebells, Upper Ryedale

Designation	Sites
SSSI, SPA & SCA	Parts of the North York Moors designations spill over the valley sides into the Moorland Dales LCT.
SSSI	Spring Wood Hawnby; Low Pasture; Noddle End; Peak Scar; Caydale; Ashberry and Reins Wood; Rievaulx Wood; Castle Hill Deer Park Windy Pits; Duncombe Park; Farndale
NNR	Duncombe Park
LNR	Farndale Birch Wood (YWT) Ashberry Wood (YWT)

Key designated nature conservation sites

Cultural landscape features

Land use within the Moorland Dales is predominantly improved pasture/silage, some arable, rough ground, meadow, and woodland/ forestry. Fields may be bounded by hedges or stone walls, or occasionally post and wire fencing. Fields are generally small in size, but vary in shape from regular 'ladder pattern' fields to irregular enclosures with no straight boundaries. The local variations in field patterns, and the proportions of arable and grazing land, can contribute to each Dale's unique sense of place.

Settlement usually takes the form of isolated farms or hamlets, although there are some villages such as Rosedale Abbey, Chop Gate and Westerdale. The vast majority of houses are vernacular in style, constructed of local stone with pantile roofs (originally thatched).

Fig.42 Traditional farm, Low Mill, Farndale

There are also many fine traditional examples of farm buildings. Spout House in Bilsdale is a rare example of a cruck-framed building.

Few of the Dales contain main through roads (Bilsdale is an exception), and the lanes which connect the farms and hamlets are usually narrow and winding, running between walls or hedges. Occasionally Dales have a stronger influence of estate ownership, which subtly influences their character.

The pattern of lanes, fields, farms and bridges is likely to have remained largely unchanged for centuries, and this is reflected in the number of Listed Buildings and Scheduled Monuments present in the Moorland Dales LCT. Other medieval sites include ecclesiastical sites (Rievaulx Abbey is the largest, with smaller sites at Baysdale Abbey and Laskill former monastic grange).

Fig.43 Rievaulx Abbey, Ryedale

Industry (particularly mineral extraction) also took place within the dales and left its mark

on the landscape. Spoil tips from the quarrying of ironstone, coal and jet are often seen on dale sides. Trackways used to transport quarried material can be seen in some dales, as well as the buildings used by 19th Century miners and their families: terraced houses, chapels, schools and pubs. The large, arched, processing kilns above Rosedale, although within the Moorland LCT, sit impressively above the valley.

Fig.44 Methodist chapel, Hartoft

Duncombe Park Estate, at the southern end of Ryedale, includes a neo-classical mansion set within parkland grounds incorporating ornamental trees, an earlier medieval deer park, woodland, garden structures including gatehouses, ionic and Tuscan temples, and the old castle as a 'romantic ruin'. Carriage drives around the estate connect viewpoints. Rievaulx Terrace also contains designed landscape elements, and both sites are Registered Historic Parks and Gardens.

Fig.45 Parkland scene, Duncombe

Designation	Sites
Scheduled Monuments	Rievaulx Abbey; Helmsley Castle; Laskill Monastic Grange; Rosedale Mines; Baysdale Abbey Bridge; Round Hill Hillfort (Westerdale); Cairnfield (Danby Dale)
Conservation Areas	Rievaulx; Hawnby; Rosedale Abbey; Helmsley (part)
HPG	Duncombe Park, Rievaulx Terrace
Listed Buildings	Numerous, including houses, farms, churches, school, mills, pubs, keeper's cottages.

Key designated heritage conservation sites

Perceptual qualities and views

One of the most striking things about the Moorland Dales are the patterns of walls and hedges dividing the mosaic of fields which cover the valley floors and lower sides. The size and regularity of the field patterns vary, but everywhere they provide a marked contrast to the surrounding unenclosed moorland. The green colour of the fields, and the rough textures of the walls, contrast with the purple/ brown colour and smooth texture of the heather moorland above.

Fig.46 View of Great Fryup Dale from Glaisdale Rigg, showing the contrasts between heather moorland and the mosaic field patterns of the Moorland Dales

Another striking characteristic is the peacefulness and tranquillity which is experienced in the Moorland Dales, although it is occasionally broken by through routes or busier villages, such as Rosedale Abbey. Usually, though, the Moorland Dales are quiet

and tranquil, with little traffic, few visitors (particularly in the northern Dales) and a very strong sense of history. Some scenes hardly seem to have changed in hundreds of years, although of course changes are happening, particularly with regard to forestry and land management.

The quiet lanes are popular routes for walking and cycling, and there is also a network of footpaths. The Cleveland Way passes through Ryedale, and the Esk Valley Walk includes Westerdale and Danby Dale. Some of the dale heads are Remote Areas under Policy ENV3. The lack of development and traffic means that skies are dark. Hartoft and the southern part of Rosedale are within the Dark Skies Buffer Area.

Some of the best views into the Moorland Dales are looking down into them from the high land above. In these views the Dales appear as green scoops out of the moorland, with the fields, trees and farms appearing in miniature, set within the higgledy-piggledy patterns of walls and hedges. There are many magnificent views of the Moorland Dales, but only a couple of official viewpoints shown on the OS map: Bilsdale from the Wainstones, and Danby Dale from Castleton Rigg.

Fig.47 Glaisdale from above – a 'landscape in miniature'

From within the Dales, the valley sides enclose the views, creating a sense of containment. This sense is particularly strong where the valley sides are treed. The surrounding LCTs contribute to views, and there are also long views across and along the Dales.

Ecosystem Services provided by the Moorland Dales LCT

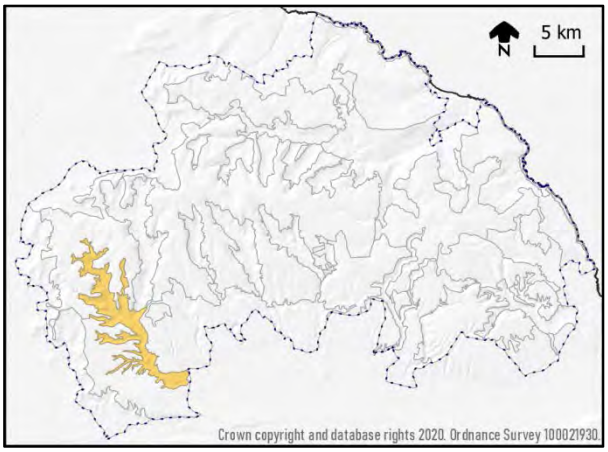
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	This is a rich cultural landscape with many historic features such as stone walls and vernacular buildings. These contribute to the aesthetic experience of the LCT, as well as providing opportunities for research and education. Larger historic buildings and designed grounds are also popular visitor destinations. Quiet lanes, footpaths and public rights of way provide opportunities for quiet recreation including walking, cycling and horse riding. These promote exercise and wellbeing and opportunities to benefit from tranquillity and dark skies.	There are opportunities for additional research on the history of settlement in the Moorland Dales through analysis of standing buildings and the patterns of field walls. There may be further opportunities to create alternative walks in the vicinity of 'honeypot' sites to spread visitors and reduce pressure.
Provisioning Services	Farms in the Moorland Dales provide food and fibre (wool). Uses of wool include building insulation. Springs and becks are a source of fresh water. Forests and woodland provide timber, wood fibre and biomass. Building stone from underlying rocks is processed in this LCT at Hartoft.	Opportunities to manage farmland and woodland to enhance biodiversity and reduce pollution. Changing climatic conditions provide opportunities to experiment with growing new crops, which could also benefit biodiversity.
Regulating Services	Trees and woodland contribute to carbon sequestration (helping to mitigate climate change) and improve air quality by absorbing pollutants. Soils and vegetation absorb rainwater and slow water flow, helping to regulate downstream flooding. Plants provide habitats for pollinators.	Tree planting/ colonisation schemes have potential to increase carbon storage and reduce pollution. Trees and hedgerows can also contribute to Natural Flood Management (NFM) schemes.
Supporting Services	The LCT provides habitats and habitat links for many species, particularly along river valleys, hedgerow networks, woodlands and moorland fringes. It contributes to soil formation and photosynthesis	There are opportunities to enhance and link hedgerow networks, to increase tree cover through planting and natural colonisation, and to increase pollinator habitats.

Landscape Character Area Descriptions

There are 11 distinctive Landscape Character Areas (LCAs) within the Moorland Dales LCT. These are described on the following pages. The distinctive characters of the Dales result from subtle differences in the landform, vegetation, the patterns of fields, roads and settlements, and the presence of distinctive features such as Abbeys, estates, or mining remains.

Landscape Character Area 2a: Ryedale

Fig.48 A typical scene in LCA 2a, looking north from Murton Bank towards Ryedale, Hawnby and Hawnby Hill, which forms a distinctive feature in the Dale.



Map showing the location of LCA 2a within the National Park

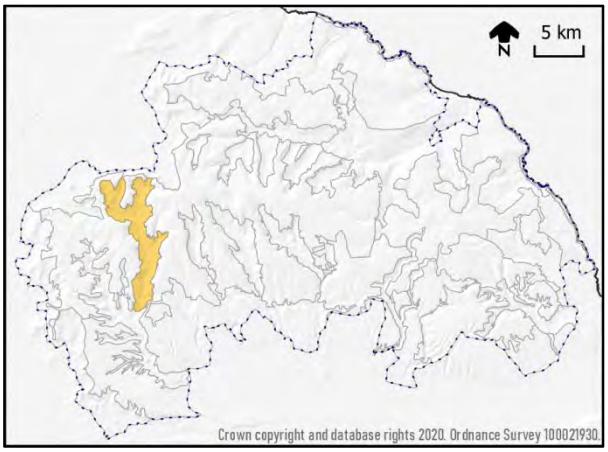
Ryedale is the longest of the Moorland Dales, and is located in the south-west of the National Park. It includes the traditional villages of Hawnby and Rievaulx, and adjoins the town of Helmsley, where the River Rye flows into the Vale of Pickering. Whilst the northern part of Ryedale is surrounded by the Moorland LCT (LCA 1a), the southern part is surrounded by the Limestone Hills LCT (LCA 5a to the west and LCA 5b to the east). This creates variations in character within the Dale, and is one of the several features which make Ryedale distinctive.

The southern part of Ryedale, cut into the Limestone Hills, is strongly influenced by the presence of Rievaulx Abbey and Duncombe Park. Both are estate landscapes, with large, impressive, historic buildings surrounded by designed grounds including extensive tree cover. Their significant historic and natural features mean that there is a concentration of cultural heritage and nature conservation designations, and also concentrations of visitors. The landscape in this part of the Dale feels relatively soft and picturesque. The landform of the southern part of Ryedale is also distinctive, with several long, branching side valleys (e.g. Nettle Dale, Caydale and Gowerdale) extending out on the western side of the main Dale and cutting steeply and deeply into the surrounding limestone. These side valleys have few roads, and feel exceptionally remote and tranquil. Distinctive conical hills on the moorland edge (Hawnby Hill and Eastside Hill) and within the Dale (Combe Hill) add to the sense of place.

The northern part of Ryedale has a stronger visual connection to the surrounding moorland, and the presence of moorland at the tops of the valley sides adds a wilder element to its character. The flat-topped steep limestone escarpment of Arden Great Moor is an imposing feature on the western side of the valley. However, compared to other Dales, Ryedale has a relatively soft and enclosed feel, largely due to the greater proportion of deciduous woodland and the number of trees. The woodland habitats, along with patches of meadows, flushes, fens and heaths, mean that it has a relatively high proportion of land within it designated SSSI.

Landscape Character Area 2b: Bilsdale

Fig.49 A typical scene in LCA 2b, looking North along Bilsdale from the B1257



Map showing the location of LCA 2b within the National Park

Bilsdale is located towards the south-west of the National Park, and is a major tributary valley of Ryedale. LCA 1a (Western Moorland) is to the west, LCA 1b (Central Moorland) is to the east and LCA 2a (Ryedale) is to the south. It is a long and deep dale with a double head separated by Cold Moor. The settlement of Chop Gate, although not large, is a focus for local services, supporting farms and hamlets. Spout House, a former inn, is a fine and rare example of a cruck-framed house.

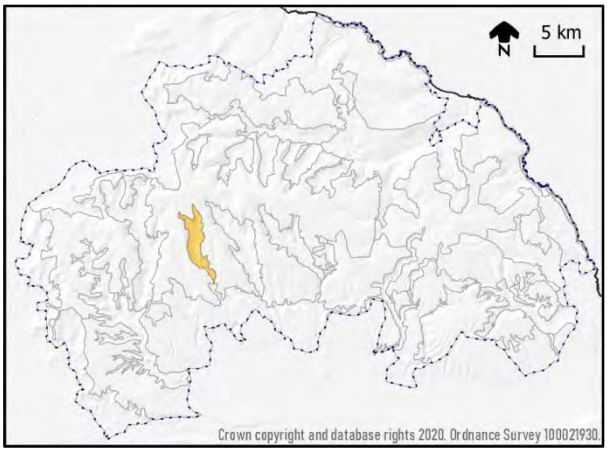
Bilsdale is the only Dale to contain a relatively busy through road – the B1257 - which links Helmsley and Stokesley via Clay Bank. It runs the full length of the Dale, using the eastern dale head. Raisdale Road, joining the B1257 at Chop Gate, uses the western dale head and descends the Western Escarpment to Carlton in Cleveland. The presence of the B1257 gives Bilsdale a busier feel than other dales, and the sound and movement of traffic is often noticeable. Bilsdale TV transmitters, on the moorland above the western side of the Dale, form a prominent landmark and orientation point. There is evidence of past jet and colliery workings, and iron-working sites. A much older prehistoric linear boundary runs along the top of the valley below Urra Moor.

The valley sides are steep, with some cliffs around the top of the Dale. There are several blocks of coniferous plantations on valley sides, particularly in the north of the Dale. Generally their edges are not straight lines, which help them to fit into the surrounding landscape. The presence of stone walls and gorse hedges enhances the wilder character of the northern part of Bilsdale. Towards the south, mixed hedges become more frequent, and the coverage of deciduous woodland also becomes greater. This increases the sense of enclosure, and gives the landscape a more gentle character. Ancient Woodland at Birch Wood is a Local Nature Reserve. The River Seph follows an increasingly meandering course down the dale as the valley floor widens.

The length and straightness of Bilsdale means that there are long views along the Dale, including from the Wainstones viewpoint which looks down into the Dale from the north. In the south of Bilsdale there are also splendid views into and across Ryedale, including from the B1257.

Landscape Character Area 2c: Bransdale

Fig.50 A typical scene in LCA 2c, near the hamlet of Cockayne. Note St Nicholas' church on its treed mound



Map showing the location of LCA 2c within the National Park

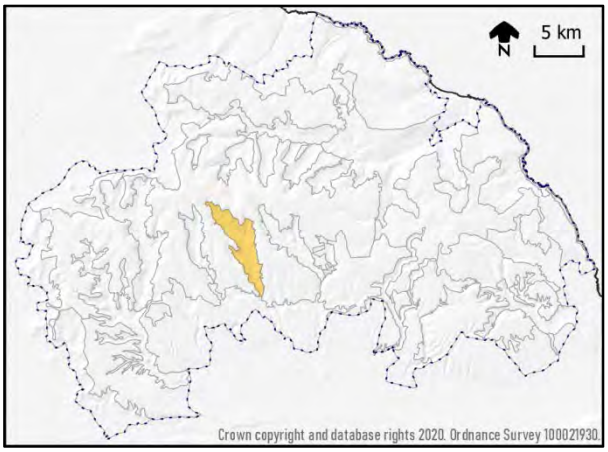
Bransdale is located to the south of the centre of the National Park surrounded by LCA 1b (Central Moorland). Its southern tip adjoins LCT 5b (Central Limestone Hills). Settlement within the Dale comprises isolated farms, and the hamlet of Cockayne. Cockayne is located on a mound overlooking the valley at the northern end, and includes Bransdale Lodge and the church of St Nicholas. Bransdale is an exceptionally tranquil part of the National Park, with few visitors.

Bransdale is relatively wide and shallow, although the valley sides are very steep at the top, with dramatic crags. At Cockayne the Dale splits, creating a double dale head, separated by Bransdale Moor. The western dale head is drained by Badger Gill, and the eastern by Bloworth Slack. They join south of Cockayne to create the Hodge Beck, which flows south into the Vale of Pickering. A line of trees follow the meandering course of Hodge Beck within its narrow valley floor.

Much of Bransdale is in National Trust ownership, which influences its character, particularly in the consistency of management of walls, field boundaries and buildings. It also has many mature deciduous trees (including ancient oaks, holly pollards, ash and sycamore) and a parkland influence on its character, especially around Bransdale Lodge. The field pattern is very strong in Bransdale, with small fields creating an intricate mosaic. Variations in the shapes of fields (from irregular to regular) suggest different periods of enclosure, with some almost certainly dating back to the medieval period. Farms are set mid-way up the valley sides, following the circular road within the Dale. Bransdale Mill, miller's house and outbuildings (all Listed) is a fine example of a corn mill, located at the confluence of the Badger Gill and Bloworth Slack. There is no public road access to the southern part of the Dale, which has a much lower density of settlement and a stronger presence of moorland extending down the valley sides. Some farms here are derelict. There has been considerable establishment of conifer plantations on the valley sides and dale heads in the 20th Century. Some of these have recently been felled, opening up views to the valley sides and recreating the visual and functional connection between Bransdale and the surrounding moorland.

Landscape Character Area 2d: Farndale

Fig.51 A typical scene in LCA 2d, on the eastern side of Farndale looking north.



Map showing the location of LCA 2d within the National Park

Farndale is located to the south of the centre of the National Park, surrounded by LCA 1b (Central Moorland). Its southern tip adjoins LCA 5b (Central Limestone Hills). It contains the hamlets of Church Houses and Low Mill, as well as numerous traditional farms and isolated houses which are spread fairly evenly around the Dale.

Farndale is famous for its wild daffodils, which grow in profusion in spring, and have flourished in the Dale for centuries. The river banks, damp meadows and open woodland provide ideal conditions for the daffodils to thrive. Much of the Dale was designated a Local Nature Reserve in 1955 in order to safeguard the flowers, which attract many visitors. The Farndale SSSI includes a range of habitats, including broadleaved woodland, unimproved grassland and marsh which extend along the dale bottom, and for dwarf-shrub heath, acid grassland and flush communities found on the upper dale sides. Together these habitats support a wide range of animals, birds, insects and plants.

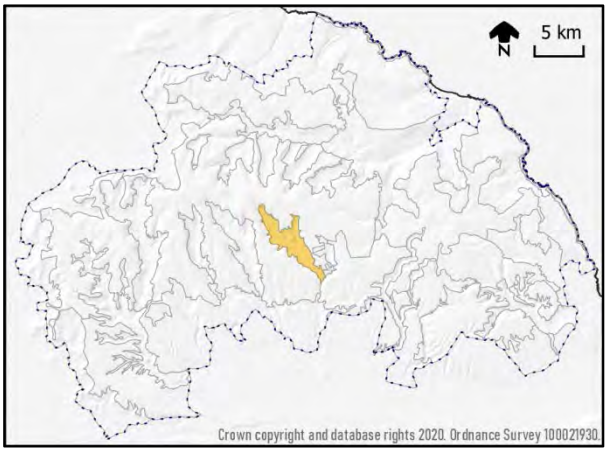
The Dale is a broad and deep U-shaped valley, becoming narrower and more V-shaped in its southern reaches. The River Dove meanders within a relatively wide floodplain on the floor of the Dale, lined by trees and woodland. Blakey Gill and West Gill form its main tributaries.

Stone walls form a striking rectilinear pattern on the hillside, contrasting with the smooth open moorland above which spills over into the Dale. There are some small conifer plantations on the valley sides, but fewer than in many other Moorland Dales.

There are basic visitor facilities at Low Mill, which enable people to park and access the riverside path or explore the dale on foot. However, the lack of roads in/out of Farndale, together with its strongly rural feel, means that it feels tranquil and secluded. Farndale is one of the few dales with a riverside path, enabling people to enjoy the beauty and tranquillity of the dale, and to feel close to nature.

Landscape Character Area 2e: Rosedale

Fig.52 A typical scene in LCA 2e, looking down on Rosedale from spoil tips at Bank Top kilns.



Map showing the location of LCA 2e within the National Park

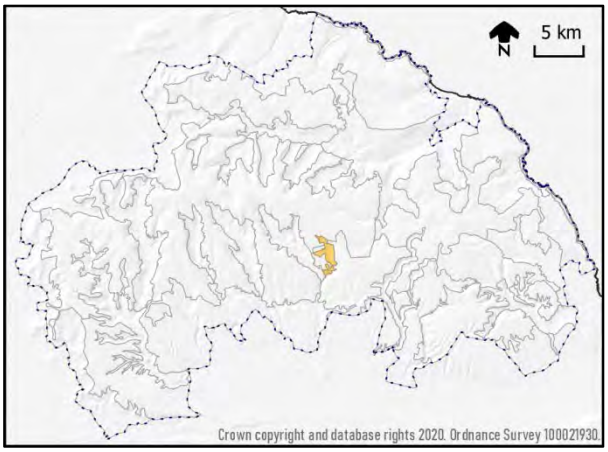
Rosedale is located to the south of the centre of the National Park and is the valley of the River Seven. It is largely surrounded by LCA 1b (Central Moorland), but a small part to the south east adjoins LCA 3a (Cropton Forest) and LCA 2f (Hartoft). The forest dominates the entrance to the Dale when approaching from the south. The largest settlement is the nucleated village of Rosedale Abbey in the centre of the Dale, but there are farms and hamlets throughout.

Rosedale has two main tributary valleys – Northdale and Hartoft. Hartoft is a LCA in its own right. A round knoll north of Rosedale Abbey, and an oval-shaped hill further to the north, are prominent features within the Dale. The surrounding moorland spills over into the Dale, and creates smooth, strong horizons. Below the moorland is a mosaic of enclosed fields bounded by walls or hedges. Trees alongside the becks, on the Dale sides, and lining the fields, add softness to its character. Rosedale has more access roads than many of the Dales. There are roads leading out of the Dale and over the surrounding moors to the north, north-east and west, as well as along the valley to the south. The road on the west side of Rosedale past Bank Top kilns towards Hutton-le-Hole is known as 'Rosedale Chimney Bank', and is one of the two steepest surfaced roads in Britain. It is a popular but incredibly difficult challenge for cyclists, with an average gradient of 13%.

There are a number of distinctive buildings, reflecting different stages of Rosedale's history. Little remains of Rosedale Priory, which was dissolved by Henry VIII, but remnants of a 16th Century Huguenot glassworks have been found. Many of the buildings in Rosedale Abbey village date from the 1830s and are neo-gothic in style. Between c.1850-c.1920, Rosedale was a centre for iron working and processing, employing 3000 people at its peak, and this mining legacy is still very apparent in Rosedale's landscape. Within the Dale there are terraces of miners' cottages, a chapel and school. High above the Dale are the magnificent remains of ironstone kilns, together with large spoil tips, and the paths of railways which took the processed stone to Teesside. Stretches of the former railway now form a walking route with splendid views down into the Dale. Rosedale is a popular destination for visitors and it therefore often has a slightly busier feel than other Dales.

Landscape Character Area 2f: Hartoft

Fig.53 A typical scene in LCA 2f, looking south in Hartoft towards Cropton Forest



Map showing the location of LCA 2f within the National Park

Hartoft is the smallest of the Moorland Dales, and is one of the most easterly. It is located to the south of the centre of the National Park, and is bordered to the north by LCA 1b (Central Moorland), and to the east and west by LCA 3a (Cropton Forest). Hartoft is a tributary valley of Rosedale (LCA 2e) which adjoins it to the south.

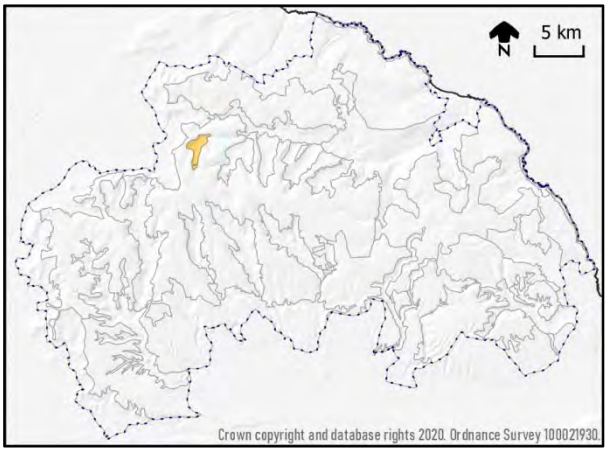
The Hartoft Beck flows through a V-shaped valley largely surrounded by forest. This gives Hartoft a more enclosed character than many of the other Moorland Dales, with less moorland influence. There are deciduous trees along the beck, and along field boundaries on the valley floor and lower sides. It is an exceptionally out-of-the-way valley, with only one road in - at the southern end - giving access to the isolated farms scattered over the Dale. A tiny Methodist chapel dated 1865 sits next to the road.

There is a striking regular pattern of straight stone walls rising up the eastern side of the Dale, separating pastures. Rough ground makes up a relatively high proportion of the land cover.

The stone yard at the southern end of the Dale increases traffic and creates a localised industrial influence. Elsewhere the Dale is exceptionally quiet and tranquil, with few visitors. It is within the Dark Skies Buffer Area.

Landscape Character Area 2g: Baysdale

Fig.54 A typical scene in LCA 2g, looking down into Baysdale from the west.



Map showing the location of LCA 2g within the National Park

Baysdale is located towards the north-west of the National Park, and is surrounded by LCA 1b (Central Moorland) on all sides. It is unusual in that the upper part of the Dale is in agricultural and forestry use, but the lower part of the Dale is moorland (and therefore within the Moorland LCT). It contains the Black Beck and Grain Beck, which meet in the centre of the Dale to form Baysdale Beck, one of the upper tributaries of the River Esk. Settlement comprises isolated farms.

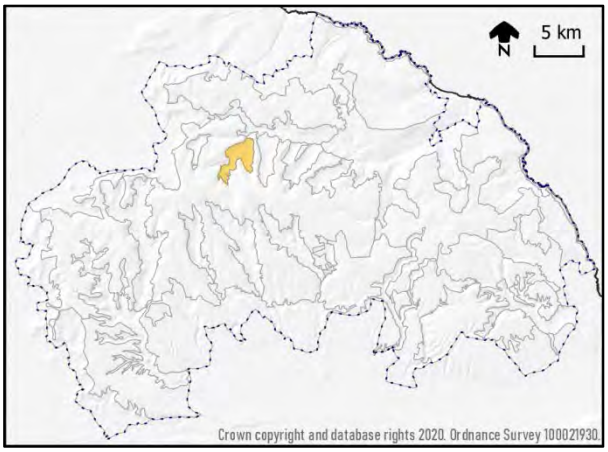
The upper part of the Dale forms a tight V-shape, becoming slightly shallower in the central section where the softer rocks of the Lias beds are more easily eroded. Forestry planting has taken place in the southern end of the Dale (in the Grain Beck valley), and on the eastern Dale side, but it is being felled in some areas. Open oak woodland occurs on the Dale floor, alongside the becks, and also on the middle valley sides, for example at Baysdale Wood and Whinny Bank. The valley floor and lower sides are divided into a series of fairly large, regular fields divided by stone walls.

There are a few isolated parkland-style trees around Baysdale Abbey in the centre of the dale. These combine with the estate railings and substantial buildings to create an estate-influenced character in this part of the Dale. The bridge over the Black Beck at Baysdale Abbey is a rare surviving example of a medieval single-span bridge, and is a Scheduled Monument. It is likely to have been associated with the Cistercian Priory which existed here from 1139-1539. Baysdale Abbey farm was subsequently built on the site of the priory, and is a Listed Building.

Baysdale is exceptionally remote, and is only accessible on foot, or by a minor dead-end road from Battersby Moor. Its topography, and the surrounding moorland, create a sense of containment. Of all the Moorland Dales, Baysdale has the largest proportion of Remote land under Policy ENV3. It is a quiet, isolated and hidden valley, with birdsong sometimes the only sound, and has exceptionally high levels of tranquillity.

Landscape Character Area 2h: Westerdale

Fig.55 A typical scene in LCA 2h, showing Westerdale Village (in the centre of the picture) and Castleton Rigg.



Map showing the location of LCA 2h within the National Park

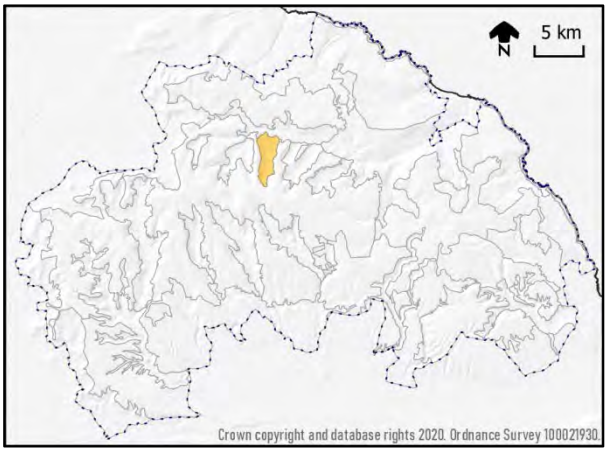
Westerdale is located to near the centre of the National Park, and is surrounded by LCA 1b (Central Moorland) on all sides. It contains the village of Westerdale in the centre, located at the meeting points of minor roads running North – South across the moors between Kildale/ Stokesley and Hutton-le-Hole, and the roads east to Castleton and Castleton Rigg.

Nucleated villages such as Westerdale are unusual in the northern Moorland Dales. Westerdale village contains a church, hall, farms and houses, several of which are Listed Buildings. Most of the buildings are of vernacular style and traditional materials (stone walls and pantile roofs). The medieval arched stone footbridge crossing the River Esk to the north of the village is a Scheduled Monument. The outlying isolated farms are generally located fairly high on the valley sides, at some distance from the village. There are also small farms at the dale heads.

Westerdale is a broad and relatively shallow dale. At its northern end it is pinched by moorland to create a very narrow neck where it meets Upper Esk Dale. The presence of the surrounding moorland creates a sense of enclosure and separation. The elevated landform of Castleton Rigg to the east dominates in many views, but the topography is generally not as dramatic as in other Dales. Small pear-shaped tips and slag heaps (relics of past jet and ironstone mining) can be seen on the valley sides. Westerdale is drained by twin becks – the river Esk and Tower Beck, which form two dale heads, separated by Westerdale Rigg. Both becks are lined with trees and follow tightly meandering courses, straightening out slightly in their lower reaches. They are relatively insignificant features within the wider landscape. Field patterns vary within the Dale, suggesting different phases of enclosure. Walls dominate on the upper valley sides, but in the lower Dale hedges are more common, often thorn, with oak, ash and holly as hedgerow trees. Fields are mostly pastoral, with pockets of arable and rough pasture, and some deciduous woodland on the valley floor. Westerdale has a notable lack of conifer plantations, and the moorland drops a long way down the Dale side, enabling a strong visual connection between the farmland and moorland.

Landscape Character Area 2i: Danby Dale

Fig.56 A typical scene in LCA 2i, looking across Danby Dale from the OS Viewpoint on Castleton Rigg



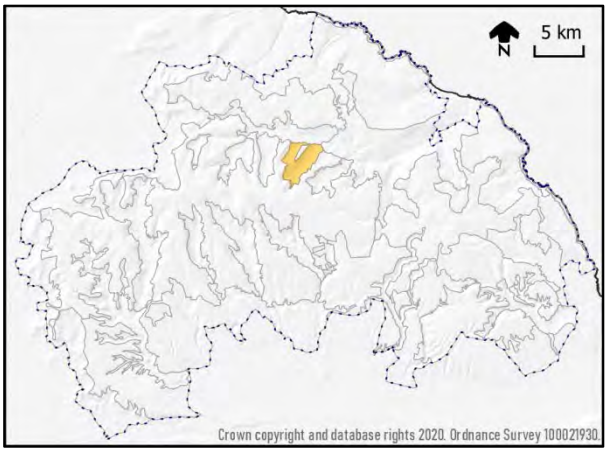
Map showing the location of LCA 2i within the National Park

Danby Dale is located near to the centre of the National Park. It is surrounded by LCA 1b (Central Moorland) to the east, west and south, and opens out into LCA 7a (Commondale and Upper Esk Dale) to the north. The village of Castleton overlooks Danby Dale from the north, even though the village is located within the adjacent LCT. Within Danby Dale itself, settlement comprises isolated farms on the valley sides and the hamlet of Botton near the dale head, which includes residential and educational facilities. Botton's buildings are generally well-integrated into the landscape and screened by trees, but have an a-typical identity.

Danby Dale is a broad, steep valley with low, steep sides and a gently-graded valley floor. Occasional sandstone outcrops are a feature of the upper valley sides and dale head, and create a steep, imposing landform. The projecting moorland ridges of Castleton Rigg (to the west) and Danby Rigg (to the east) create a strong sense of enclosure. The eastern part of the lower dale is relatively open, allowing views into Esk Dale. Danby Low Moor is a conical hill at the northern end of the Dale which is a prominent feature in the landscape. From here there are long views south along Danby Dale. The Danby Beck is fed by a series of springs on the edge of the moor, which incise narrow tributary valleys. Deciduous woodland and trees occur along the Danby Beck and its tributaries, including some open grazed woodland. These woodlands, along with hedges and hedgerow trees give the lower part of the valley a well-wooded and soft appearance. Small conifer plantations occur higher up the valley sides and in the dale head. The middle section of the Dale has a strong linear pattern of fields, mainly lined with stone walls. The upper edge of the enclosed land is irregular, creating a distinctive uneven edge between the enclosed fields and the higher bracken-covered slopes which form the edges of the surrounding moorland. Isolated farms are linked by minor roads within the Dale. Near its centre is the isolated church of St Hilda which sits on an elevated outcrop surrounded by ancient yew trees. It is a feature in many views within and across Danby Dale, including from the OS viewpoint on Castleton Rigg which overlooks the Dale. Danby Dale feels secluded and quiet, and has a strong sense of tranquillity.

Landscape Character Area 2j: Fryup Dale

Fig.57 A typical scene in LCA 2j, within Great Fryup Dale looking towards the dale head.



Map showing the location of LCA 2j within the National Park

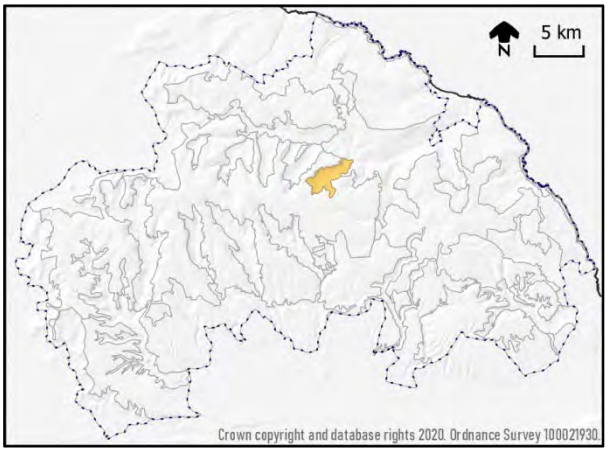
Fryup Dale is located near the centre of the National Park. It comprises two parallel Dales – Great Fryup Dale and Little Fryup Dale, which are separated by a moorland outcrop known as Heads. Fryup Dale is surrounded by LCA 1b (Central Moorland) to the east, south and west. To the north both Little Fryup Dale and Great Fryup Dale open out into LCA 2a (Commondale and Upper Esk Dale). Danby Castle is located on the valley side near the mouth of Little Fryup Dale, and there are strong physical, cultural and visual connections between Fryup Dale and Esk Dale. Within Fryup Dale, settlement comprises fairly large isolated farms connected by a network of narrow lanes. The density of farms and lanes is greater in Great Fryup Dale than in Little Fryup Dale, and the latter is largely inaccessible by public road. The field pattern is also denser in Great Fryup Dale, with smaller and more linear fields. The variation in field patterns across the LCA suggests different phases of enclosure.

Both Dales are U-shaped, steepening towards the tops, but with lower slopes grading gently into the valley floor. The Little Fryup Beck has a relatively straight course, whereas the Great Fryup Beck is more meandering. Both are tree-lined. The upper parts of the Dale head have a striking hummocky landform caused by landslips which dominate the Dale below. Bands of deciduous woodland are found on the Dale sides, including Ancient Woodland on the eastern and northern side of Heads. There are also areas of regenerating scrub and woodland on the Dale sides and on Heads, and trees have recently been planted around Round Hill. There has been relatively little conifer planting in the past, and the lack of conifers on the valley sides contributes to the Dales' distinctive character. The range of the moorland vegetation on the upper Dale sides (including heather, bracken, rough grass and scrub) can be seen from within the Dale.

The Cycle Hub bike shop and cafe is located between Great and Little Fryup Dale. It is a popular stop for walkers and drivers as well as cyclists, and draws recreational visitors in to the Dale. Nevertheless, Great Fryup Dale remains quiet and tranquil with very little traffic or development.

Landscape Character Area 2k: Glaisdale

Fig.58 A typical scene in LCA 2k, at the southern end of Glaisdale looking north from near the Wintergill Valley



Map showing the location of LCA 2k within the National Park

Glaisdale is a relatively small dale located in the centre of the National Park. It is surrounded by LCA 1b (Central Moorland) except at its north-eastern end, where it merges into LCA 8b (Lower Esk Valley). Glaisdale village is located at the mouth of the Dale, within the Lower Esk Valley LCA. Within the Dale itself a series of farms and houses sit along the winding lane which loops around the Dale.

Glaisdale is a gently winding, steep sided dale. Its lower reaches are partially enclosed by glacial moraine deposited across the entrance to the Dale. In its upper reaches, the Hardhill Gill and Winter Gill form tributary valleys of the Glaisdale Back. These contain waterfalls where they leap down the steepest parts of the Dale sides. The valley floor of Glaisdale is exceptionally flat and contains numerous drainage ditches following field boundaries, suggesting historic drainage of a former lake. The tree-lined Glaisdale Beck follows a winding course across the valley floor.

The Wintergill Valley is densely forested with conifers. Patches of conifer plantation also occur on the eastern Dale side, although some have been felled. There are also patches of deciduous woodland, and the amount of deciduous woodland increases down the Dale, until it merges with West Arncliff Wood at the LCA boundary with the Lower Esk Valley. Moorland vegetation extends over the dale head and spills over the upper Dale sides, and moorland forms the smooth horizons which enclose the Dale. The moorland above the western side of the Dale contains tips and quarries from ironstone extraction. Below the surrounding moorland is a varied mosaic of field patterns, ranging from straight and regular, to irregular with no straight boundaries. These variations suggest different phases of enclosure. Field boundaries comprise hedges on the valley floor, giving way to stone walls higher up. Often the change in field boundaries occurs at the road. Most fields are improved pastures, with some cut for hay, and some rough ground.

The shape and relatively small size of Glaisdale means that it can be experienced as a single visual unit. Its small scale and intimate feel creates the impression of a ‘dale in miniature’. There is little though traffic, especially on the eastern side, and exceptionally high levels of tranquillity.

Forces for Change acting on the Moorland Dales LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Infrastructure and communications.	Features such as overhead wires and mobile phone masts can appear incongruous within such a strongly-rural and intricate landscape, and electricity/ telephone poles are particularly visible in some dales. Structures which appear on otherwise open skylines are prominent when seen from the dales below.	All
Settlement expansion	The existing settlements within this LCT are very small, so it is unlikely that large-scale development will take place here. Nevertheless, there is likely to be demand for occasional new buildings or extensions to existing buildings. Unless well-designed and sited, these may detract from the existing rural and small-scale landscape, where buildings fit very comfortably into the surrounding landscape. Poor detailing such as property boundaries can result in a suburban feel which is detrimental to this strongly-rural environment.	All
Abandonment of traditional agricultural buildings, and demand for new buildings	Changing farming practices require larger and more modern farm buildings. Old buildings no longer serving their original purpose are often re-purposed (e.g. conversion to holiday accommodation, business premises, or 'light touch' changes of use such as. camping barns). This may result in loss of historical integrity or fittings associated with their original uses. Changes may also affect their immediate surroundings, such the creation of as outdoor seating areas or parking spaces. New larger agricultural buildings are likely to be much more prominent in the landscape and may also contribute to light pollution unless carefully designed. Stone walls may fall into disrepair or hedgerows become gappy if they are no longer required to fence stock, or they may be replaced with post and wire fencing.	All
Tree disease and invasive species	Ash dieback is present within this LCT. There are many ash trees within this LCT, so the effects will be pronounced. It will affect ash trees in woodlands, as well as alongside streams and in hedgerows. Other tree diseases and invasive species are also threats to both the appearance of the landscape and the functioning of ecosystems.	All
Biodiversity loss	Past decades have seen a decline in biodiversity resulting from farms switching from hay to silage. Hay meadows support much richer biodiversity than grass grown for silage, and their rich variety of herbs and grasses provide habitat and food for pollinators, butterflies and birds. The 20th century also saw some Ancient Woodland within the Moorland Dales lost to plantation.	All
Climate change	Rising temperatures will affect the range of tree and plant species which can thrive, and may affect the composition of woodlands and the viability of plantations. Increased rainfall and intensity of storms will lead to greater risks of flooding and damage to trees and buildings. Drought will affect river levels and cause problems for livestock. Warmer temperatures and longer growing seasons may affect farmers' crop choices.	All

Loss of rural character	Increased signage and 'clutter' on roads can lead to a loss of rural character. Within this LCT it is most likely to occur on through roads or outside the larger settlements, but it is not currently a big problem. Traditional signposts are sometimes in poor condition. Unsympathetic roadside property boundaries can contribute to loss of rural character.	2a, 2b, 2e
Recreation and visitor pressure	Concentrations of visitors at key destinations can lead to issues with parking, erosion of paths, trampling of sensitive habitats, wildlife disturbance, and littering. Within this LCT, visitors tend to be concentrated at 'honeypot' sites such as Rievaulx Abbey, Duncombe Park and Rosedale Abbey. There may also be seasonal pressures, for example at Farndale when the daffodils are in flower.	2a, 2d, 2e
Farming and land management	The consequences of past changes in farming practices are described in 'biodiversity loss' above. In addition the artificial fertilisation of fields, and the farming of livestock, may result in nitrate enrichment and the pollution of water supplies unless carefully managed. Intensive pheasant-rearing impacts on landscape character and biodiversity in some parts of the LCT, with large enclosures, blue plastic feed bins, growing of feed/ cover crops such as maize and millet, and loss of woodland ground flora. Forthcoming changes to agricultural grant schemes will focus on payments for delivery of 'public goods' such as climate change mitigation and adaptation measures, and supporting nature recovery. This is a change in emphasis to the subsidy system which will hopefully be a positive force for change in the landscape.	All
Additional tree cover	There are many opportunities within this LCT to increase tree cover in a variety of ways including natural colonisation (particularly on moorland fringes), new woodlands, woodpasture, hedgerow trees, roadside trees, infield trees, riparian trees and parkland trees. When thinking about increasing tree cover, it is important to consider any potential impacts on distinctive field patterns; settings of Listed Buildings, Scheduled Monuments and Conservation Areas, and sites with existing high levels of biodiversity such as flower-rich meadows. Some existing biodiversity-rich sites may not be designated or recorded.	All
Loss of tranquillity and dark skies	Dark skies are threatened by new development, traffic, street lighting, and lightspill from agricultural buildings. Only Hartoft (LCT 2f) is within the Dark Skies Buffer Area. Tranquillity may also be affected by increases in noise, people and traffic.	All
Changes in adjacent LCTs	Where the Moorland LCT extends into the upper dale sides, changes in management within the Moorland LCT will affect views and character within the Moorland Dales. This is likely to include changes in the composition of moorland vegetation, such as the increased growth of scrub and trees. This would affect the appearance of the upper valley sides, increase the sense of enclosure, and may result in treed rather than open horizons as seen from within the Dales. The	All

	ongoing felling of some dale-side plantations is also changing the character and views from these Dales, creating stronger visual connections with the surrounding moorland.	

Landscape Guidelines for the Moorland Dales LCT

Protect

- Protect the diverse historic field patterns, repairing stone walls where necessary, and gapping-up/ managing hedgerows.
- Protect historic buildings and the distinctive built forms of this LCT. Ensure that conversion of redundant farm buildings is sensitive to their historic character and significance, and their location.
- Protect the relationship between farms/settlements and the surrounding landscape. Where new buildings / extensions are required, maintain this relationship through careful siting, design and mitigation (see National Park Design Guide). Pay particular attention to the settings of Listed Buildings and Conservation Areas.
- Protect the smooth moorland horizons which form the skylines in views from within the Dales, avoiding siting prominent structures in sensitive locations.
- Protect the sense of tranquillity within this LCT.
- Protect archaeological sites and historic buildings, taking a proactive approach to understanding and managing archaeological sites and buildings that are affected by change.
- Protect dark night skies.

Manage

- Encourage active management of broadleaved woodland where it will provide clear landscape and biodiversity benefits alongside production of wood products where appropriate. Seek opportunities to extend and link deciduous woodland (this can include hedgerow connections), and to soften the appearance of conifer plantations with deciduous planting. Encourage replacement of inappropriate conifer blocks with native woodland, especially in Plantations on Ancient Woodland Sites.
- Manage moorland, rough grassland and meadow habitats, seeking opportunities to create connections with similar habitats in this LCT and adjacent LCTs. Identify opportunities to restore flower-rich meadows.
- Manage hedgerows and dry stone walls using traditional methods where possible. Where possible allow hedgerows to become larger, richer wildlife habitats. Use hedgerows to improve habitat connectivity between woodlands, using species present in existing local hedgerows.
- Encourage good practice with regard to pheasant-rearing, to minimise landscape and biodiversity impacts.
- Manage veteran, roadside and hedgerow trees, allowing new trees to grow out as standards.
- Manage designed landscapes, promoting use of Parkland Management Plans and the planting of new trees to become the parkland and veteran trees of the future.

- Manage SSSIs and Scheduled Monuments to ensure that they remain within 'favourable' or 'not at risk' status.
- Manage popular visitor sites, taking particular care to ensure that fragile habitats are not damaged, and enable visitors to appreciate and respect the landscapes which they are visiting.

Plan

- Consider opportunities for increasing tree cover, for example through encouraging roadside and hedgerow trees, and planting new infield trees, woodpasture and native woodland. Woodland planting should avoid obliterating strong field patterns, and should follow the landform (for example parallel to the slopes on valley sides, or along watercourses). Avoid planting woodlands with straight edges, as these can look very discordant in this landscape. In some locations there may be opportunities create valley floor wet woodland, or to allow natural colonisation. Before commencing any tree planting, professional advice should be sought to ensure that there will be no negative effects on the historic environment, ecology or access.
- Promote Natural Flood Management techniques where appropriate.
- Take great care in the design and siting of new farm buildings, ensuring that they are located close to existing farm buildings, and that their design and materials will minimise their visual impact. Use native tree and hedgerow planting to help screen them, and minimise the use of cut and fill.
- Consider opportunities for increased pedestrian access into some Moorland Dales, for example through the creation of new riverside paths, where this can be done without detriment to valuable habitats.
- Consider the impacts of potential changes in moorland management on the character of the nearby Dales. For example, consider how increasing tree cover will affect the moorland horizons as seen from within the Dales.
- Seek opportunities to underground overhead wires and poles where possible.
- Where installation of communications masts or other vertical features are unavoidable, site them close to existing trees or buildings. Consider non-standard designs to minimise visual impact. Avoid siting masts on open skylines.
- Retain the rural character of settlements, avoiding unnecessary signage and urbanising features such as concrete kerbs, tarmac pavements/ driveways and close-boarded fencing. Use native tree and hedgerow planting to screen new buildings / extensions and help them integrate into the landscape.
- Ensure that change to heritage assets is informed by an understanding of their importance, and can retain and where possible enhance their significance. Provision should be made for management plans, and research into materials, where appropriate.
- Promote use of locally-produced wool for building insulation, as it is natural, local and compatible with historic building stock.

LCT 3: Forest Landscape Character Type

Fig.59 A typical scene within the Forest Landscape Character Type: The view from scarp-top viewpoint in Wykeham Forest, looking north to Dalby Forest, and Langdale Forest beyond.

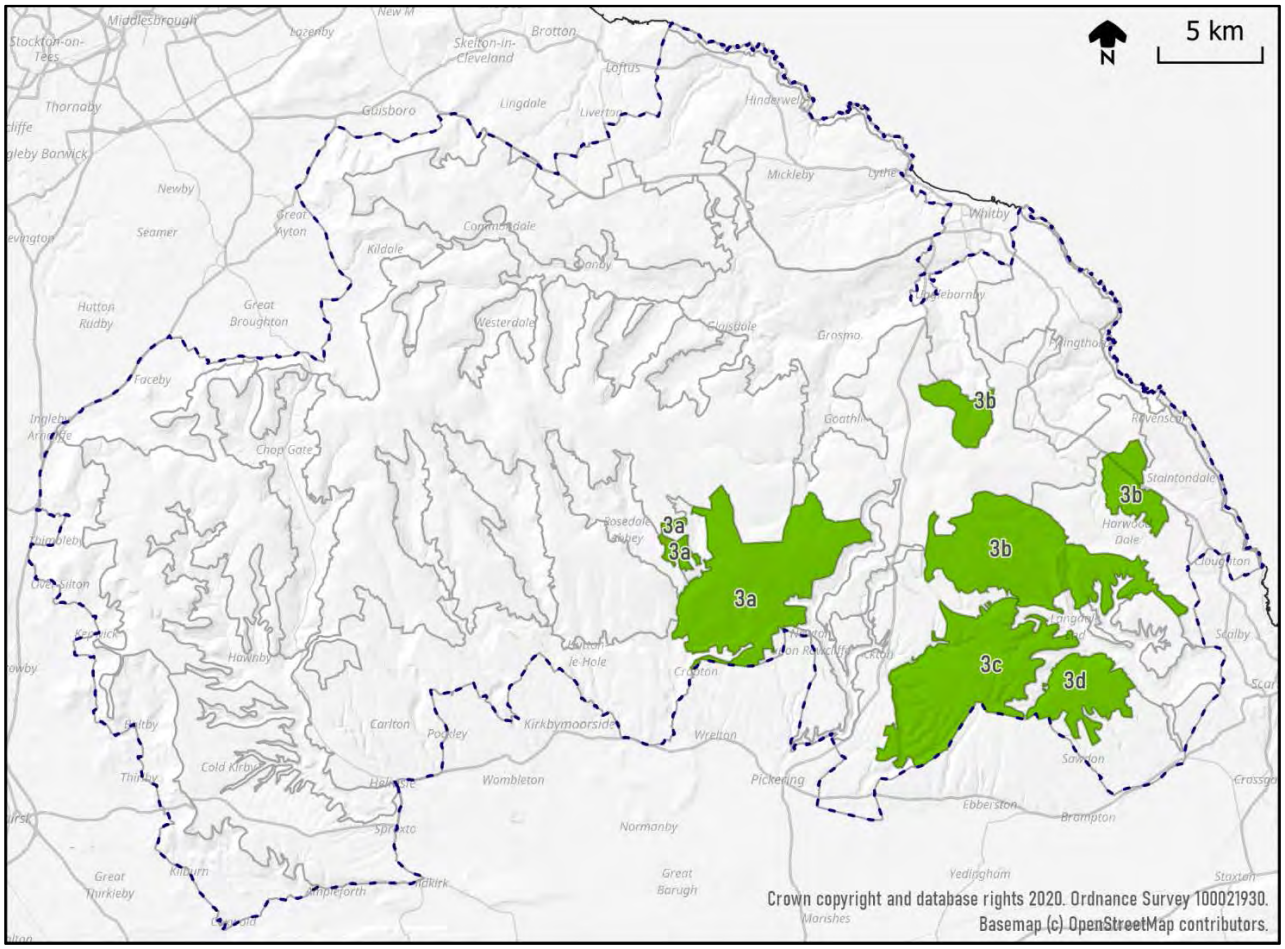
Location, Context and Setting

This Landscape Character Type (LCT) is located in the south-east of the North York Moors. It comprises the largely-forested land of Cropton Forest, Langdale Forest, Dalby Forest and Wykeham Forest, as well as the outliers of Harwood Dale Forest and Newton House Plantation. Settlement is limited to occasional isolated farms and hamlets in non-treed areas. The Forest LCT borders all the other LCTs except LCT 9 (Western Escarpment). However, its strongest topographic and visual relationships are with LCT 1 (Moorland), LCT 5 (Limestone Hills) and LCT 7 (Limestone Dales). It is also visible from the land beyond the southern boundary of the National Park, and in views across the Vale of Pickering from the Yorkshire Wolds.

Summary Description

This LCT is characterised by its extensive plantations, containing a range of tree species reflecting the diversity of the underlying geology and soils, and changing forestry practices from the early 20th Century to the present day. In many places, plantations of dark conifers add their unique colours and textures, dominating ridgelines and creating distinctive shapes in the landscape. Elsewhere, deciduous trees add seasonal colour and a softer texture. Patches of agricultural land, moorland, meadows and fens within the forest add diversity and contrast with the surrounding dense trees.

Parts of the landscape are popular for recreation, and many people visit to enjoy drives and various trails through this richly treed environment. Although the trees create a sense of enclosure, they occasionally open out to reveal sudden panoramic views. This LCT has exceptional levels of tranquillity and dark skies, which are celebrated, enjoyed and protected.



Location map for Forest Landscape Character Type (LCT)
3a = Cropton Forest; 3b = Langdale Forest; 3c = Dalby Forest; 3d = Wykeham Forest

Key Characteristics

- Underlying geology of Corallian limestones, deltaic sandstones, and clays creates diverse soils.
- Sloping topography cut through by dales, and with a prominent north-facing escarpment at the northern edge of the limestone.
- Spring-fed streams in steep-sided valleys, with some dry valleys in limestone areas.
- Land use almost entirely plantation, with isolated patches of agricultural land within forest.
- Semi-natural habitats include patches of moorland, grassland, streams, fens and open water.
- Very extensive tree cover, primarily coniferous, but with an increasing diversity of broadleaved species, particularly around the edges of plantations.
- Field patterns largely hidden by plantations. Surviving patches of fields are small and regular, bounded by hedges or walls.
- Very little settlement, which is limited to isolated farms and hamlets in open patches.
- Few roads, mainly small lanes with lots of dead ends, becoming forestry tracks for timber extraction/ management. Extensive network of trails, with much of the LCT Access Land.
- Many prehistoric archaeological sites within plantations, including numerous barrows and linear earthworks. Cawthorn Camp is an exceptional Roman site.
- Trees create distinctive colours, patterns and textures which contrast with surrounding LCTs.
- A general sense of enclosure, contrasting with sudden dramatic views revealed at viewpoints.
- Exceptional and celebrated dark skies, and a strong sense of tranquillity and remoteness.

Natural landscape features

The southern part of the Forest LCT is underlain by Corallian limestone from the upper Jurassic period. These are some of the youngest rocks in the National Park and would have been laid down in warm, shallow tropical seas. The northern edge of the limestone is marked by a steep north-facing escarpment, which forms a prominent feature within the forest landscape. To the north of the Corallian escarpment is an area of softer Oxford Clay, which would have been deposited in an ocean of moderate depth, and covers the older hard deltaic sandstones and mudstones which extend over much of the National Park, including the northern part of the LCT. The variations in geology within the LCT affect the soils, which in turn influence which trees can flourish and forest planting strategies. This in turn influences the character of different parts of the LCT.

Fig.60 The Adder Stone, a sandstone outcrop in Dalby Forest

The topography of the LCT rises gently towards the north where it abuts the moorland. The undulating limestone plateau under the southern part of the LCT falls gradually towards the south. The LCT is also punctuated by a series of steep dales running south into the Vale of Pickering, or east into the River Derwent. Narrow dales contain spring-fed streams, although there are some dry valleys in limestone areas.

Fig.61 Thornton Dale is an example of a dale cutting through the LCT. Note the combination of coniferous and deciduous trees and open land in dale bottom.

The majority of the LCT is under plantation, but there are pockets of farmland, and also of semi-natural habitats including moorland, calcareous grassland, fen, streams and open water. Some of these are designated SSSI. There is also a wide variety of tree species, including both coniferous (mainly Sitka spruce, Scots pine, and larch) and broadleaved species. There are several areas of Plantation on Ancient Woodland Sites.

Designation	Sites
SSSI	Cawthorn Moor, Nabgate (grassland), Troutsdale, Rosekirkdale and Sievedale Fens, Cockrah Wood, Harwood Dale Moor
LNR	Part of Bridestones (National Trust)

Key designated nature conservation sites

Cultural landscape features

Beneath the plantations is a rich legacy of prehistoric boundary earthworks, barrows, cairnfields, field systems and cremation cemeteries. These features (many of which are Scheduled Monuments) are a continuation of the patterns seen in the surrounding farmed landscape.

The most well-known Roman military site in the National Park is Cawthorn Camps, in Cropton Forest. The well-preserved earthwork remains include two forts, one with an annexe, together with a temporary camp built to a very odd plan.

Fig.62 Earthworks of Cawthorn Roman Camp.

There are also examples of medieval (and later) rabbit warrens, where rabbits were farmed, and scattered historic farms and buildings in non-planted areas.

Roads are limited, and are often dead ends, although there are public footpaths and bridleways through the forests, including some recreational trails. There is also a dense network of tracks which are used for forestry operations. Much of the LCT is Access Land.

Occasional patches of agricultural fields appear as 'cut outs' from the forest. These are generally small and straight-edged, bounded by hedges or stone walls. Other land uses within the Forest LCT include a tree nursery, campsites and recreation.

Of course the most obvious man-made artefacts in the LCT are the plantations themselves, planted in stages throughout the 20th Century in response to a need for home-produced timber. The Forest LCT therefore illustrates the changing techniques and fashions of forestry, from the early monoculture plantations with straight edges, through to more recent plantings of broadleaved trees, incorporating glades and rides. Recreation facilities have been added to enable public access and enjoyment, particularly at Dalby, which has a Visitor Centre, dark skies observatory, Forest Drive, cycling and footpath trails, a high ropes course and open recreation area. It also hosts motorsports events.

Fig.63 Sculpture trail at Dalby Forest, depicting WWII Lumber Jills taking a break from sawing a log.

Designation	Sites
Scheduled Monuments	Numerous prehistoric sites including boundary earthworks, barrows, cairnfields, field systems, cemetery complexes; Cawthorn Roman Camp; Rabbit warrens.
Listed Buildings	Occasional historic farms; Thornsby House

Key designated heritage conservation sites

Perceptual qualities and views

Extensive areas of forest change the colour and texture of the landscape, and have a significant effect on its character. They are dominated by the dark green of conifer plantations, but the lighter greens and softer outlines of deciduous trees provide contrast, particularly around the edges. Felling coupes also create variety within the forest, as do the presence of isolated farms and fields.

The abrupt straight edges of plantations create artificial, geometric lines in the landscape, particularly where forests abut moorland. The presence of straight rides and tracks can add to this impression.

There are very few buildings or roads within the Forest LCT, giving it exceptionally dark skies. Dalby, Langdale and Cropton Forests form the National Park's Dark Sky Core Area, and are celebrated at the dark sky observatory at Dalby Forest. The lack of buildings or roads also creates a strong sense of tranquillity and remoteness. Significant areas of the LCT are identified as remote land through their land cover, and/ or remote areas under NPA policy ENV 3. The sense of enclosure experienced within the forest contrasts with the more open landscapes which surround it.

Fig.64 Dark skies observatory, Dalby Forest Visitor Centre

The presence of trees means that in general, views are limited within the Forest LCT. However, there are also many elevated viewpoints (particularly at the top of the Corallian escarpment), where the forest opens out to reveal panoramic views. Some of these viewpoints are overgrown, but others are well-managed, with vegetation kept low, seating provided, and interpretation panels to explain views, geology and bird life.

Fig.65 Seating at viewpoint overlooking Troutsdale, Wykeham Forest

The wooded slopes and escarpment of the Forest LCT creates a distinctive backdrop for the Limestone Dales (LCT 7) and Limestone Hills (LCT 5), and also creates a distinctive character to the southern parts of the Moorland (LCT 1).

Fig.66 Forest skyline seen from Crosscliff Valley (LCT 5)

Ecosystem Services provided by the Forest LCT

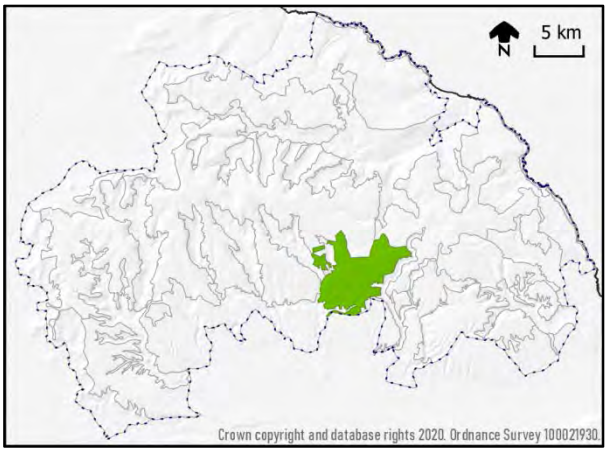
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	Access and recreation facilities enable people to appreciate the forest environment, wider landscapes, views, tranquillity, and dark skies. They support tourism as well as providing opportunities for local people to enhance their health and wellbeing through outdoor exercise.	There are further opportunities to increase recreational provision, particularly in parts of the LCT which currently have limited public access. There are also opportunities to enhance existing viewpoints and remove vegetation which is currently blocking views.
Provisioning Services	The LCT provides exceptional quantity and quality of timber of many types. These can be made into many wood-based products including timber, wood fibre and biomass. It also currently provides new trees through the tree nursery. Springs, streams and small reservoirs provide fresh water, and areas of agricultural land provide food and fibre (wool).	Changing climatic conditions may offer opportunities to experiment with growing different species of trees. Forest design principles are evolving to increase biodiversity and enhance fit into the landscape.
Regulating Services	Trees absorb carbon dioxide, sequestering carbon and helping to reduce climate change. They also trap pollutants, improving air quality. Tree roots and soils absorb and slow rainwater, helping to regulate downstream flooding. Plants provide habitats for pollinating insects.	New phases of forest planting can be designed to further contribute to Natural Flood Management and enhance biodiversity, including habitat for pollinating insects. Felling practices should minimise runoff of water and soils.
Supporting Services	Trees make a vital contribution to soil formation, through leaf decomposition and nutrient enrichment. They are also support life through photosynthesis, which produces oxygen, and evapotranspiration which is an essential part of the water cycle. Trees (particularly deciduous) and other patches of semi-natural habitat support a very wide range of insect, plant, animal and bird species.	There are opportunities to further the range of woodland and other habitats within the LCT, for example by restoring areas of ancient woodland, creating glades, promoting woodland edges, and (where appropriate) allowing reversion to a more natural vegetation.

Landscape Character Area Descriptions

There are four distinctive Landscape Character Areas (LCAs) within the Forest LCT. These are described on the following pages.

Landscape Character Area 3a: Cropton Forest

Fig.67 A typical scene in LCA 3a, viewpoint overlooking Cropton Forest.



Map showing the location of LCA 3a within the National Park

This LCA is the most westerly of the LCAs, located between Newtondale and Hartoft. There are two small outliers of the LCA comprising forest blocks between Hartoft and Rosedale. The underlying soils are relatively nutrient-poor, and therefore require a mix of broadleaved trees (such as alder) to release nutrients. The overall mix of tree species is 36% Sitka spruce; 20% larch; 38% other evergreen conifers (mostly Scots pine) and 6% broadleaves. The forest contains trees at different stages of growth following open felling.

Cropton Forest is distinguished by the number of open areas within it, particularly around the hamlet of Stape. These contain farms, fields and estate influences around Thornsby House and Elleron Lodge which is surrounded by parkland and a lake. There are many becks within the forest, some with small waterfalls.

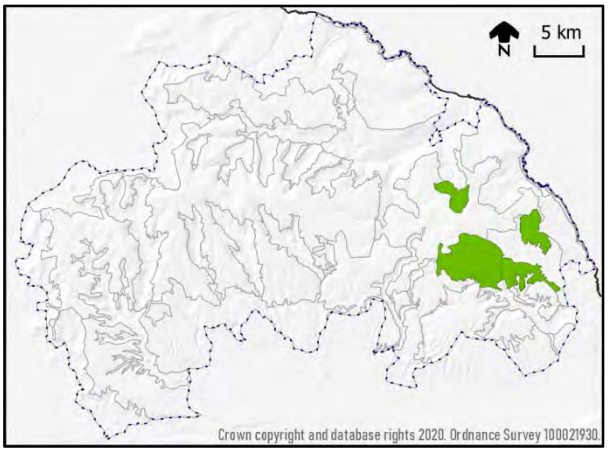
When planted, the forest had abrupt, straight boundaries where it borders the moorland, but recent 'fuzzy forest' management is resulting in a softer and more irregular outline. At the eastern edge it is contiguous with the forested part of Newtondale (LCA 6a).

Cawthorn Roman camp is located in the south of the LCA, and there are short sections of Roman Road within the LCA on Flamborough Rigg and Pickering Moor. These are part of the Wheeldale Roman Road. Cawthorn Camp is open to the public, and has a car park, trails and a viewing platform. Public access to the forest via trails etc. is less evident, but visitor accommodation is available in forest cabins, and farmhouse accommodation.

Cawthorn Moor SSSI, in the centre of the LCA, is a complex of wet heath and flush habitats, and represents one of the most important examples of this habitat type within the National Park. It is exceptional in terms of its extent and species richness, and would have extended further prior to the planting of the forest.

Landscape Character Area 3b: Langdale Forest

Fig.68 A typical scene in LCA 3b, looking north over Langdale Forest. Bluebells are appearing in the cleared ground in the foreground.



Map showing the location of LCA 3b within the National Park. This LCA includes the outliers of Harwood Dale Forest and Newton House Plantation

This LCA is the most northerly within the LCT, and comprises the main block of Langdale and Broxa Forests, as well as the two outliers of Newton House Plantation (separated by LCA 1d) and Harwood Dale Forest (separated by LCA 7d). This LCA forms a key feature in views from LCA 1d, and also its wooded ridges form the skyline and backdrop to LCT 7.

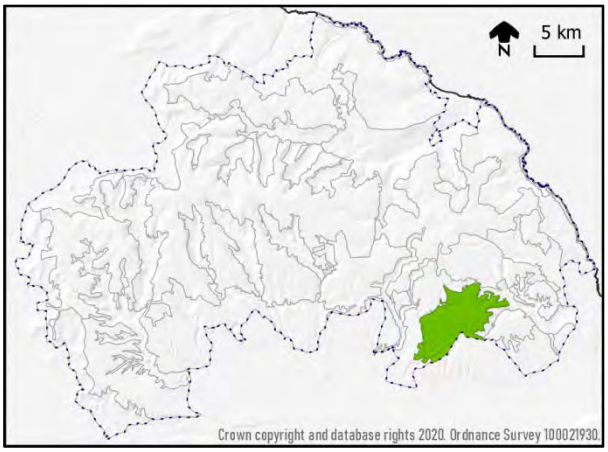
Much of Langdale Forest is underlain by clay geology, between Corallian limestones in the south and deltaic sandstones to the north. Within the forest are a series of steep valleys containing becks, the largest and deepest of which (Lang Dale) contains the River Derwent. The eastern part of the LCA, including Lang Dale contains relatively large areas of Plantations on Ancient Woodland Sites. There are extensive Scheduled Monuments at Maw Rigg (a prehistoric cairnfield) and Thieves Dyke (prehistoric linear earthworks and associated features). Other Scheduled Monuments (primarily barrows) are scattered throughout the LCA, with concentrations on the ridge tops on either side of the valley of the River Derwent.

The LCA is predominantly productive conifer forest of spruce and pine. However, recent forestry management has seen a reduction in areas of these species, and an increase in the percentage of broadleaf species. The area of open land has also increased, including the creation of more irregular boundaries which respond better to landform when seen from a number of different viewpoints. There has also been a move away from the original 'gridiron' pattern of rides and felling coupes to reduce the impact of geometric boundaries. Peat restoration has taken place on areas where forest adjoins open moorland, such as May Moss (within LCT 1).

This LCA is one of the least accessible parts of the LCT, with very few public roads and few access points, although the busy A171 does run through Harwood Dale Forest. There are some rights of way through the forest (including the Moor to Sea Cycle Route) and much of the area is Access Land. Competitive motor rally events are occasionally held within the forest.

Landscape Character Area 3c: Dalby Forest

Fig.69 A typical scene in LCA 3c, at the entrance to Dalby Forest Drive, a popular location for forest recreation



Map showing the location of LCA 3c within the National Park

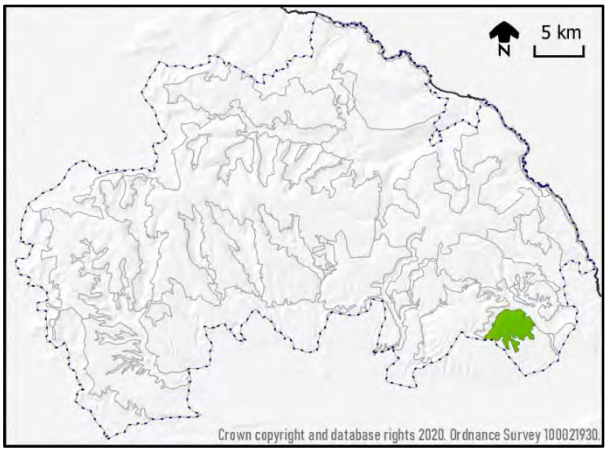
This LCA is situated towards the south of the LCT, north-east of Thornton-le-Dale. The hamlet of Low Dalby is on its western edge. The LCA is influenced by underlying limestone geology, giving it drier soils. Its topography comprises a plateau, riggs and dales running north-east to south-west, and deeper stream valleys, notably Thornton Dale, Stain Dale, Troutsdale and Deep Dale, which support fen habitats. Its northern boundary is marked by the prominent Corallian escarpment, which forms a landmark in views from the north and forms a natural break with Langdale Forest to the north. There are many prehistoric archaeological sites, including dykes and field systems.

Dalby forest is a key centre for recreation provision, which was retro-fitted into an existing forest and forms a southern gateway into the National Park. There is a Visitor Centre and dark skies observatory at Low Dalby, as well as a GoApe course, technical mountain bike park, and large car parks. The Visitor Centre acts as a hub for a number of trails (bike trails, bridleways, footpaths and orienteering courses) which extend throughout much of the forest. The Tabular Hills Walk passes through the forest. Dalby Forest Drive is a toll road which allows motorists and cyclists to enjoy the forest, with frequent viewpoints, carparks, picnic areas, BBQ areas and trail access points. Motorsport events are also held in Dalby Forest, as the forest is relatively heavily roaded, with tracks along riggs and dales. The dry tracks and soils are less susceptible to erosion by vehicles. Adderstone Hill provides an open recreation area within the forest and hosts open-air events.

The concentration of visitor facilities, and the number of people visiting, gives the accessible parts of Dalby Forest a very different feel to other parts of the LCT. They have a more strongly managed and recreational atmosphere. Many of the roads and trails, and the peripheries of the forest, are planted with broadleaved trees, which cover 11% of the forest area and create a softer, more varied, and less forbidding feel. Nevertheless, this is still a working forest, with extensive areas of commercial conifer timber production. It contains some of the tallest Norway spruce trees in England, creating a cathedral-like character.

Landscape Character Area 3d: Wykeham Forest

Fig.70 Wykeham Forest (LCA 3d) from Broxa Lane. The tree-clothed limestone escarpment is clearly visible.



Map showing the location of LCA 3d within the National Park

This LCA is located in the south-east corner of the National Park. It is underlain by Corallian limestone geology, forming a sloping plateau with a south-easterly aspect. The Corallian escarpment runs close to the northern and eastern boundaries of the LCA.

Wykeham Forest is one of 12 UK forest-scale trial sites, established to improve knowledge and understanding of continuous cover forestry. Unique to Wykeham is the establishment of a forest nursery on the plateau within the forest, covering approx. 70 ha. The tree nursery forms compartments separated by shelter belts, and has a distinctive character.

Wykeham Forest has an exceptionally dense concentration of Scheduled Monuments, including clusters of prehistoric barrows, including rare Iron Age square barrows, dykes and field systems. An extensive network of 18th Century rabbit warrens covers the northern slope below the Corallian escarpment.

There is a relatively large proportion of Plantation on Ancient Woodland Sites, with opportunities for restoration, and a small area of SSSI at Cockrah Wood. Although the Ancient Woodland here was replanted, scarce plants including May lily remain. Overall, broadleaved trees account for 15% of tree cover within the forest (the largest proportion of any of the LCAs), primarily on the steeper northern slopes, but it is still dominated by commercial conifer plantations.

A relatively small proportion of the forest is Access Land, located in the west and the far east. There are however some rights of way through the forest, and the Tabular Hills Walk passes through the forest east-west. There are two carparks along Moor Road, both associated with viewpoints. The viewpoints are at the top of the Corallian escarpment, and offer dramatic views across the valley to the north over to Danby and Langdale Forests. Highwood Brow viewpoint is currently quite overgrown, but the one overlooking Troutsdale has been cleared, and provided with new seating and interpretation boards.

Forces for Change acting on the Forest LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Changing forest management practices	This is a positive change enabling restoration of semi-natural habitats such as peat moorland and ancient woodland which were previously planted with non-native trees and resulted in biodiversity loss. The introduction of 'fuzzy forestry' creates softer, more gradual and naturalistic edges to plantations, reducing the geometric appearance of the original forest boundaries. Modern forestry management encourages creation of glades and rides, increasing diversity of woodland habitats and promoting insects (particularly butterflies) and birds. Felling coupes are becoming smaller, reducing their visual impact, and straight edges and rides are being altered to fit better with the landform. Forest management is also influenced by timber price and demand, and by availability and emphasis of grant schemes.	All
Infrastructure and communications	This LCT is likely to see particular pressure to accommodate telecommunications masts, due to its relative elevation, and its proximity to LCTs which are particularly sensitive to the construction of vertical features.	All
Tree disease	Pathogens currently pose risks to many different trees within the UK. For example, larch is susceptible to phytophthora (with sanitation felling underway), and Ash Dieback is already prevalent in the area.	All
Climate change	Increased temperatures, higher concentrations of nitrogen and longer growing seasons may enable more vigorous tree growth, and the opportunity to grow alternative species of trees. However, some species susceptible to heat or drought (such as beech and fir) may no longer thrive in a changing climate. New pests and diseases thrive in warmer temperatures. More frequent and intense storms make trees vulnerable to wind throw, particularly mature planted trees growing in shallow soils. Heavy rain erodes soil exposed after tree felling.	All
Erosion and soil loss	Felling of trees on steep slopes can result in increased erosion of soils and run-off of water, increasing downstream flood risk and pollution. Erosion and water channelling can also occur along tracks, particularly if they have been churned up or compacted by vehicles.	All
Loss of / damage to archaeology	Tree/ scrub roots can physically damage earthworks & buried archaeology, and remains that are not recognised are vulnerable to forestry management operations. It is also vulnerable to physical and chemical attack by bracken in areas cleared of trees, and to damage by burrowing animals.	All
Illegal vehicle use	Unauthorised use of vehicles such as 4x4s and trail bikes can damage track surfaces, making them more vulnerable to erosion, and creating scars within the landscape. They can also damage habitats.	All
Overgrowing of viewpoints	Some viewpoints have not been maintained, with interpretation boards and benches in poor repair, and views blocked by vegetation.	All
Loss of tranquillity, remoteness and dark skies	The area's outstanding dark skies are at risk from lightspill from traffic, structures within the vicinity of the forest LCT (e.g. RAF Fylingdales, and new large agricultural buildings), and skyglow from further afield, including settlements outside the National Park. Vehicles and people impact on tranquillity (noise and movement) and remoteness.	All

Landscape Guidelines for the Forest LCT

Note- for the area around Stape, and other pockets of agricultural land, please also refer to the Guidelines for LCT 5: Limestone Hills.

Protect

- Protect the distinctive skylines of the Corallian escarpment, avoiding siting vertical structures in prominent locations.
- Protect dark night skies, particularly in the Dark Sky Core and Buffer Areas.
- Protect archaeology (earthworks and buried archaeology) from damage by tree roots, scrub and bracken. Keep Scheduled Monuments and known significant archaeological sites clear of damaging vegetation.

Manage

- Continue efforts to increase the biodiversity of forests, and the range of habitats within them. Seek opportunities to restore ancient woodland sites with native broadleaved species, including through natural regeneration.
- Continue to improve the fit of forests into the landscape, including through the replacement of abrupt edges with more gradual boundaries (particularly at the junctions of forest and moorland), and by allowing forest edges to reflect the underlying landform.
- Manage visitor facilities, expanding opportunities for sustainable public access. Seek to minimise unauthorised vehicular access, particularly where it is causing problems with erosion or damage to habitats.
- Manage viewpoints, maintaining facilities, and cut vegetation to keep views open.
- Manage SSSIs according to their Management Plans, and expand rare habitats such as fen and wet heathland where possible. Seek opportunities to link similar habitats to create networks.

Plan

- Seek opportunities for LiDAR survey of forested areas to identify currently unknown archaeological sites / landscape features, and improve understanding of the existing resource.
- Promote Natural Flood Management Techniques where appropriate.
- Ensure that change to heritage assets is informed by an understanding of their importance, and can retain and where possible enhance their significance. Provision should be made for management plans, and research into materials, where appropriate.
- Where communications masts or other vertical features are unavoidable, site them within treed areas or close to existing buildings. Site them on plateaus rather than ridges, and avoid prominent ridgelines such as the Corallian scarp. Consider using non-standard designs and finishes to minimise their visual impact. Lighting of structures should be avoided if at all possible in the Dark Skies core and buffer areas.
- Work with appropriate Government agencies to ensure that forestry and woodland grant schemes address timber needs; promote management to enhance landscape, biodiversity and heritage, and help to mitigate climate change.
- Retain strict controls on light pollution within the Dark Skies core and buffer areas, and consider the light pollution impacts of development proposals outside the LCT/ National Park.

LCT 4: Coastal Hinterland Landscape Character Type

Fig.71 A typical scene within the Coastal Hinterland Landscape Character Type, near Borrowby, showing steep wooded valleys and a patchwork of undulating fields

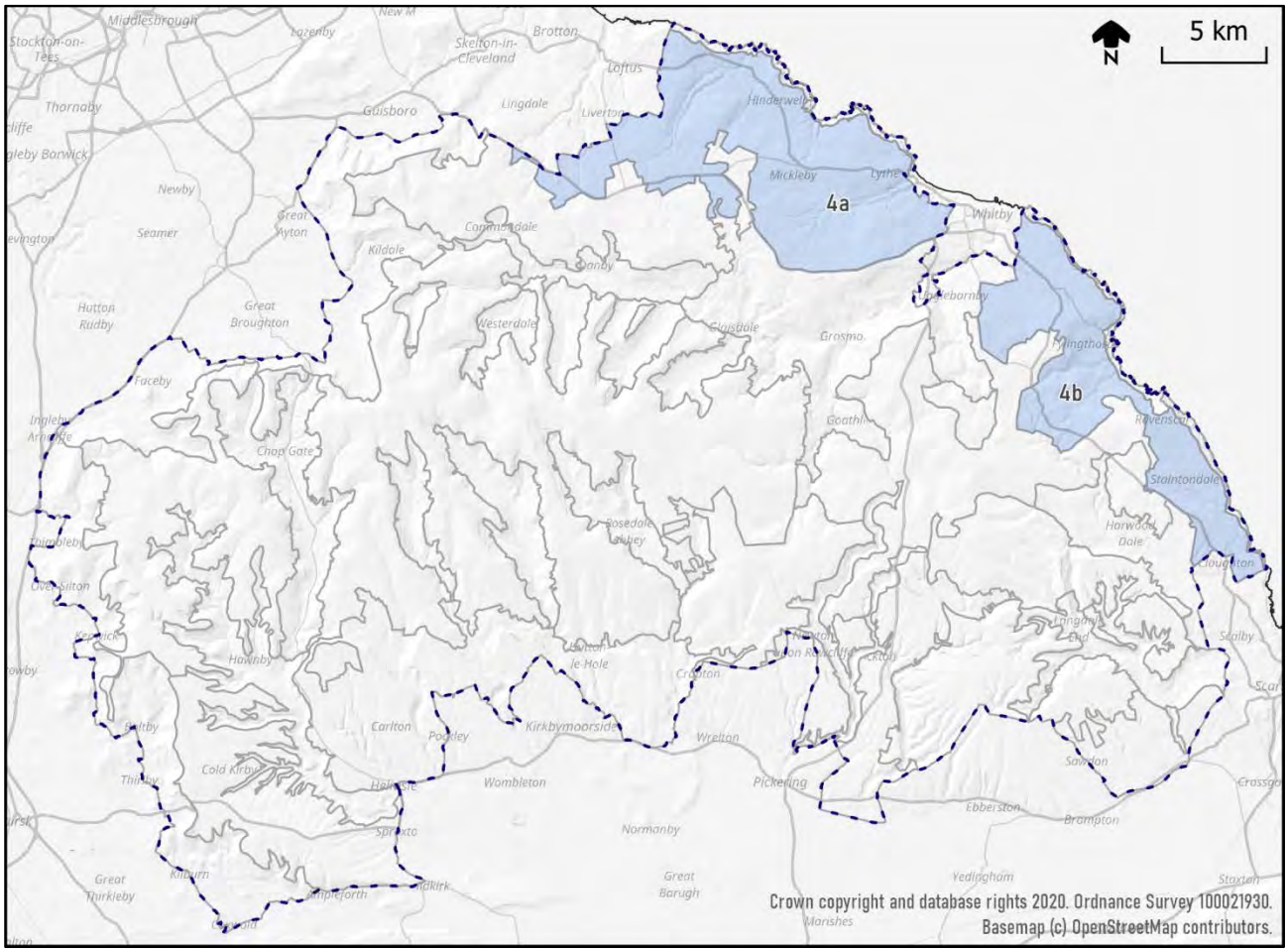
Location, Context and Setting

This Landscape Character Type (LCT) is located in the north-east of the North York Moors National Park, and forms a transition between the Coast (LCT 10) and the inland LCTs of the Moorland (LCT 1), Central Valley (LCT 8), Forest (LCT 3) and Limestone Dale (LCT 7). These all have local influence on its character. Its boundary with the Coast (LCT 10) mostly follows the England Coast Path/ Cleveland Way (except for a couple of places where it deviates to ensure that historic coastal villages are all included in the Coast LCT). The sea is therefore also important to the setting of the Coastal Hinterland. The Coastal Hinterland contains many settlements, particularly near the coast, and is close to others (such as Whitby and Loftus) which are outside the National Park boundary.

Summary Description

This LCT forms the transition between the coast and the higher land (including moorland) inland. It has strong physical, cultural and visual connections with the coast, and is largely within the North Yorkshire and Cleveland Heritage Coast. It comprises a gently rolling patchwork of farmland, interspersed with steep wooded valleys which run towards the sea or the River Esk. The landscape is locally influenced by from moorland, forestry, estates and industry, as well as the coast.

Settlements are relatively frequent, particularly near the coast, where villages such as Staithes and Robin Hood's Bay have expanded onto the clifftops. Older traditional settlements can also be found in the LCT. It supports coastal tourism (most of the caravan parks are within this LCT) and also contains road corridors and historic railway lines. The Cinder Track is now a popular recreation route. There are excellent panoramic views within and across the LCT, particularly from high ground, and from the coast and sea.



Location map for Coastal Hinterland Landscape Character Type (LCT)
4a = Boulby - Whitby; 4b = Whitby - Cloughton

Key Characteristics

- Underlying geology of Jurassic sandstones and mudstones, overlaid with glacial clays which create fertile soils.
- Undulating topography rising inland, cut through by steep stream valleys towards the coast.
- Surface water includes valley-bottom streams, and man-made reservoirs.
- Land use predominantly arable agriculture, with pockets of pasture, woodland and grassland.
- Semi-natural habitats include woodland (including ancient woodland), streams, coastal grassland, bogs, mires and verges.
- Extensive deciduous woodland on steep valley sides, numerous hedgerows and hedgerow trees and occasional plantations. Historic parkland at Mulgrave Castle.
- A regular 'patchwork' pattern of medium-sized fields, bounded by hedges or dry stone walls. Some linear field boundaries survive around villages.
- A range of settlements from historic vernacular hamlets to 20th Century large villages associated with nearby mines. Close physical and visual relationships with adjacent historic coastal settlements.
- Historic and contemporary transport routes including main roads, lanes and railway lines.
- Strong physical, cultural and visual links with the coast and sea.
- Panoramic views from high land and the sea. The Cinder Path is a popular recreation route.
- Contrasts between the open, elevated farmland and enclosed, wooded valleys.

Natural landscape features

The Coastal Hinterland is underlain by deltaic sandstones and mudstones from the Jurassic period. Older layers of mudstones and ironstones are visible in the deeper coastal valleys. The bedrock is overlaid by a layer of glacial boulder clay, which supports fertile soils. The conical form of Freeborough Hill, located in the north of the LCT adjacent to the A171, is a natural feature. It is an outcrop of relatively hard rock which resisted glacial erosion, although there are many legends offering more colourful explanations.

Fig.72 Freeborough Hill

The landform of the Coastal Hinterland is gently undulating, and rises towards its inland boundary with adjacent LCTs. It is cut through by a series of steeply-incised and winding becks which flow towards the coast. These becks are often in pairs, divided by a narrow ridge. The valleys containing the becks are steep and wooded, sometimes opening out slightly as they reach the coast. Many of the wooded valleys contain ancient woodland and several are designated Local Wildlife Site or SSSI for their ecological value. Heyburn Wyke is also a nature reserve. Outside of the sheltered valleys, trees are generally found in hedgerows or alongside roads. There are also some small conifer plantations, particularly in the south. Trees in exposed locations are often stunted and wind-sculpted.

Fig.73 Wooded valley meeting the sea at Boggle Hole. This former watermill is now a Youth Hostel

Scaling Dam Reservoir, in the north of the LCT close to the boundary with LCA 1c, is the largest body of open water within the National Park. As well as storing water, it provides a recreational function through sailing and watersports, and has a nature reserve area which provides habitat for wading birds. Other semi-natural habitats include unimproved grassland, verges, field margins, mature trees, and patches of bog and wet flush habitats.

Fig.74 Unimproved neutral grassland at Boulby Head

Designation	Sites
SSSI	Pinkney and Gerrick Woods; Tranmire; Biller Howe Dale; Heyburn Wyke (part)
LGS	Freeborough Hill
LWS	Easington Beck Complex; Loftus Wood Complex; Kilton Beck Complex; Scaling Dam Reservoir; Lockwood Beck Reservoir
LNR	Scaling Dam; Heyburn Wyke

Key designated nature conservation sites

Cultural landscape features

This is a landscape dominated by farming and field patterns. Arable fields are interspersed with patches of pasture and woodland, and divided by hedgerows or stone walls. The fields, with their different crops, create a patchwork effect.

Centuries of farming have removed much of the visible evidence of prehistoric features, but there are still clusters of barrows, cairnfields and dykes within the LCT, particularly on higher land which has not been ploughed. The site of the Roman signal station at Goldsborough can be seen from land and sea.

Many landscape features are medieval, such as farms, villages, churches, manors, castles, lanes and bridges. These are reflected in the range of Scheduled Monuments and Listed Buildings within the LCT, which include a well-preserved longhouse at Raw. Mulgrave Castle is particularly notable, with two medieval castles and an 18th Century country house surrounded by parkland within a wooded valley. The parkland and woodland planting (which extends to the coast at Sandsend) was designed by Humphrey Repton and is a Registered Historic Park and Garden. It contains many mature parkland and veteran trees. Lythe is the Estate village.

Fig.75 Mulgrave Castle and Estate seen from the south

Inland settlements vary in form and layout, including nucleated settlements (e.g. Lythe), settlements around greens (e.g. Fylingthorpe) and linear settlements (e.g. Hinderwell), it is likely that many of these originate in the medieval or Anglo-Saxon periods. However, they are all fairly traditional in appearance, with mostly stone walls and pantile roofs. Lythe and Fylingthorpe are designated Conservation Areas. On the coast, 20th Century extensions to settlements including Staithes, Easington and Robin Hood's Bay spread over the cliff-tops, and are generally less sympathetic to their local landscape context and traditional building forms and styles. Although the older parts of the picturesque coastal villages of Staithes, Runswick Bay and Robin Hood's Bay are within LCT 10 (Coast), parts of the Conservation Areas which surround them are within LCT 4. LCT 4 therefore contributes to the context and setting of these important historic settlements – one of its strong cultural and visual connections with the coast.

These connections also include industry and travel. Parts of the historic alum mines and processing areas which are features of the cliffs also extend inland into LCT 4. The large potash mine at Boulby (opened in 1969) dominates the northern part of the LCT.

Former railway lines and associated buildings are a feature of the area – the Scarborough to Whitby Railway opened in 1885 and closed in 1965. It is now the popular 'Cinder Track' walking and cycle path. The Whitby to Loftus Line opened in 1883 and closed in 1958 (with a section later reopened to serve Boulby Mine). This line contained numerous iron viaducts where it crossed coastal ravines, and the supports for these can still be seen, along with station buildings and embankments.

Fig.76 Former station and platforms at Kettleness

The railways boosted both industry and tourism in the area, although not all developments were successful. Ravenscar was a speculative development on the Scarborough-Whitby railway, overlooking Robin Hood's Bay. Several roads, a hotel and a few cliff-top houses are all that were constructed of the planned town.

The Coastal Hinterland also provides important road transport routes, specifically the A171 (Scarborough – Whitby) and A174 (Whitby - Loftus). In addition to these main roads, a network of lanes connects villages and farms, and there are many footpaths.

This area has been vulnerable to enemy invasion, particularly attacks from the air. Surviving defensive features intended to give warning of such attacks include a WWI 'sound mirror' at Boulby and a WWII Radar station near Ravenscar.

Fig.77 WWII coastal Radar station at Ravenscar

Designation	Sites
Scheduled Monuments	Numerous, including prehistoric dykes, barrows, standing stone, Roman signal station, medieval castles (Mulgrave and Foss), moated sites medieval settlements (Newton Mulgrave and Easington), alum works, WWII radar station.
Conservation Areas	Lythe, Fylingthorpe, Staithes (part), Sandsend (part), Robin Hood's Bay (part), Cloughton (part)
HPG	Mulgrave Castle
Listed Buildings	Numerous, including houses, farms, churches, blacksmiths shop, coastal listening post (sound mirror), engine house, castle.
North Yorkshire and Cleveland Heritage Coast	Parts of the LCT closest to the coast.

Key designated heritage conservation sites

Perceptual qualities and views

The area is popular with visitors, and contains several caravan sites. Car parks provide access and facilities for the historic coastal villages. There are National Park Visitor Centres at Ravenscar and Robin Hood's Bay.

One of the most striking characteristics of the Coastal Hinterland landscape is its patchwork patterns of fields, woodland, plantation and grassland. Differences in vegetation and crops create a range of different textures and colours. Some are familiar, such as barley and wheat, and others are more unusual, such as the blue flowers of phacelia, and the ridged texture of grape vines. The patchwork of fields is particularly well appreciated in panoramic views from high land.

Fig.78 Coastal Hinterland patchwork fields near Robin Hood's Bay, as seen from the viewpoint at the eastern edge of Stony Marl Moor (LCA 1d)

Much of the area has a strongly open and elevated feel, particularly close to the coast and in areas close to moorland/ rough grassland. This contrasts with the darker, more enclosed feel of the woodland and valleys. The wooded valleys are recognised as remote areas in National Park Planning Policy. Away from main roads and peripheral settlements, the LCT has high levels of tranquillity and dark night skies.

There are strong visual links with the sea and coast, with long views down valleys to the sea, and also from the coast looking inland over the LCT to the moorland beyond. In addition there is intervisibility with land outside the National Park boundary, particularly around Loftus, Whitby and Cloughton.

Fig.79 Long view down Easington Beck valley from Roxby to the coast. Boulby Mine is visible on the left of the picture.

The Coastal Hinterland can be seen from the sea, particularly where cliffs are lower at Runswick Bay and Robin Hood's Bay. Buildings and land uses within parts of the Coastal Hinterland LCT therefore impact on views from the sea and Coast Path. The Coastal Hinterland LCT is also a feature of long views from moorland (particularly LCAs 1c and 1d). Boulby Head is a landmark near the northern edge of the National Park.

Fig.80 View of Coastal Hinterland near Hawsker from the sea. Biomass crops grow on cliff-top farmland.

This is a landscape which can be appreciated from many different viewpoints, including the busy main roads which cross the LCT. Recreational users include walkers and cyclists on the Cinder Track path, users of the England Coast Path/ Cleveland Way, sailors and anglers using the reservoirs, and people living in or visiting the popular coastal villages.

Fig.81 Cyclist on the Cinder Track near Ravenscar

Ecosystem Services provided by the Coastal Hinterland LCT

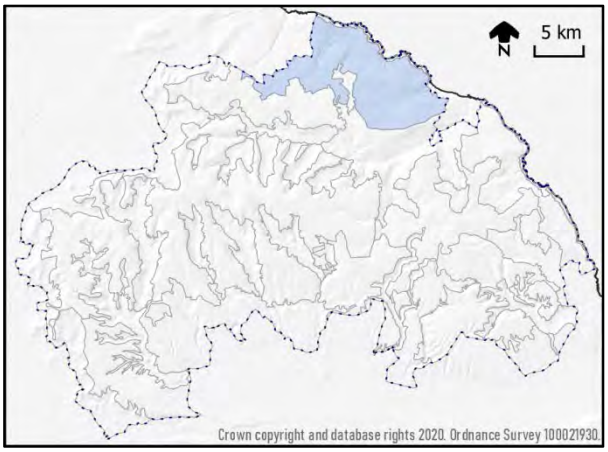
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	The LCT supports various recreation opportunities, including walking/cycling the Cinder Track and fishing and sailing on the reservoirs. These (together with the network of lanes and footpaths in the area) enhance wellbeing through exercise and appreciation of the landscape. The LCT also contains relatively large amounts of visitor accommodation. The LCT contains a large number of cultural heritage sites, including Mulgrave Castle, and various historic villages and buildings. It also contributes to the settings of historic coastal villages, and contains areas of tranquillity and dark night skies. Travellers on the main roads enjoy views across the LCT to moorland and/or sea.	There are further opportunities to improve public access to wooded valleys, particularly if well-designed visitor infrastructure was provided. This could help to spread visitors more evenly throughout the National Park, reducing pressures on coastal 'honeypots' and fragile moorland landscapes.
Provisioning Services	Fertile farmland provides crops and livestock for food and fibre. Woodlands provide timber, wood fibre and biomass which can be used in many ways. Streams and reservoirs provide and store fresh water, and are also a source of fish. Mines provide minerals.	Opportunities to manage farmland and woodland to enhance biodiversity and reduce pollution. Changing climatic conditions provide opportunities to experiment with growing new crops, which could also benefit biodiversity.
Regulating Services	Woodland helps with carbon sequestration and improves air quality by absorbing pollutants. Soils and vegetation absorb rainwater and slow water flow, helping to regulate downstream flooding. Woodlands and grasslands provide habitat for pollinators.	Increasing tree cover to boost carbon storage and enhance air quality. Trees and hedgerows can also contribute to Natural Flood Management (NFM) schemes.
Supporting Services	The LCT provides a range of habitats, including extensive valley-side woodlands, and grasslands of different types. It also contributes to soil formation and photosynthesis.	There are opportunities to use new tree and woodland planting to improve linkages between woodlands and create wildlife corridors. Pollinator habitats can be increased, for example through encouraging wildflowers in arable field margins.

Landscape Character Area Descriptions

There are two distinctive Landscape Character Areas (LCAs) within the Coastal Hinterland LCT. These are described on the following pages.

Landscape Character Area 4a: Boulby - Whitby

Fig.82 A typical scene in LCA 4a, near Newton Mulgrave looking towards Runswick Bank Top across farmland to the sea



Map showing the location of LCA 4a within the National Park

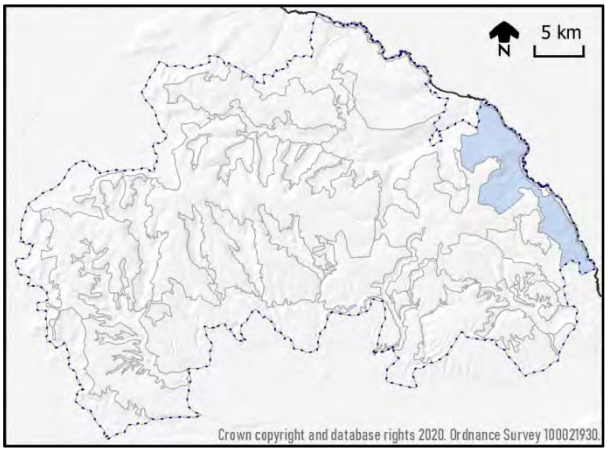
This LCA is located in the north of the National Park, between Sandsend (west of Whitby) and the National Park boundary near Loftus. It extends from cliff top (the England Coast Path) inland to the boundary with LCA 1c (Northern Moors) and 8b (Lower Esk Valley). It comprises undulating farmland which rises gently inland, and forms a smooth patchwork of medium-sized fields. There are panoramic views across the landscape, and the sea is often visible. There are long views to the moors which form the inland horizon, but the Coastal Hinterland of 4a is much wider than that of 4b, so the moors appear relatively distant and removed from the coastal landscape. The fertile soils and gradual gradients support a mosaic of crops and pasture, with a relatively high proportion of arable. Fields planted with phacelia create seasonal splashes of blue in the landscape.

In contrast to the open farmland, deep wooded valleys (often in pairs divided by a central ridge) run through the LCA 4a to the coast. Many of these valleys are largely inaccessible by road due to the steepness of the terrain. Where roads do cross the valleys, they have steep gradients, tight bends, and fords. The parallel valleys of the Sandsend Back and West Row Beck are particularly notable as they contain the Ancient Woodland and designed landscape of the extensive Mulgrave Estate, which (together with the adjacent estate village of Lythe) creates a distinctive estate character to this part of the LCA.

LCA 4a contains the highest proportion of open water within the National Park, held within the artificial reservoirs at Scaling and Lockwood Beck. It is also strongly influenced by coastal mining. There are Victorian former miners cottages around Port Mulgrave and other villages, as well as larger 20th Century mining settlements at Easington and Staithes. Boulby potash mine is a very prominent feature within the northern part of the LCA.

Landscape Character Area 4b:Whitby - Cloughton

Fig.83 A typical scene in LCA 4b, looking across rushy pasture to Howdale Moor.



Map showing the location of LCA 4b within the National Park

This LCA comprises the southern part of the Coastal Hinterland, between Saltwick (east of Whitby) and Cloughton. Like LCA 4a it extends inland from the England Coast Path to the edge of Moorland. However, here the Coastal Hinterland is much narrower, and the moorland extends much closer to the coast. This influences the character of LCA 4b, with moorland being much more dominant in views than in LCA 4a. In the south, its inland boundary is with LCT3 (Forest) and LCT 7 (Limestone Dale). Together with the proximity of moorland, this creates a distinctive feel to the landscape of LCA 4b. It is rougher in texture, with more rushy pasture and less improved grassland, and there is a higher proportion of stone walls. Mixed hedgerows are a feature of sheltered valleys. Where hedgerows or shelterbelts occur on higher land, they are often stunted or wind-sculpted, and there are more blocks of coniferous trees. Fields are generally smaller, and less regular in shape.

The Cinder Track (the recreational route which follows the former Scarborough-Whitby railway line) is an important feature of the LCA, and enables access into parts of the LCA which can't be reached by road. These areas often feel relatively remote and tranquil. It also provides access to sites such as Ravenscar and the nearby WWII Radar station. The LCA is popular for recreation, with coastal caravan sites at Saltwick and Northcliff and several others inland.

There are good views from the A171, where the LCA forms the context for views of moorland, forestry and the sea.

Forces for Change acting on the Coastal Hinterland LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Infrastructure and communications	Some large structures are already present within the LCT (for example Boulby Mine, Boulby mast, and large farm buildings in LCA 4a). There is potential for new developments, including solar farms and other infrastructure. These features impact on views within the LCT, and also in views from the sea and from higher land.	All
Settlement expansion	Villages such as Staithes and Easington have seen considerable expansion in the 20th Century, which does not generally reflect local vernacular building materials or styles, or its landscape context. It is likely that development pressure will result in further expansion of villages within the LCT. There is a particular threat to the open land and coastal valleys which currently form the setting to the historic coastal villages of Staithes, Runswick Bay and Robin Hood's Bay.	All
Loss of rural character	This may occur in traditional rural villages, on the edges of peripheral settlements, or along roads. In this LCT it is associated with visual 'clutter' such as excessive signage and poorly-screened caravan parks, as well as suburbanising features such as concrete kerbs, street lights, tarmac driveways and close-boarded fencing.	All
Abandonment of traditional agricultural buildings, and demand for new buildings.	Changing agricultural practices and requirements have also resulting in abandonment/ conversion of some traditional farm buildings to other uses, which may result in loss of historic integrity and fittings associated with their original uses. Replacement farm buildings are generally larger, and can be visually intrusive and a source of lightspill. A combination of climate change, conservation objectives and new markets has resulted in farmers planting alternative crops within this LCT such as vines, biomass and phacelia. Ongoing changes to agricultural grants through the new Environmental Land Management Scheme will hopefully result in positive landscape and biodiversity impacts.	All
Biodiversity and soil loss	In previous decades, intensification of arable agriculture in this LCT resulted in field boundary loss, loss of habitats (e.g. moorland, rough grassland, coastal grassland and flower-rich meadow). This has led to a loss of species diversity of flowers, insects and birds, and reduced habitats for pollinators. Increased levels of water pollution affect river ecology. Ploughing light soils and steep slopes has resulted in soil erosion and loss, particularly where hedgerows/ walls were removed. The LCT also saw some planting on ancient woodland sites. An ongoing problem is 'coastal squeeze' of coastal grassland habitats as a result of coastal erosion.	All
Additional tree cover	There are opportunities to increase tree cover within this LCT, including through extending and linking existing woodland, and encouraging growth of new woodland, wood pasture, and hedgerow, roadside and infield trees. When thinking about new wooded habitats, it is important to consider any potential impacts on archaeological sites and habitats of existing	All

	biodiversity value (for example unimproved grassland). Some existing biodiversity-rich sites may not be designated or recorded.	
Climate change	This is likely to impact on crop choices, and the range of tree and plant species which can thrive in the LCT. Increased intensity and frequency of heatwaves and storms increases the potential for flooding, storm damage and accelerated coastal erosion. This results in increased 'coastal squeeze', leading to loss of coastal grassland habitats, and potentially a need to re-route coastal footpaths within this LCT. Problems will be exacerbated by sea level rise.	All
Tree disease and invasive species	Ash Dieback is already present within the LCT, and is likely to spread further in coming years. This will result in a loss of hedgerow and roadside trees within the landscape, as well as impacting on woodland composition and ecosystems. Other tree diseases, and invasive species in woodlands and watercourses, are also threats to both the appearance of the landscape and the functioning of ecosystems.	All
Recreation and visitor pressure	This LCT contains much of the tourist and recreation infrastructure which services the coastal 'honeypot' villages, and provides accommodation for visitors to the National Park. There are numerous caravan and camp sites within the LCT (some near the coast; others inland) as well as car parks, National Park Visitor Centres, and popular recreational routes such as the England Coast Path/ Cleveland Way (which forms the LCT boundary) and the Cinder Track. These facilities, and the resulting traffic and people, can impact on views, and lead to increased littering, path erosion, damage and anti-social behaviour.	All
Loss of tranquillity and dark skies	Dark skies are threatened by new development, traffic, street lighting, and lightspill from agricultural and industrial buildings. The area around Boulby mine has the greatest levels of light pollution in the National Park, and the areas on the edges of peripheral towns such as Whitby are also affected by light pollution. Tranquillity is affected by increased numbers of people, noise, traffic, industry and development. It is lowest on the edges of the LCT, closest to the peripheral settlements; near industrial sites, and in areas with concentrations of tourists.	All
Marine development	At present the seaward horizon is open, punctuated only by passing shipping. Marine developments such as offshore wind turbines would impact on the seaward setting of the National Park, including through light pollution.	All
Changes outside the National Park and in adjacent LCTs	Views from the LCT are vulnerable to visually-intrusive developments and land use changes outside the National Park, particularly around Whitby, Boulby and Burnistone. This potentially includes marine developments as well as those onshore. The Coastal Hinterland has a strong visual relationship with the adjacent Coast (LCT 10). Inland it has visual and ecological relationships with the adjacent Central Valley (LCT 8), Moorland (LCT 1) and Limestone Dale (LCT 7). Changes in these LCTs may therefore affect the character of the Coastal Hinterland landscape.	All

Landscape Guidelines for the Coastal Hinterland LCT

Protect

- Protect the settings of historic coastal villages (Staithes, Runswick Bay and Robin Hood's Bay). These include open land around settlements, and coastal valleys.
- Protect and manage the Mulgrave Estate and its setting.
- Protect field patterns, and seek opportunities to restore lost field boundaries.
- Protect the character of historic settlements, and their relationship with the surrounding landscape (for example by retaining field boundaries and mature trees around settlements). Pay particular attention to the settings of Listed Buildings and Conservation Areas.
- Protect the character of rural buildings, ensuring that conversion of redundant farm buildings is sensitive to their historic significance, former use and location. Where new buildings are required, they should be sited and designed to minimise their landscape impact (see National Park Design Guide).
- Protect the sense of relative tranquillity found in the more remote parts of this LCT, for example along the Cinder Track, and in valley bottoms.
- Protect the backdrop to coastal views formed by this LCT.
- Protect the setting of the National Park (including its marine setting), particularly from highly intrusive or cumulative development.
- Protect dark night skies.

Manage

- Encourage active management of native woodland where it will provide clear landscape and biodiversity benefits alongside production of wood products. Seek opportunities to extend and link deciduous woodland, and to soften the appearance of conifer plantations with deciduous planting. Support initiatives to restore Plantations on Ancient Woodland Sites to native woodland.
- Manage mature trees: parkland trees, veteran trees, hedgerow trees, infield trees and roadside trees, and allow new trees to grow out to become the mature trees of the future. Plant the next generation of parkland trees to continue their presence in the landscape.
- Manage arable areas to promote biodiversity and good soil management. Retain grass cover on the steepest land, and elsewhere use minimum tillage. Encourage linked flower-rich buffer strips and road verges to support rare species and pollinators.
- Manage coastal grassland, wet flush and moorland habitats, seeking opportunities to create connections with similar habitats in this LCT and adjacent LCTs, and to extend coastal grassland inland from cliff tops.
- Manage hedgerows and dry stone walls using traditional methods where possible. Encourage planting of new hedgerows to improve habitat connectivity between woodlands and to reduce soil loss and flooding, using species present in existing local hedgerows. Consult historic maps (see National Library of Scotland 'side by side' map viewer) to identify the lines of lost hedgerows. Reinstating these will also enhance the landscape pattern.
- Promote nature-based solutions for stream health, and avoid ploughing close to watercourses. Riparian buffers should be grassland or woodland.

- Work with landowners to encourage consideration of biodiversity when new types of crops / land covers are being planted.
- Manage SSSIs and Scheduled Monuments in accordance with Management Plans.
- Consider opportunities for dynamic boundaries between farmland, scrub and moorland where this LCT adjoins LCT 1.

Plan

- Seek opportunities to increase tree and woodland cover through new native tree planting/ natural colonisation on existing arable or improved grassland areas. This may take the form of woodland, wood pasture or individual trees. The large scale, agricultural land use, and regular field patterns of this LCT mean that relatively large areas of new tree cover can be assimilated into the landscape. New woodland areas should include open glades and rides, and contain a diversity of native species. Avoid straight edges to woodlands and straight lines of trees as these will look very unnatural. Before commencing any tree planting, professional advise should be sought to ensure that there will be no negative effects on the historic environment, ecology or access
- Promote Natural Flood Management techniques where appropriate.
- Use existing or new hedgerows or woodlands to screen new development on the peripheries of settlements and help development to integrate into the landscape.
- Retain the rural character of traditional settlements, avoiding unnecessary signage, clutter and urbanising features, e.g. concrete kerbs, tarmac pavements and close-board fences.
- Carefully consider the landscape and visual impacts of large built structures in the rural landscape, such solar farms, large agricultural buildings and mineral extraction sites. Consider views from both above and below, as well as from within this LCT. Work with developers to minimise the visual impacts of structures, and ensure that high-quality landscape restoration plans are in place for when active use ceases.
- Avoid siting masts and other vertical features in open locations, particularly where they would appear on the horizon. When they are unavoidable, site them close to existing trees or buildings, and consider non-standard designs to minimise visual impact.
- Seek to reduce or mitigate visual ‘clutter’ along main roads, avoiding unnecessary signage and structures, and using native tree / hedgerow planting for screening.
- Seek to reduce light pollution, particularly from sites outside settlements.
- Ensure that change to heritage assets is informed by an understanding of their importance, and can retain and where possible enhance their significance. Provision should be made for management plans, and research into materials, where appropriate.
- Work with recreation providers (particularly caravan parks) to minimise visual impacts of sites on the landscape and seascape. Seek opportunities to diversify recreation facilities within this LCT to reduce demand on ‘honeypot’ sites and protect more sensitive areas. Any new facilities must be sited and designed with care.
- Ensure development proposals within the National Park’s setting are appropriately assessed, and adequate mitigation is in place, particularly when impacts may be cumulative. The setting includes areas beyond the National Park Boundary (such as around Whitby) and out to sea.

LCT 5: Limestone Hills Landscape Character Type

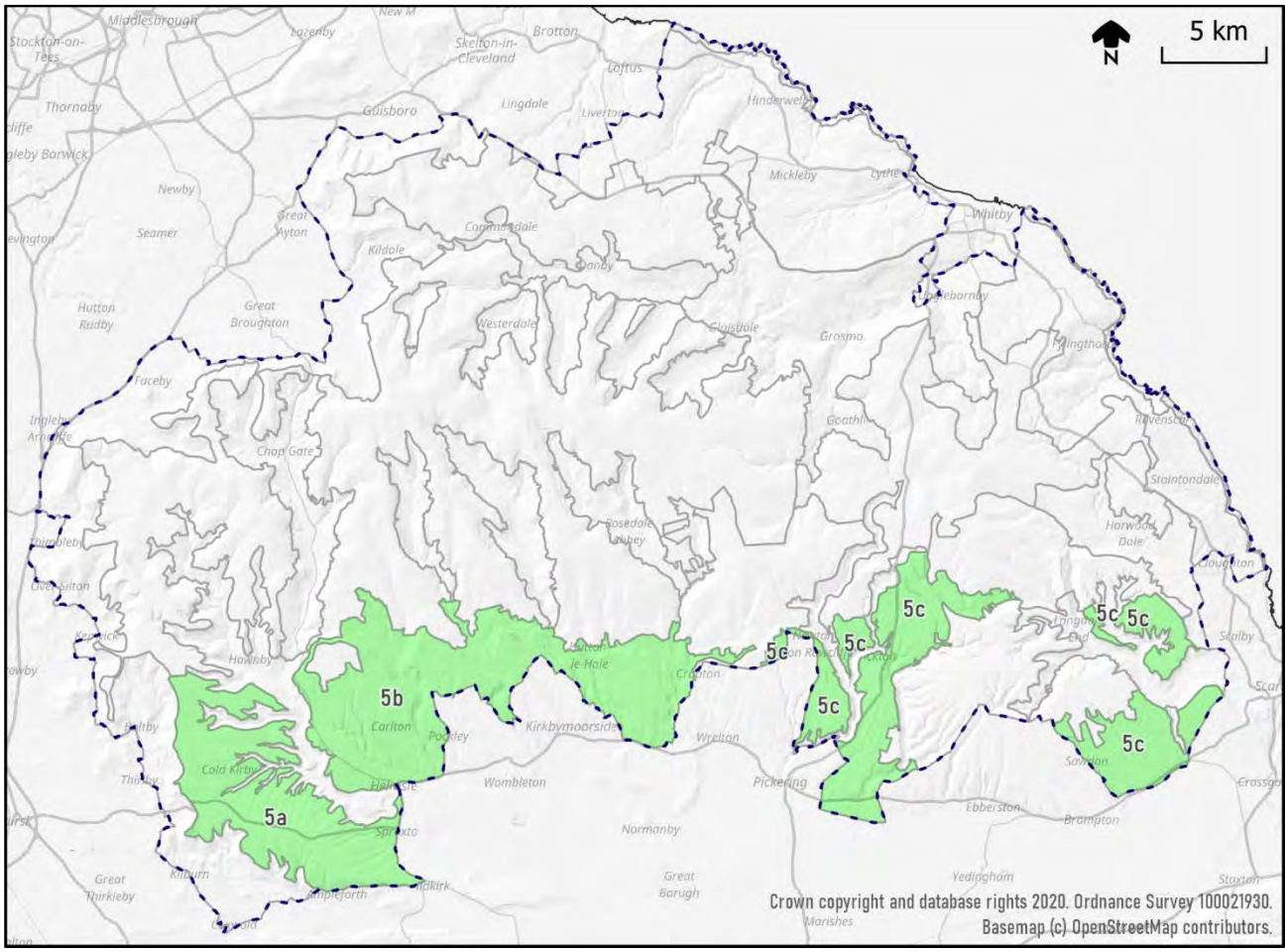
Fig.84 A typical scene within the Limestone Hills Landscape Character Type, near Old Byland

Location, Context and Setting

This Landscape Character Type (LCT) is located in the south of the North York Moors National Park. It is relatively well-settled, and contains the settlements of Helmsley, Hutton-Le-Hole, Thornton-le-Dale, and West and East Ayton, as well as smaller villages, hamlets and farms. The Limestone Hills LCT forms the transition between the elevated parts of the National Park and the Vale of Pickering to the south. Its character is therefore influenced by surrounding National Park LCTs: Moorland; Moorland Dale; Forest; Limestone Dale and Western Escarpment. It is also influenced by (and visible from) the surrounding lowlands which form the National Park's southern setting.

Summary Description

This LCT is characterised by its underlying limestone geology, which creates its distinctive landforms and attractive settlements. It is an elevated, open landscape with magnificent views across the plateaux and over the surrounding dales, escarpments and lowlands. These include the famous viewpoints at Sutton Bank and Kilburn White Horse. Much of the LCT comprises a gently-sloping plateau, and the resulting flat-topped horizons have led to its nickname of 'The Tabular Hills'. However the landform is more complex than this: the northern edge of the plateau is marked by the short, steep Corallian escarpment, and the plateau is also dissected by a number of winding dales which cut steeply into it, and have a much smaller scale and more enclosed feel. Tree cover emphasises the landform, with wooded steep slopes. There are numerous attractive settlements, including Helmsley, the largest town in the National Park. The settlements are generally constructed of local limestone, with pantile roofs. Although the area is relatively well-settled, it still has a strongly rural and tranquil feel. The valleys contain lush woodland and meadows, and there are many historic buildings, reflecting the long history of settlement and agriculture.



Location map for Limestone Hills Landscape Character Type (LCT)
5a = Western Limestone Hills; 5b = Central Limestone Hills; 5c = Eastern Limestone Hills

Key Characteristics

- Underlying geology of Corallian limestones from the Jurassic period.
- Topography of elevated flat-topped plateaux, sloping down towards the south, incised by steep dales. The distinctive Corallian limestone escarpment marks the northern edge of the LCT.
- Little surface water on plateau, but most dales contain winding streams (although some are dry). Numerous springs at junctions with underlying impervious clay.
- Land use is predominantly agricultural (mixed arable and livestock) with patches of tree cover.
- Semi-natural habitats include patches of woodland, meadows, moorland and verges.
- Trees primarily found in forestry blocks and valley-side woodlands.
- Field pattern on plateau comprises medium-large scale regular shaped fields. Fields are generally smaller and less regular in valleys and around villages. Boundaries may be hedges, fences or dry stone walls. Shelterbelts and field boundary trees are local features.
- Numerous historic settlements, mostly linear or nucleated in form, constructed of local stone.
- A network of lanes, generally winding in valleys but straighter on plateaux. Some dales only accessible by footpaths.
- A long history of settlement, with a concentration of prehistoric and medieval features.
- Panoramic views from high land, including exceptional views over surrounding lowlands.
- Contrasts between the open, elevated plateaux, and more enclosed, wooded valleys.
- Strong sense of tranquillity away from roads and 'honeypot' villages.

Natural landscape features

The Limestone Hills LCT is underlain by Corallian limestones from the Upper Jurassic period, making them some of the youngest rocks in the National Park. They were laid down in warm, shallow, tropical seas, and contain some marine fossils. The sloping flat tops of the tabular hills are due to underlying beds of limestone dipping towards the south. The highest point of the plateau occurs in the far west of the National Park, where it reaches 320m above sea level. It slopes gradually southwards towards the Vale of Pickering, and drops abruptly to the west into LCT9 (Western Escarpment).

Fig.85 Flat, open, limestone topography, Hutton Buscel

The plateau is cut through by occasional deep north-south gorges eroded by rivers or glacial meltwater. The steepest parts of these valley sides contain limestone crags.

In the north of the LCT, the distinctive north-facing Corallian escarpment divides the limestone from the central moorland and runs from Bilsdale to the coast. This escarpment marks the boundary between the upper and middle Jurassic rocks and is the result of stream erosion and weathering of uplifted rocks. Immediately to the north of the Corallian escarpment is a strip of land underlain by clay geology, supporting more trees and with a smaller, less regular field pattern. Bridestones SSSI and Nature Reserve contains upstanding pillars of limestone eroded into unusual formations.

Fig.86 Corallian limestone escarpment, Saltergate Brow

Surface water is almost entirely absent from the plateau, but there are numerous springs at the junctions with impervious rocks. Streams occur in many of the north-south valleys, but others are dry.

Some deciduous woodland occurs in dales (often on steep valley sides), including areas of ancient woodland. There are also extensive areas of plantation on ancient woodland sites. In parts of the LCT lanes and hedges are lined with mature trees, and veteran trees can also be found. Pockets of moorland occur in higher areas, and meadows and road verges provide grassland habitats. A range of rare orchids thrive in the limestone meadows.

Designation	Sites
SAC	Part of Ellers wood and Sand Dale
SSSI	Numerous, including woodland, moorland quarries, becks, meadows and parkland
LNR	Bridestones (National Trust) Farndale – southern end (NYMNPA)

Key designated nature conservation sites

Cultural landscape features

This is a landscape with a long history of settlement. Prehistoric remains include field systems, Iron Age hillforts (one of the largest in the North of England is at Roulston Scar), and linear earthworks such as the Cleve Dyke. There are early religious sites such as the church at Lastingham, monastic complexes

(e.g. Ampleforth Abbey) and various wells and springs.

Many landscape features, including lanes, drovers' tracks, farms, churches, paths, walls and villages date from the medieval period, creating a strong sense of continuity and time-depth to the landscape. There are many fine examples of linear villages, which are likely to have been planned in medieval times and where the original pattern of crofts (houses) and tofts (gardens/ smallholdings) are still visible. Rows of crofts and tofts face each other across a wide main street. Sometimes strip fields survive, extending back from the tofts. Other settlements are nucleated around a village green or square, whilst some are more dispersed in form.

Fig.87 Levisham is a good example of a linear village, located on the limestone plateau

Structures such as limekilns and dewponds dot the landscape, reflecting the limestone geology. There is a rich history of settlement comprising isolated farms, hamlets, villages and the larger town of Helmsley. Most traditional buildings are built of local limestone, usually with pantile roofs. Farms and villages are often surrounded by sheltering trees. Some of the settlements are located alongside rivers (for example the famously attractive villages of Hutton-le-Hole and Thornton-le-Dale, where bridges are part of the streetscape) whilst others are on springlines (e.g. Ampleforth) or on the plateau itself (e.g. Cold Kirby, Silpho and Levisham).

Fig.88 Hutton-le-Hole, with distinctive footbridges crossing the Hutton Beck

Villages are connected by a network of winding lanes, which can have steep banks where they are cut into valley sides. Roads on the plateau tops are generally straighter and often have wide verges separating the road from parallel walls or hedges. Many were used as drove roads for livestock.

Field patterns are variable. Generally fields on the plateau are larger and more regular in shape, and are likely to date from 18th or 19th Century parliamentary enclosure. Older field patterns, including some strip fields, survive in valleys and around villages such as Levisham and Lockton. A distinctive mix of arable and livestock farming occurs in this LCT, contributing to its settled and managed feel.

Designation	Sites
Scheduled Monuments	Numerous, including prehistoric dykes, forts, field systems, cairns and barrows; medieval manors, granges and churches
Conservation Areas	Numerous, including Cold Kirby, Ampleforth, Oswaldkirk, Old Byland, Helmsley, Hutton Buscel, West and East Ayton, Levisham, Lockton, Thornton-Le-Dale, Appleton-le-Moors, Gillamoor, Hutton-le-Hole, Lastingham and Sinnington.
Listed Buildings	Numerous, including houses, farms, churches, mills and bridges. Concentrated in Conservation Areas

Key designated heritage conservation sites

Perceptual qualities and views

This is a landscape of contrasts. Plateau tops are open and elevated, with a patchwork of geometric fields, and long views. Dales are enclosed and intimate, with streams winding through wooded valleys edged by rough crags.

There are pockets of activity, around main roads and 'honeypot' villages which are bustling with people in summer. However, beyond these areas, the LCT is peaceful and quiet, with some of the less accessible dales offering a deep sense of tranquillity. Small parts of the LCT (particularly in the west) are defined Remote Areas in planning policy ENV3, either because of their woodland land cover, or their distance from roads and settlement.

The eastern part of the LCT is within the Dark Sky Core Area and its buffer. Sutton Bank National Park Centre has a dark skies observatory.

This LCT is renowned for its spectacular views. The view from Sutton Bank was described by James Herriot as 'the finest view in England' and many people visit the viewpoint at Sutton Bank National Park Centre to enjoy it. There are also dramatic views west and south from other locations on the edge of the plateau, including above Kilburn White Horse. These look out over the Vale of Pickering, the Howardian Hills, the Vale of York, and the Vale of Mowbray which form the southern setting of the National Park. The Ordnance Survey Map shows numerous viewpoints within this LCT, often overlooking valleys, although several viewpoints are currently overgrown. The many picturesque villages within this LCT are also popular viewpoints, and therefore recreation in this LCT is often linked to appreciation of views. The Cleveland Way follows the western edge of the LCT, along the top of the Western Escarpment, with magnificent views. The Tabular Hills Walk runs east-west through the LCT and provides opportunities to enjoy the limestone scenery.

Fig.89 View of Roulston Scar and the Vale of York from Sutton Bank Viewpoint

Views are experienced in both directions, and so this LCT is extremely important in views towards the National Park from surrounding lowlands.

Fig.90 Elevated view from south of Sherburn (on the northern edge of the Yorkshire Wolds) looking north towards the National Park. The Limestone Hills LCT and Forest LCT form the backdrop to the Vale of Pickering

Ecosystem Services provided by the Limestone Hills LCT

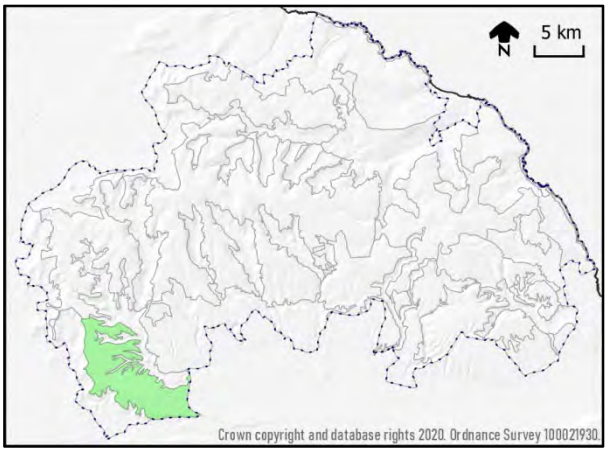
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	Historic buildings create attractive settlements, many of which are popular with tourists. The sense of place is particularly strong in settlements such as Hutton-le-Hole and Thornton-le-Dale where streams and bridges are part of village character and add to the aesthetic experience. Footpaths and public rights of way provide opportunities for quiet recreation and exercise, and appreciation of tranquillity and dark skies. Road-free valleys such as Beck Dale and Riccal Dale enable quiet walks close to Helmsley, promoting well-being. Visitor infrastructure and dark skies viewpoint at Sutton Bank enables people to easily experience stunning views and starry skies.	There are further opportunities to develop off-road walking routes from local centres which could be used by local people and visitors. There are also opportunities to enhance viewpoints and remove vegetation which is currently blocking views.
Provisioning Services	Fertile soils support arable and pastoral agriculture, directly contributing to food supplies. Trees provide timber, wood fibre and biomass, and springs and streams provide fresh water. Quarries provide stone for building.	Opportunities to manage farmland and woodland to enhance biodiversity and reduce pollution. Changing climatic conditions provide opportunities to experiment with growing new crops, which could also benefit biodiversity.
Regulating Services	Woodland helps with carbon sequestration and improves air quality by absorbing pollutants. Soils and vegetation absorb rainwater and slow water flow, helping to regulate downstream flooding. Grassland and woodland provide habitats for pollinators.	Tree planting/ colonisation schemes have potential to increase carbon storage and reduce pollution. Trees and hedgerows can also contribute to Natural Flood Management (NFM) schemes. Changes to agricultural practices could reduce pollution and runoff.
Supporting Services	The LCT provides habitats and habitat links for a range of species, particularly along river valleys, and through hedgerow networks. It also contributes to soil formation and photosynthesis	Carefully-designed tree and hedgerow planting, and good management of field edges, can enhance habitat links

Landscape Character Area Descriptions

There are three distinctive Landscape Character Areas (LCAs) within the Limestone Hills LCT. These are described on the following pages.

Landscape Character Area 5a: Western Limestone Hills

Fig.91 A typical scene in LCA 5a, near Sproxton, showing farmland and blocks of forestry. The land is sloping gently down towards the Vale of Pickering



Map showing the location of LCA 5a within the National Park

This LCA is located in the south-west of the National Park. It forms the southern part of the Hambleton Hills and is the highest part of LCT5. It comprises a high, flat, plateau (occasionally incised by the steep tributary valleys of Ryedale (LCA 2a) which drops sharply down at the southern edge into the Vale of Pickering, and to the western edge into LCA 9b and the Vale of York.

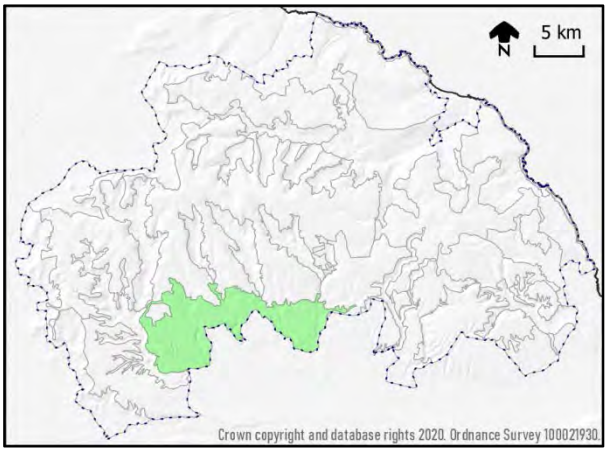
Its flat topography and height create an open, elevated feel. The relatively large size and regular shape of the fields also contribute to the large scale of the landscape. There are exceptional views from this LCA, particularly to the south and west. These include the view from Sutton Bank over LCA 9b and the Vale of York to the Yorkshire Dales (famously described by James Herriot as 'the finest view in England'), and the view south from above Kilburn White Horse. There are also views north and east towards the moors, often with glimpses into the intervening dales and tributaries.

Settlement is limited, but villages within this LCA include Cold Kirby and Old Byland (located on the plateau) and Ampleforth (a linear village located on the springline between the limestone and the clay of the Vale of Pickering).

LCA 5a is distinguished by its extensive blocks of forestry, particularly in the south. Recreational land uses include the Yorkshire Gliding Club, and the popular Sutton Bank National Park Centre. It has a close physical, cultural and visual relationship with the estate landscapes of Duncombe Park and Rievaulx Abbey located in LCA 2a.

Landscape Character Area 5b: Central Limestone Hills

Fig.92 A typical scene in LCA 5b, at the northern end of Riccal Dale, showing a secluded, vegetated valley surrounded by open, flat-topped hills.



Map showing the location of LCA 5b within the National Park

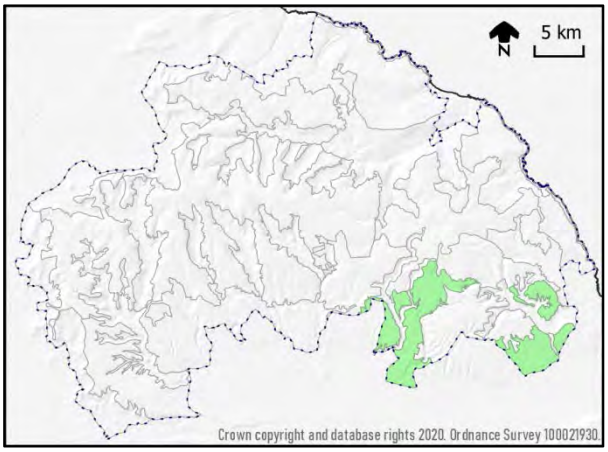
This LCA comprises the central part of the Limestone Hills between Ryedale in the west and Cropton Forest in the east. It includes the land between the open moorland of LCA 1b and the southern boundary of the National Park. There are a number of attractive historic settlements located alongside streams or springs within the LCA, including Helmsley, Hutton-le-Hole and Lastingham.

LCA 5b has particularly distinctive topography. The flat limestone plateau slopes gently southwards towards the Vale of Pickering, but the southern slope is much less pronounced than in LCA 5a. The plateau is incised by a series of valleys which run north-south. Some contain streams (e.g. the River Riccal, Hodge Beck, River Dove, Hutton Beck and River Seven) whilst others are dry. The valleys are narrow and twisting, often with meandering rivers, steep slopes and cliffs. Some are inaccessible except on foot. In the north of the LCA is the prominent Corallian escarpment, which slopes steeply down towards the north. Much of the escarpment is forested, but elsewhere the geology is visible as crags. To the north of the Corallian escarpment is an underlying band of clay geology which lies between the limestone and the moorland. This creates a small-scale, low lying and well-treed landscape which feels intimate and secluded and has few views out.

In the vicinity of main roads and settlements the LCA has a busy, settled feel, but elsewhere it is quiet and tranquil, particularly in the valleys which are not accessible by road. The long history of settlement is reflected in the number of Listed Buildings and Conservation Areas. It also contains a range of semi-natural habitats including woodland, meadows, becks and parklands. Several of these are designated SSSIs.

Landscape Character Area 5c: Eastern Limestone Hills

Fig.93 A typical scene looking towards LCT 5a Cropton Forest, showing flat plateau farmland, with forest on the horizon.



Map showing the location of LCA 5c within the National Park

This LCA comprises the higher areas of unforested land in the south-east of the National Park, between Cropton Forest and the National Park boundary near Scarborough. Outliers of LCA 5c also occur on high land surrounding the limestone dale of Hackness (LCA 7a). It is a limestone plateau incised by numerous deep valleys, including the dramatic glacial meltwater channels of Newtondale (LCA 6a) and Forge Valley (LCA 6b). Limestone features such as Blakely Hill, and the limestone outcrops known as the Bridestones, are distinctive features within the landscape. The presence of the nearby forests (LCT 3) is a further strong influence, creating wooded horizons and a sense of enclosure, particularly in valleys such as Crosscliff, where forests are present to the north and south.

The plateau slopes gently down towards the Vale of Pickering to the south. There are long views over the Vale of Pickering, particularly from the south of the LCA, and this LCA also forms the backdrop to views towards the National Park from the Vale of Pickering and the Yorkshire Wolds.

The two largest settlements in LCA 5c (Thornton-le-Dale and West and East Ayton) are found on relatively low-lying ground near rivers at the southern edge of the National Park. Settlement is sparser in the higher parts of the LCA, and generally comprises scattered farms and small historic villages such as Lockton, Levisham and Silpho.

Forces for Change acting on the Limestone Hills LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Infrastructure and communications	The flat horizons created by the Tabular Hills mean that vertical features such as electricity pylons, poles, turbines and mobile phone masts are particularly prominent. Isolated structures on a skyline can be highly visible over a wide area.	All
Settlement expansion	Several of the larger settlements within the National Park are located within this LCT. There is therefore likely to be pressure for settlement expansion which may not fit with the traditional settlement form (for example, there may be pressure for valley floor settlements to expand up valley sides). Property boundaries may be suburban in character.	All
Abandonment of traditional agricultural buildings, and demand for new buildings	Changing farming practices require larger and more modern farm buildings. Old buildings no longer serving their original purpose may become derelict unless an alternative use can be found (e.g. conversion to holiday accommodation). This may result in loss of historic integrity and fittings associated with its original use. New larger agricultural buildings are likely to be much more prominent in the landscape and may also contribute to light pollution unless carefully designed. Stone walls may fall into disrepair or hedgerows become gappy if they are no longer required to fence stock, or they may be replaced with post and wire fencing. There has been some loss of field boundaries, particularly in more intensively farmed areas.	All
Biodiversity and soil loss	Past decades have seen a loss of biodiversity in this LCT. This is particularly related to loss of limestone grassland habitats through conversion to arable or replacement of hay with silage. This has impacted on the variety and abundance of herbs and grasses, and the insects (including pollinators), birds and other wildlife which they support. In addition, significant areas of ancient woodland were replaced with plantation, and much of the surviving ancient woodland is not actively managed, resulting in a loss of age and species diversity, and of woodland habitats such as glades. Ploughing of light soils can lead to erosion of soil by wind, or run-off into rivers. Water quality is a further concern within this LCT. As well as agricultural pollution, streams are particularly affected by low water flows and rises in water temperature.	
Additional tree cover	Within this LCT there are opportunities to increase tree cover, including new/ extended woodland, wood pasture, and hedgerow, roadside and infield trees. When thinking about increasing tree cover, it is important to consider any potential impacts on habitats already important for biodiversity (for example wet meadows and limestone grasslands). Not all these habitats will be designated or recorded. It could also affect buried archaeology and mask the distinctive field patterns which are found in parts of the LCT.	
Tree disease and invasive	Ash dieback is becoming apparent throughout the LCT, affecting ash trees in woodlands and alongside roads and streams. Some ash trees	All

species	currently remain unaffected. Ash dieback will result in a significant loss of trees, affecting the appearance of the landscape, as well as woodland ecosystems. Other tree diseases and invasive species threaten woodland and river ecosystems.	
Climate change	Free-draining land on limestone is particularly susceptible to drought, and small limestone watercourses will be under intense pressure due to lower flows, increased water temperatures and the concentration of pollutants. Rising temperatures will affect the species of trees which can thrive, with beech particularly susceptible to rising temperatures. Increased rainfall and intensity of storms will lead to greater risks of flooding and damage to trees and buildings. Warmer temperatures and longer growing season may affect farmers' crop choices.	All
Loss of rural character	Increased signage and 'clutter' on roads can lead to a loss of rural character. It is often a particular issue on the approaches to towns and villages. Traditional signposts are sometimes in poor condition. Suburban-style highways works and property boundaries (e.g. concrete kerbs, ornamental gates and close-board fencing) can contribute to loss of rural character.	All
Recreation on and visitor pressure	Concentrations of visitors at key destinations can lead to issues with parking, erosion of paths, littering, trampling of sensitive habitats and wildlife disturbance.	5a, 5b
Farming and land management	The consequences of past changes in farming practices are described in 'biodiversity loss' above. Additionally, artificial fertilisation of fields, and the production of livestock, may result in nitrate enrichment and the pollution of water supplies unless carefully managed. Intensive pheasant-rearing impacts on landscape character and biodiversity in some parts of the LCT, with large enclosures, blue plastic feed bins, growing of feed/ cover crops such as maize and millet, and loss of woodland ground flora. Forthcoming changes to agricultural grant schemes are likely to result in changes to how land is managed, with payments for 'public goods' such as climate change mitigation measures and supporting nature recovery. This is a change in emphasis to the subsidy system which will hopefully be a positive force for change in the landscape.	
Overgrowing of viewpoints	Several marked viewpoints within the LCT are no longer managed, and are overgrown with vegetation.	5a, 5b
Loss of tranquillity and dark skies	Dark skies are threatened by new development, traffic, street lighting, and lightspill from agricultural buildings. Only a relatively small proportion of the LCT is within the Dark Skies core or buffer areas. Tranquillity is affected by development, traffic, noise and people.	All
Changes in adjacent LCTs and outside the National Park	Views out over surrounding lowland landscapes (which form the setting to the National Park) are a key feature of this LCT. Developments within the setting are likely to affect these views, particularly if there is a cumulative impact. Visible developments may include infrastructure, energy and development schemes.	All

	The Limestone Hills is also affected visually and ecologically by changes in adjacent LCTs, e.g. LCT 1 (Moorland) and LCT 3 (Forest)	

Landscape Guidelines for the Limestone Hills LCT

Protect

- Protect the distinctive skylines of flat-topped hills and the north-facing Corallian escarpment, avoiding siting vertical structures in prominent locations.
- Protect dark night skies, particularly in the Dark Sky Core and Buffer Areas.
- Protect historic buildings and the distinctive built forms of this LCT. Ensure that conversion of redundant farm buildings is sensitive to their former use and location.
- Protect the relationship between farms/settlements and the surrounding landscape. Where new buildings are required, maintain this relationship through careful siting, design and mitigation (see National Park Design Guide).
- Protect the settings to settlements, for example historic field patterns and mature trees.
- Protect the backdrop to surrounding lowlands and settlements formed by this LCT.
- Protect the sense of tranquillity found in the more remote parts of this LCT.
- Protect the setting of the National Park, particularly from highly intrusive or cumulative development. This includes potential impacts on dark skies.

Manage

- Manage woodlands, seeking opportunities to extend and link deciduous woodland, and to soften the appearance of conifer plantations with deciduous planting. Continue to revert plantations on ancient woodland sites back to native woodland. Encourage active management of deciduous woodland where it will provide clear landscape and biodiversity benefits alongside production of wood products where appropriate.
- Manage grassland and moorland habitats, seeking opportunities to create connections with similar habitats in this LCT and adjacent LCTs. Use road verges and arable buffer strips to extend grassland habitats and seek opportunities to reinstate flower-rich grasslands.
- Manage hedgerows and dry stone walls using traditional methods where possible. Use hedgerows to improve habitat connectivity between woodlands, using species present in existing local hedgerows. Consult historic maps (see National Library of Scotland 'side by side' map viewer) to identify the lines of lost hedgerows. Reinstating these will also enhance the landscape pattern.
- Encourage good practice with regard to pheasant-rearing, to minimise landscape and biodiversity impacts.
- Manage water through restored/ new ponds and dewponds.
- Manage soil, minimising loss by avoiding ploughing steep slopes, and using minimal tillage.
- Manage viewpoints, ensuring that they are kept open and free from vegetation growth.
- Manage roadside and hedgerow trees, allowing new trees to grow out as standards.
- Manage SSSIs and Scheduled Monuments in accordance with Management Plans.

- Consider opportunities for dynamic boundaries between farmland, scrub and moorland where this LCT adjoins LCT 1.

Plan

- Consider opportunities for increasing tree cover, including new native woodland planting and natural colonisation. This should follow the landform (for example parallel to the slopes on valley sides, or along watercourses) and should avoid obliterating strong field patterns. In some locations there may be opportunities to plant/ recolonise valley floor wet woodland. There are also opportunities to promote woodpasture, and infield, hedgerow and roadside trees. Before commencing any tree planting, professional advice should be sought to ensure that there will be no negative effects on the historic environment, ecology or access. Note that in some areas, greater biodiversity gains may be achieved by promoting limestone grassland and scrub, rather than woodland.
- Promote Natural Flood Management techniques where appropriate.
- Ensure development proposals within the National Park's setting are appropriately assessed, particularly where there may be cumulative impacts, and that adequate mitigation is in place.
- Use existing or new hedgerows or woodlands to screen new development on the peripheries of settlements and help it to integrate into the landscape.
- Ensure that change to heritage assets is informed by an understanding of their importance, and can retain and where possible enhance their significance. Provision should be made for management plans, and research into materials, where appropriate.
- Where communications masts or other vertical features are unavoidable, site them close to existing trees or buildings, and consider non-standard designs to minimise visual impact.
- Seek opportunities to underground overhead wires and poles where possible.
- Retain the rural character of settlements, avoiding unnecessary signage and urbanising features such as concrete kerbs, tarmac pavements/ driveways and close-boarded fencing.

LCT 6: Glacial Channels Landscape Character Type

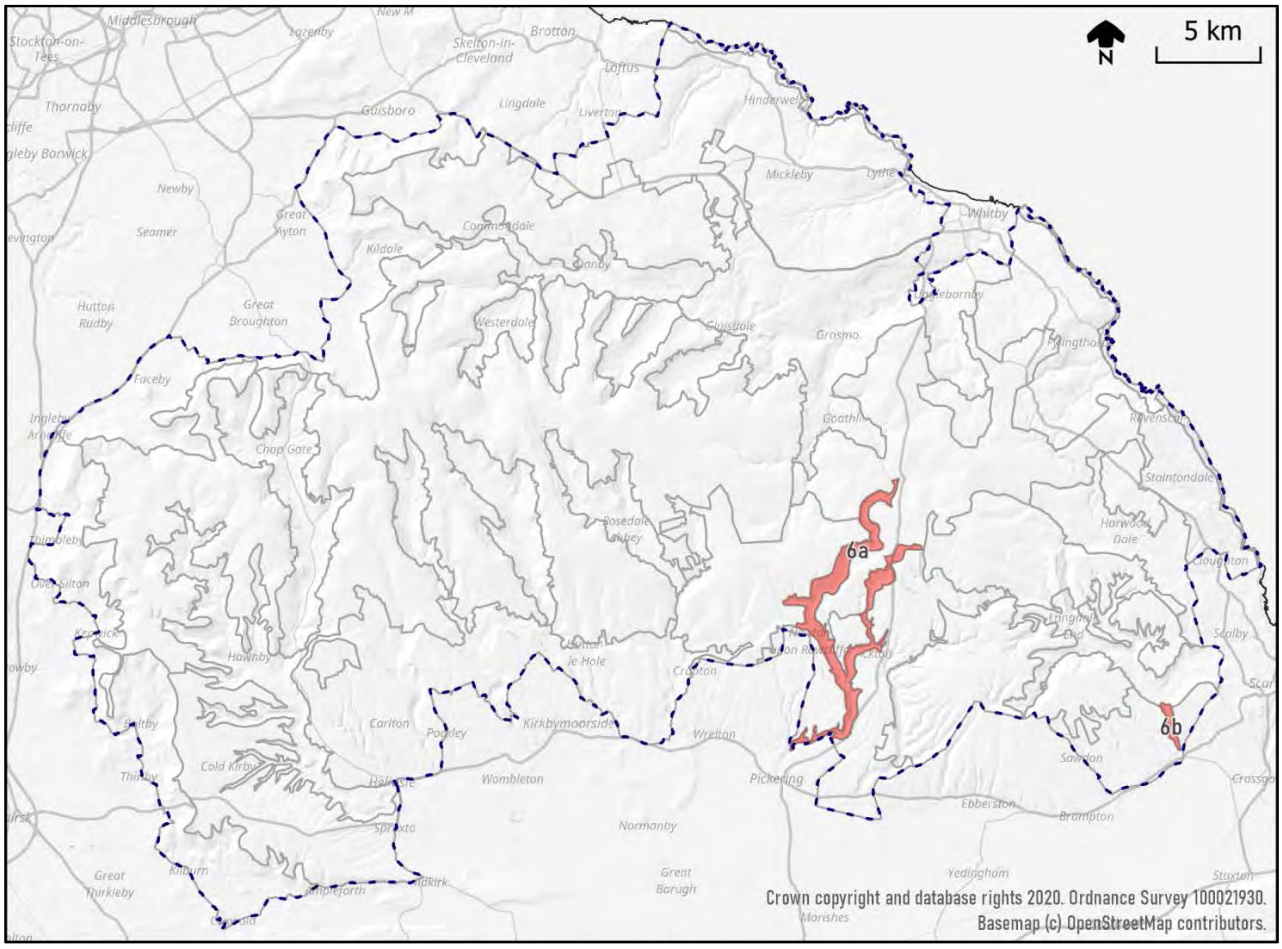
Fig.94 A typical scene within the Glacial Channels Landscape Character Type, Newtondale

Location, Context and Setting

This Landscape Character Type (LCT) is the smallest of the LCTs, and is located in the south-east of the National Park. It encompasses the deep valleys of Newtondale, Levisham Beck (including the Hole of Horcum) and Forge Valley. Settlements in these valleys are limited to isolated buildings. Newtondale adjoins LCA 3a (Cropton Forest) to the west, and a ridge of LCA 1b (Eastern Moorland) separates Newtondale and the Hole of Horcum. The remainder of the LCT is cut into LCA 5c (Eastern Limestone Hills), although LCA 7a (Hackness Limestone Dale) adjoins Forge Valley to the north. The landform means that the valleys are visually enclosed, although there are some views into them from surrounding LCTs. Forge Valley forms the northern approach to East Ayton village.

Summary Description

This LCT comprises dramatic landforms sculpted by powerful glacial meltwater, and the erosive power of water over millennia. Together they have created deep, gorge-like valleys, and the impressive bowl of the Hole of Horcum, which cut through the surrounding landscape. Woodland clothes the valley sides, including extensive areas of Ancient Woodland highly valued for their biodiversity. The steam trains running through Newtondale on the North Yorkshire Moors Railway add further character and sense of place through their sight, sounds and smells, and also enable people to experience the valley. Patterns of woodland, occasional fields, scrub, grassland and fen create a constantly-changing mosaic of colours and textures. Within the valleys, views are contained by the surrounding landform, limiting views out. This creates a strong sense of enclosure which contrasts markedly with the openness of the surrounding moorland and limestone hills landscapes. The lack of roads, and the absence of modern buildings and structures, adds to its unique character. It has a strong sense of tranquillity and detachment, and exceptionally dark skies.



Location map for Glacial Channels Landscape Character Type (LCT) 6a = Newtondale & Hole of Horcum; 6b = Forge Valley

Key Characteristics

- Underlying geology of deltaic sandstone, Corallian limestone & Oxford clay visible in valley sides
- Dramatic topography comprises deep, U-shaped valleys running north-south, formed by glacial meltwater. V-shaped tributary valleys are eroded by streams, and the natural amphitheatre of the Hole of Horcum results from spring-sapping.
- Valley floors contain winding streams. Poor drainage has led to valley-floor fen habitat.
- Land use is predominantly woodland or pasture.
- Rich diversity of semi-natural habitats including extensive areas of Ancient Woodland, riparian habitats, fen, scrub, crags, wet meadows and flower-rich grassland.
- Trees include valley-side woodlands (Ancient Woodland and Plantations on Ancient Woodland Sites), riparian trees, hedgerows, wet woodland and scrub.
- A few irregular-shaped valley-floor fields, separated by hedges or woodland.
- Very few buildings and an almost total lack of modern structures. Buildings associated with the North Yorkshire Moors Railway have a strong historic character and the valley is regularly used as a film set. Rich diversity of well-preserved archaeological features covering multiple periods.
- Generally few roads, but many tracks, footpaths, and a railway line through Newtondale.
- Woodlands and other semi-natural habitats create a mosaic of textures and seasonal colours.
- High levels of tranquillity and a sense of isolation due to the enclosing effect of the landform.
- The popularity of the North Yorkshire Moors Railway means that Newtondale is a well-known landscape. Steam trains create evocative sounds and smells which add to the sense of place.

Natural landscape features

The Glacial Channels LCT covers the complex geological transition between deltaic sandstone, Oxford clay, and Corallian limestone. These rocks can therefore be seen in various combinations, including in section down valley sides. For example, at Forge Valley, the surrounding elevated farmland is limestone; the steep valley sides are sandstone, and clay forms the valley floor. At the Hole of Horcum, limestone has been eroded to reveal the clay beneath. The northern part of Newtondale contains crags of sandstone at the tops of the valley sides.

The main valleys of this LCT run in a roughly north-south direction. Newtondale and Forge Valley originated at the end of the last ice-age, when they were cut by torrents of glacial meltwater. Newtondale was formed by overflowing meltwater from a lake or glacier in Esk Dale. It was prevented from reaching the sea by a wall of ice, and instead broke through to the south, carving out Newtondale and dumping debris known as 'moraine'. Similarly, water trapped by ice created a lake at Hackness, which eventually overtopped and cascaded southwards, eroding Forge Valley into the Vale of Pickering. Today these valleys contain tiny streams which meander across the valley floors.

Fig.95 Glacial moraine, Newtondale

These meltwater channels have U-shaped profiles, with flat valley floors and steepening sides topped with vertical crags. They are different from the V-shaped valleys (known locally as griffs) such as the Levisham Beck Valley and other tributaries of Newtondale. These have very narrow valley bottoms and steeply-sloping sides, and were created through erosion by streams.

Fig.96 Wooded V-shaped valley of the Levisham Beck

The Hole of Horcum, which forms a large bowl at the head of Levisham Beck valley, has very different origins. It is one of the most spectacular features in the National Park – a huge natural amphitheatre 400 feet deep and more than half a mile across. According to legend, it was created when the giant Wade picked up a handful of dirt to throw at his wife. In reality, it was created by a process called spring-sapping, whereby water welling up from the hillside gradually undermines the limestone slopes above, eating the away the rocks grain by grain. Over thousands of years, a once narrow valley has widened and deepened into an enormous bowl – and the process still continues today.

Fig.97 The Hole of Horcum, from viewpoint on A169

Woodland has thrived on the steep valley sides which are too steep to plough. Newtondale, Levisham Beck Valley, and Forge Valley all contain extensive areas of Ancient Woodland. This rich habitat contains a diversity of tree species and ground flora, which support many species of insects, birds and animals. Forge Valley is a Site of Special Scientific Interest and National Nature Reserve. Newtondale also contains large areas of Plantations on Ancient Woodland Sites (including conifer plantations), which have potential to be restored to native woodland. In addition there are riparian trees and vegetation along watercourses, wet woodland, hedgerows, and patches of scrub.

Fig.98 Ancient Woodland at Forge Valley

Newtondale is designated SSSI for its geological interest, and its succession of habitats between the upper and lower valleys. Their survival is due to traditional land management, and the valley's inaccessibility. Habitats here include wet woodland, fen, valley mire, wet hay meadow, herb-rich neutral grassland, grazed marsh and moorland edge. Poor drainage at the head of Newtondale has enabled peaty fen habitat to form on the valley floor. Fen Bog is a Special Area of Conservation and Local Nature Reserve managed by the Yorkshire Wildlife Trust. It is a nationally-important example of an oligotrophic (nutrient poor) valley mire.

Fig.99 Fen Bog, upper Newtondale

Designation	Sites
SAC	Fen Bog
SSSI	Newtondale; Hole of Horcum; Raincliffe and Force Valley Wood
NNR	Forge Valley
LNR	Fen Bog (Yorkshire Wildlife Trust)

Key designated nature conservation sites

Cultural landscape features

Land use within the valleys primarily comprises woodland with occasional valley-bottom fields, divided by hedgerows.

Buildings are limited to a handful of isolated farms, and buildings associated with the North Yorkshire Moors Railway. These have a very distinctive character, and include Levisham Station, with its station house, waiting room and signal box. The partially-ruined Church of St Mary is located in the Levisham Beck Valley, isolated from the village of Levisham which is located on high land above the valley.

Lanes cross Newtondale and the Levisham Beck Valley, but these valleys are otherwise inaccessible except by track, footpath or steam railway. A minor road and footpaths run through Forge Valley. Forge Valley is named after the iron forges which existed

here in the 14th Century, fuelled by charcoal made in the woods.

Fig.100 Levisham station on the North Yorkshire Moors Railway

Designation	Sites
Scheduled Monuments	Horcum Dyke (prehistoric earthwork); Part of Levisham Moor prehistoric and medieval remains; barrows in Levisham Wood
Conservation Areas	West and East Ayton (small part)
Listed Buildings	Occasional farms; Levisham Church; Levisham Station House

Key designated heritage conservation sites

Perceptual qualities and views

One of the most striking qualities of this LCT is its lack of modern buildings or structures. This, combined with the visual isolation created by the landform gives it a strong sense of timelessness and detachment from the modern world. The sense of 'going back in time' is enhanced by the presence of the steam railway in Newtondale, and is presumably one of the reasons that the valley is in demand as a film location.

The scale of the landform, particularly the Hole of Horcum, is very impressive, and creates a sense of awe at the power of ice and water.

Combinations of streams, woodlands, and the striking backdrops of the valley sides make pleasing compositions and have a picturesque quality. They are seen as a sequence in views from the train along Newtondale. The mosaic of landcover (including woodland, fields, open land, scrub, rocky outcrops, fen and moorland) creates a variety of colours and textures which change throughout the year. The deciduous woodlands are particularly spectacular in autumn.

In Newtondale, the sense of place is enhanced by sounds and smells of steam trains. The lack of settlements and main roads creates an exceptionally strong sense of tranquillity, and the dense woodland helps to mask the sounds of traffic using minor roads. The LCT has very dark night skies with no sources of light pollution, and is within the Dark Skies Core Area or buffer zone. Many of the wooded parts of the LCT are identified as remote due to their landcover, and the northern part of Newtondale is also identified as remote under Policy ENV3.

Forge Valley, Levisham Beck, and Levisham station are accessible by road. Otherwise access is limited to paths and tracks, which adds to the sense of remoteness and detachment. However, these paths offer good connections with the nearby settlements of Pickering and West and East Ayton. The Tabular Hills Walk crosses Newtondale and runs through the Hole of Horcum, enabling users to experience this extraordinary landform.

Within the valleys, landform frames views along the valleys. The steep sides create visual enclosure, effectively cutting off views out of the valleys.

There are some elevated views into the LCT, notably the viewpoint on the A169 overlooking the Hole of Horcum, and Skelton Tower on Levisham Moor overlooking Newtondale.

Ecosystem Services provided by the Glacial Channels LCT

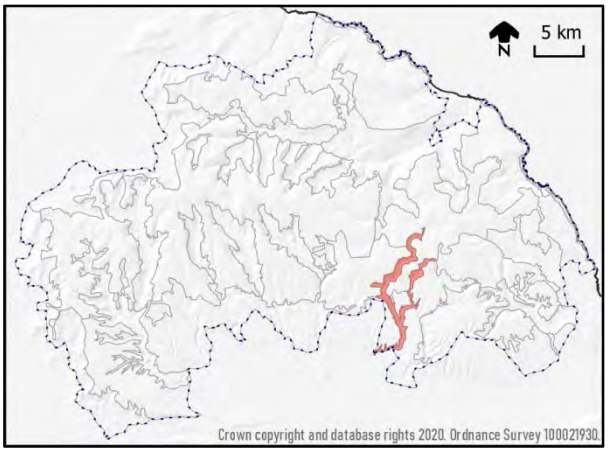
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	The landforms are excellent examples of unusual geomorphological processes and provide geodiversity and education and research opportunities. The North Yorkshire Moors Railway provides historic and cultural interest, and a very strong sense of place. It is popular with tourists, and also as a film set. It enables people to experience the landscape and a sense of history. Tracks and paths throughout the LCT provide opportunities for quiet recreation and exercise, promoting health and wellbeing and allowing people to appreciate tranquillity and dark skies. Routes include direct footpath connections with Pickering and East Ayton.	There are further opportunities to design and promote walks within the LCT, particularly car-free routes from local towns and villages.
Provisioning Services	Trees provide timber, wood fibre and biomass. Patches of farmland provide food and fibre (wool). Springs and streams provide fresh water.	There are opportunities to manage plantations to increase their biodiversity and enhance their fit into the landscape, including restoration of Ancient Woodland.
Regulating Services	Trees and peat store carbon (mitigating climate change) and trees improve air quality by absorbing pollutants. Tree roots and peats absorb rainwater and slow water flow, helping to regulate downstream flooding. Plants provide habitats for pollinating insects.	Future management of woodland and plantations can enhance biodiversity and contribute to Natural Flood Management. Felling practices should minimise runoff of water and soils. Promote habitats for pollinating insects.
Supporting Services	Trees and peat soils contribute to soil formation, and photosynthesis by plants supports life through the production of oxygen. Evapotranspiration from leaves is an essential part of the water cycle. The LCT provides habitats and habitat links for a range of species, particularly along river valleys.	Seek opportunities to expand and link habitats, including through natural colonisation of trees where appropriate.

Landscape Character Area Descriptions

There are two distinctive Landscape Character Areas (LCAs) within the Glacial Channels LCT. These are described on the following pages.

Landscape Character Area 6a: Newtondale and Hole of Horcum

Fig.101 The Newtondale Valley from the road to Levisham Station



Map showing the location of LCA 6a within the National Park

This LCA is located in the south of the National Park, to the north-east of Pickering. It comprises two valleys which join south of Levisham.

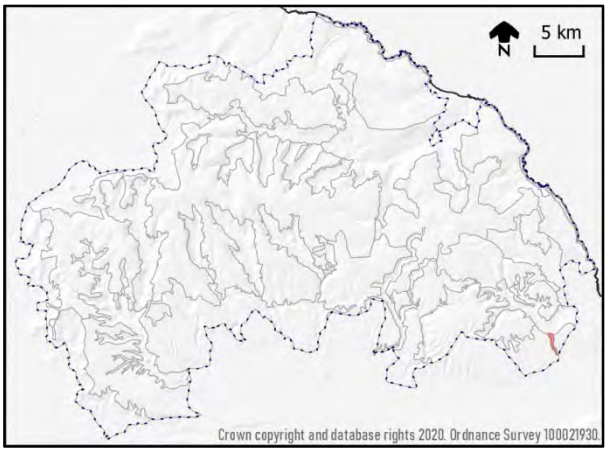
The western valley is Newtondale, one of the best examples of a glacial meltwater channel in the country, and contains a rich diversity of habitats. It is also the setting for one of the country's best known steam railways. The trains, stations and trackside features, as well as the sounds and smells of the steam trains, add to the character of the Dale. At its lower end the valley is lined by woodlands (including Ancient Woodlands and Plantations on Ancient Woodland Sites) and small fields including damp hay meadows, with a winding tree-lined stream running alongside the railway track on the valley floor. The central section of the valley is dominated by 20th Century plantation on the western side, including Douglas fir and Norway and Sitka spruce. There are also patches of broadleaved woodland, herb-rich grassland and scrub, and areas of felled plantation. The northern part of the valley has fewer trees and is dominated by grassland, bracken and scrub vegetation. It has more of a moorland feel, with crags lining the upper valley sides, lumpy glacial moraine landforms, and the distinctive vegetation of Fen Bog on the broad valley floor.

The eastern valley is the Levisham Beck Valley, which has several smaller tributary valleys. These steep V-shaped valleys are known as griffs, and are lined with extensive areas of deciduous woodland, much of it ancient. Near the top of the Levisham Beck Valley is the dramatic Hole of Horcum – a huge and impressive bowl-shaped landform caused by springs dissolving the limestone rock and eroding it backwards. The villages of Levisham and Lockton sit above the Levisham Beck valley on either side of it. The road between the villages crosses the valley in a series of hair-pin bends. At the base of the valley is a former mill, and the ruins of Levisham church.

Its popularity with tourists visiting the North Yorkshire Moors Railway, and its frequent use as a film set, means that Newtondale is one of the most recognised areas of the National Park, despite its lack of roads or settlements.

Landscape Character Area 6b: Forge Valley

Fig.102 Forge valley, seen from Mowthorpe to the north



Map showing the location of LCA 6b within the National Park

Forge Valley is the smallest of all the LCAs, and is located in the south-east of the National Park, north of East Ayton. It comprises the deep tree-lined valley of the River Derwent between the broad valley containing Mowthorpe, and East Ayton village.

The gorge was created in glacial times by water cascading out of Lake Hackness, as ice and rock blocked its natural route to the sea. The power of the water eroded a deep, steep sided gorge which formed a route to Lake Pickering. Today it is a big valley containing a small river and a series of petrifying tufa springs.

Ancient Woodland thought to be at least 6000 years old covers the valley sides, and is one of the best examples of mixed deciduous woodland in north-east England. Tree species and ground flora reflect the different underlying geological and soil conditions. Alder and willow trees dominate on the valley bottom, with ash and wych elm on the middle slopes, and oak, rowan and holly nearest the top of the valley. Ground flora is also very varied, and the woodland and river are home to many different birds, fish, insects and mammals (including otters). Forge Valley is a National Nature Reserve. A boardwalk enables easy access along the valley floor, and there are other footpaths through the woodland on the valley sides. Small patches of calcareous grassland occur on limestone outcrops, and there are cliffs and small quarries hidden in the valley-side woodland.

The steepness of the valley sides, and the density of tree cover, mean that there are few views out. Although a road runs through the valley, the trees form natural noise masking and block views of traffic, so the sense of tranquillity is still present, particularly away from the road. There are no settlements within the LCA, although East Ayton village adjoins its southern boundary.

Forces for Change acting on Glacial Channels LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Introduction of modern structures	New structures, including buildings and telecommunications masts, would introduce modern elements into the landscape. This would impact on its strongly historic character and sense of place. The impacts would be exacerbated at night if structures were lit.	All
Tree disease and invasive species	Species such as Rhododendron can outcompete native ground flora species and prevent new trees from becoming established. Ash dieback is already present in the National Park, and will spread in coming years. The loss of ash trees will have both visual and ecological impacts. Other tree diseases and invasive species also pose a threat to woodland and river ecosystems.	All
Biodiversity loss	The 20th Century saw extensive planting of Plantations on Ancient Woodland Sites within this LCT, and a decline in the traditional management (such as coppicing) of surviving Ancient Woodlands. This resulted in the loss of some Ancient Woodland, and also changes to ground flora in some remaining woodlands. In some areas, bracken is becoming established on valley sides, which can result in a decline in biodiversity as it smothers other plants. Today work is underway to restore woodland habitats and increase biodiversity (see 'changing forest management practices' below). Newtondale is home to several niche habitats such as wet hay meadow, neutral grassland and grazed marshes which have survived here because of the continuation of traditional management. Historically these types of habitats would have been much more common across the National Park.	All
Changing forest management practices	20th Century forestry practice saw planting of non-native conifer plantations in sensitive locations such as Newtondale. A positive change is the move towards restoration of semi-natural habitats (including Ancient Woodland) which were previously planted with non-native trees; the promotion of increased biodiversity in forested areas, and a greater degree of consideration of the visual impacts of plantations in the landscape.	All
Additional tree cover	Within this LCT there are opportunities for reversion of Plantations on Ancient Woodland Sites to native woodland, and also for increasing tree cover through planting and natural recolonisation. When thinking of increasing tree cover, it is important to consider any potential impacts on sensitive habitats within this LCT which could potentially be damaged by tree growth. These include fen, flushes, damp hay meadow and flower-rich grassland. All provide niche habitats for plants, insects and birds and this biodiversity could be lost if trees become established here. Any new woodland within this LCT should sit sympathetically in the landscape.	6a
Loss of tranquillity and	The southern ends of both LCAs are adjacent to settlements and therefore experience greater disturbance to tranquillity and loss of	

dark skies	dark skies. There are also some impacts from the A169 above the Hole of Horcum. However, the northern parts of the LCAs are more tranquil and experience darker skies. Loss of these would have a significant impact because the levels are currently very high, particularly in Newtondale which has no through roads and very few buildings.	
Management of visitor facilities	A lack of management is evident in some parts of Forge Valley, with closed parking area, poorly-maintained interpretation, and viewpoint obscured by vegetation.	All
Changes in adjacent LCTs	The character of the Glacial Channels LCT is potentially affected by changes in adjacent LCTs which would affect views and ecology, including LCT 1 Moorland, LCT 3 Forest, LCT 5 Limestone Hills, and LCT 7 Limestone Dales.	
Climate change	Increased temperatures, higher concentrations of nitrogen and longer growing seasons may enable more vigorous tree growth, potentially impacting on the balance of trees currently growing in Ancient Woodland. Other climate-related factors, such as new pests and diseases, stress from drought, and damage from more intense storms, will also impact on Ancient Woodland and other trees. Increased intensity of storms will lead to an increased flood risk. Steep valleys have fast run-off times, increasing the risk of downstream flooding.	All

Landscape Guidelines for the Glacial Channels LCT

Protect

- Protect the strong historic character and lack of modern buildings and structures.
- Protect open skylines on valley sides.
- Protect dark night skies.
- Protect the sense of tranquillity, enclosure, and detachment from the outside world.

Manage

- Manage conifer plantations, seeking to restore native woodland on former Ancient Woodland Sites, and create a more naturalistic feel within the landscape, including through natural regeneration where appropriate.
- Encourage active management of broadleaved woodlands where it will provide clear landscape and biodiversity benefits alongside production of wood products, where appropriate. Create a range of woodland habitats, including glades and woodland edges, to maximise biodiversity.
- Actively remove non-native invasive species where necessary.
- Manage other semi-natural habitats such as herb-rich grasslands and peat fen in accordance with SSSI Management Plans. Seek opportunities to expand and further connect habitats.
- Consider opportunities for dynamic boundaries between farmland, trees, scrub and moorland where this LCT adjoins other LCTs.
- Manage visitor facilities, and keep viewpoints clear of vegetation.

- Seek to manage Scheduled Monuments and other significant heritage sites sensitively and wherever possible in an integrated way with wider farming, landscape and conservation interests.

Plan

- Consider allowing tree planting and natural colonisation of scrub and trees on valley sides (particularly in areas where bracken is spreading). However great care must be taken that existing habitats important for biodiversity are not lost through scrub or tree growth. Before commencing any tree planting or allowing natural colonisation, professional advice should be sought to ensure that there will be no negative effects on the historic environment, ecology or access.
- There should be a presumption against development (including new communications masts) within this LCT. Proposed developments or changes associated with existing buildings (for example isolated farms) should be evaluated on a case-by-case basis.
- Avoid siting telecommunications masts where they would overlook this LCT or be visible from it.
- Seek opportunities to undertake both LiDAR and walkover surveys of woodland to identify currently unknown archaeological features such as woodbanks, charcoal platforms, etc.
- Work collaboratively with other relevant organisation such as the North Yorkshire Moors Railway and Forest England to agree a shared vision to protect and enhance Newtondale's landscape, biodiversity and heritage.

LCT 7: Limestone Dales Landscape Character Type

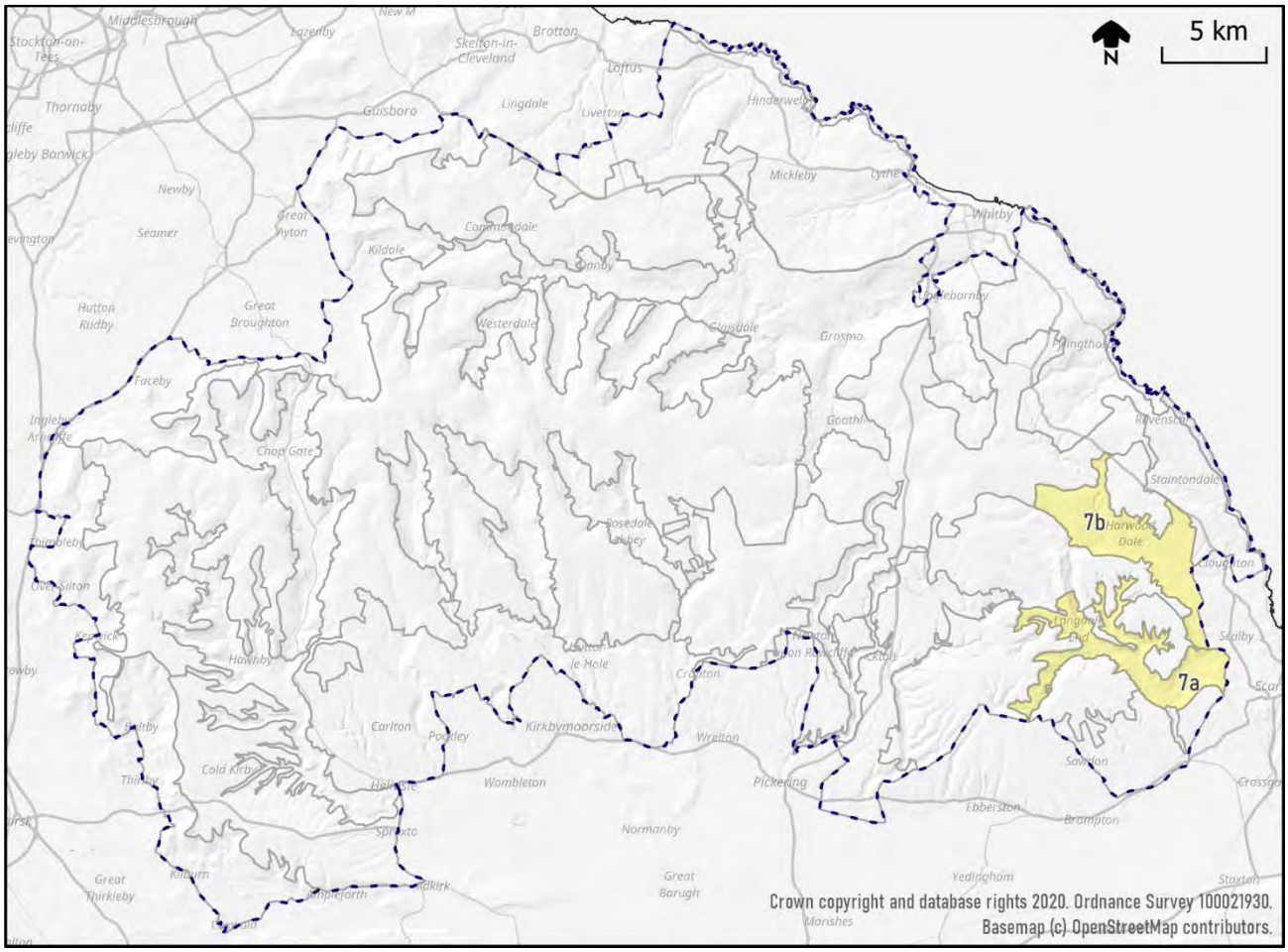
Fig.103 A typical scene within the Limestone Dales Landscape Character Type at Broxa Lane, Derwent Valley

Location, Context and Setting

This Landscape Character Type (LCT) is located in the south-east corner of the North York Moors National Park, and comprises the dales cut through the Corallian Limestone. It contains the small villages of Hackness and Harwood Dale, as well as smaller hamlets and farms. It is surrounded by, and strongly influenced by Forest (LCT 3). It also borders LCA 5a (Eastern Limestone Hills) and LCA 6b (Forge Valley) in the south. In the north of the LCT there is a gradual transition with LCA 1d (Eastern Moors) and LCA 4b (Whitby-Cloughton Coastal Hinterland). To the east, around Burnistone, Scalby and Newby, it also borders land outside the National Park, which contributes to its approach and setting.

Summary Description

This is a peaceful, pastoral landscape of deep branching valleys below farmed and forested uplands. The surrounding forests contribute to its enclosed character, and the Corallian Escarpment, marking the northern edge of the limestone, is a prominent skyline feature. Farms and hamlets nestle in valley bottoms and sheltered folds in the landform. The estate village of Hackness is a particularly distinctive settlement, with high stone walls lining the street, and a large estate church. Ribbons of deciduous woodland cover the steepest valley sides, creating lush tunnels of vegetation over roads and paths. The northern part of the LCT is less topographically distinct, and merges more gradually with the adjacent Moorland and Coastal Hinterland LCTs.



Location map for Limestone Dales Landscape Character Type (LCT)
7a = Hackness; 7b = Harwood Dale

Key Characteristics

- Southern part of LCT dominated by Corallian limestone geology; deltaic sandstones become more dominant towards the north.
- Topography comprises broad U-shaped dales, with steep branching side valleys. The distinctive Corallian limestone escarpment is a feature on the skyline.
- Many springs, streams and flushes, feeding into the River Derwent. Occasional ponds and pools. River Derwent has a meandering course which contrasts with the artificial Sea Cut.
- Land use is predominantly improved pasture; patches of arable, woodland and rough grassland.
- Semi-natural habitats include woodland, streams, hedgerows, verges and rough grassland.
- Trees found in bands of deciduous woodland on steep valley sides, riparian trees, hedgerows, hedgerow trees and copses.
- Field pattern variable. Fields generally more regular and larger on higher land and wide valley floors. Boundaries of hedges, fences and dry stone walls (walls more common on higher land).
- Settlement pattern of isolated farms and dispersed hamlets, constructed of local stone. Estate character around Hackness Hall.
- Network of winding minor lanes and paths.
- Strong influences from surrounding forests. Woodland and landform create sense of enclosure, especially in the south. Long views over Dales from ridges above.
- Very quiet and peaceful, with sense of tranquillity and exceptionally dark night skies.

Natural landscape features

The dales have been eroded through the Corallian limestone to reveal the underlying deltaic sandstone. The limestone is therefore only visible at the tops of the valley sides, where it forms prominent north-facing slopes – including the Corallian escarpment – which create distinctive skyline features.

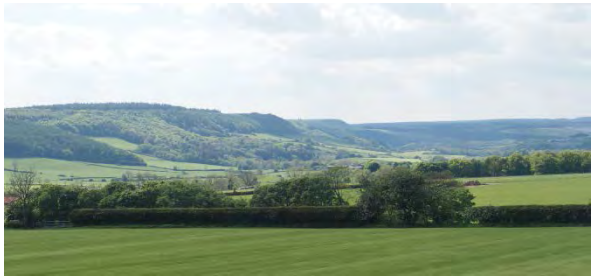


Fig.104 Steep valley-side landforms where water has eroded through the limestone (visible on the upper valley sides) to the sandstone below.

The influence of limestone geology is most apparent in the south of the LCT. In the north, close to the transition with the Moorland and Coastal Hinterland LCTs, sandstone becomes more dominant.

One of the most striking topographical features of the LCT is the dendritic pattern of narrow, branching river valleys, which is particularly clear in the south. These form tributaries of the larger valleys, which are broad and U-shaped with steep, wooded, upper sides.

In glacial times, the Hackness area was a lake, blocked from reaching the sea by an ice dam at its eastern end. The lake eventually overtopped at its lowest point and the overflowing meltwater scoured out Forge Valley, finding a route south to the Vale of Pickering. The site of the former lake remained marshy and poorly-drained, so in the early 19th Century the 'Sea Cut' was created to re-connect the River Derwent to the sea at Scalby. The Sea Cut runs fairly straight between embankments; very different to the meandering courses of the natural watercourses. The artificial nature of this watercourse means that it is both a natural and cultural landscape feature.

Deciduous woodland, including some ancient woodland, is a feature of the valley sides, where it occupies the steepest land, and also some valley floors. Extensive swathes of ancient woodland have been replanted. Raincliffe Wood is contiguous with Forge Valley Woods and together they form one of the largest native woodlands in Yorkshire. Part of Raincliffe Wood is within Forge Valley Woods National Nature Reserve.

Mature trees - including some veteran trees - in parkland, hedges, fields, and alongside roads add to the wooded character of the landscape. Other semi-natural habitats include streams, riparian habitats, hedgerows, verges, meadows and old quarries. Parts of Raincliffe Wood, and Cockrah Wood, Scar Wood and Hackness Rock Pit are designated SSSI.

Fig.105 Stream (the Lownorth Beck) and Ancient Woodland SSSI at Scar Woods.

Designation	Sites
SSSI	Raincliffe Wood; Cockrah Wood; Scar Wood; Hackness Rock Pit
NNR	Part of Forge Valley Woods

Key designated nature conservation sites

Cultural landscape features

Land use within the Limestone Dales LCT is mostly improved pasture, but there are also pockets of rough pasture and arable fields. Fields are divided by combinations of walls, hedges and fences. Walls and gorse hedgerows are more common in the northern part of the LCT, where land rises towards the adjacent moorland and coastal hinterland.

The small, dispersed villages of Hackness and Harwood Dale are the largest settlements. Other settlement in the LCT comprises isolated hamlets and farms. They are mostly constructed in stone with pantile or slate roofs and connected by an ancient network of steep and winding lanes. Hackness is an estate village containing several Listed Buildings and structures. It is notable for the high walls which line the village street, and for its spire-capped church of golden stone. Hackness Hall is a Grade 1 Listed Building, surrounded by parkland and a lake. A small part of Scalby Conservation Area is within this LCT, including Low Hall (now miners' Convalescent and holiday home) which is a building of townscape merit.

Fig.106 Hackness Church

Other Listed Buildings in the LCT include houses, farms, bridges and inns. The ruined church of St Margaret, north-west of Harwood Dale, is a Listed Building and Scheduled Monument.

Fig.107 St Margaret's Church, Harwood Dale. Photo credit – English Heritage

Many of the cultural features within the landscape, such as farms, lanes, churches and bridges, are likely to originate in the medieval period. There are also some older features including isolated round barrows.

Fig.108 Traditional farmhouse at Mowthorpe Bridge

Designation	Sites
Scheduled Monuments	Occasional isolated barrows; St Margaret's Church
Listed Buildings	Numerous, including houses, farms, churches, bridges, inns.
Conservation Area	Scalby (part)

Key designated heritage conservation sites

Perceptual qualities and views

Within the LCT there is a gradual transition from the enclosed, small-scale landscapes in the south to a broader, more open and larger scale feel in the north. The south has a closer visual and topographical relationship to the Limestone Hills LCT, whereas in the north there is a stronger influence from the adjacent Moorland and Coastal Hinterland.

Fig.109 The northern part of the LCT has a more open character and a gradual transition to the adjacent elevated moorland

The LCT does not contain main roads or through routes, and consequently feels very quiet and isolated. There is little modern development and much of the LCT has a 'changeless' character. This can be appreciated from the network of lanes and Public Rights of Way. The Tabular Hills Walk follows the southern part of the Derwent Valley and the Sea Cut. The sense of tranquillity is enhanced by the dark night skies; much of the LCT is within the Dark Skies Core Area, and most of the remainder is within the Buffer Zone.

Trees and woodland make an important contribution to perceptual qualities and views of the LCT. The surrounding forests are a constant presence, and the deciduous woodland which lines many of the valley sides adds to the sense of enclosure, as well as the seasonal variety of colours and textures. The woodlands on the valley sides contrast with the more open farmland of the valley floors and the plateau above. Entering woodland whilst on a steep lane can feel like plunging into darkness, especially where the trees form a 'tunnel' across the road.

Woodland within the LCT is identified by the National Park Authority as remote land, and a small area in the north of the LCT is a Remote Area under planning policy ENV3.

The Corallian escarpment, marking the northern edge of the limestone, is a distinctive feature overlooking the dales.

Fig.110 The Corallian escarpment is a skyline feature in many views from within the dales.

There are panoramic views into and across the dales from gaps in the trees along the escarpment. These include several viewpoints identified on the OS map. The Limestone Dales LCT is intervisible with land outside the National Park boundary around Burnistone, Scalby and Newby.

Fig.111 Elevated view from Swang Road across the LCT, with Scarborough visible in the distance.

Ecosystem Services provided by the Limestone Dales LCT

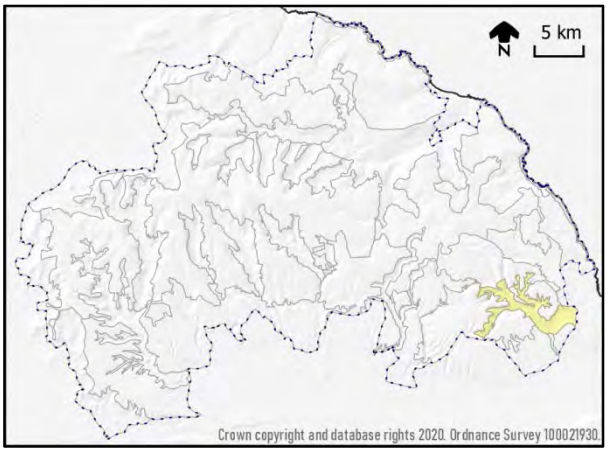
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	The network of lanes and Public Rights of Way provide opportunities for quiet recreation and exercise in attractive scenery in a relatively quiet corner of the National Park, with high levels of tranquillity and dark night skies. There is easy access from the adjacent settlements of Scalby and Newby. The historic buildings contribute to the LCT's sense of history, which is particularly strong around the estate village of Hackness.	There may be further opportunities to develop walking / cycling routes from local centres which could be used by local people and visitors. There may also be opportunities to increase the number of historic buildings and sites open to the public.
Provisioning Services	Farmland supports pastoral and some arable agriculture, providing food, and fibre in the form of wool. Woodland and trees provide timber, wood fibre and biomass. Springs and streams provide fresh water.	Woodland management creates opportunities for production of wood products and enhancement of biodiversity. There may be opportunities to improve the biodiversity of farmland, and to reduce runoff and pollution.
Regulating Services	Woodland helps with carbon sequestration and improves air quality by absorbing pollutants. Soils and valley-side vegetation absorb rainwater and slow water flow, helping to regulate downstream flooding. Trees and flowers provide habitats for pollinating insects.	Tree planting/colonisation schemes have potential to increase carbon storage and reduce pollution. Trees and hedgerows can also contribute to Natural Flood Management (NFM) schemes.
Supporting Services	The LCT provides habitats and habitat links for a range of species, particularly along river valleys, along valley side woodlands, and through hedgerow networks. It also contributes to soil formation, photosynthesis and the water cycle.	Carefully-designed tree and hedgerow planting, increased woodland cover, and good management of field edges, can enhance habitat links.

Landscape Character Area Descriptions

There are three distinctive Landscape Character Areas (LCAs) within the Limestone Dales LCT. These are described on the following pages.

Landscape Character Area 7a: Hackness

Fig.112 A typical scene in LCA 7a, near Mowthorpe Bridge, showing the Sea Cut on the right, and the wooded Corallian escarpment forming the horizon.



Map showing the location of LCA 7a within the National Park

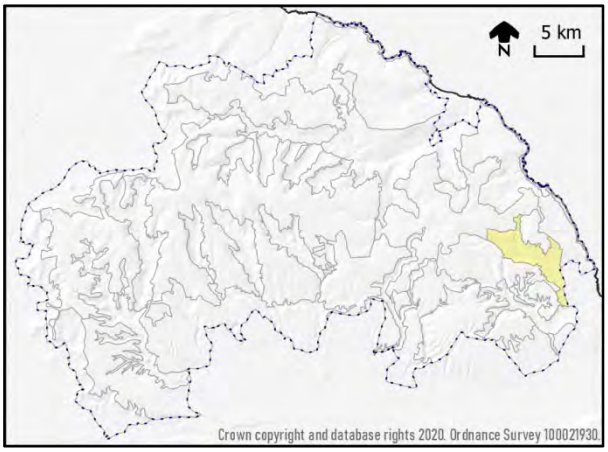
This LCA forms the southern part of the LCT, and comprises the steep-sided, relatively broad U-shaped valley of the River Derwent, as well as its 3 major tributary valleys which are steep and branching. The valley is at its broadest in the south around Mowthorpe Bridge, as this was a lake in glacial times, dammed by ice and rock. Drainage directly to the sea was re-established in the early 19th Century by construction of the Sea Cut. Its bunds form an engineered feature in the landscape. The former lake bed supports arable crops, whereas improved pasture is the dominant land use over much of the LCA.

Hackness is the estate village of Hackness Hall. It contains estate cottages (with elaborate barge boards), church, village hall and a school. Behind a sandstone wall which runs along the road is a walled garden with an orangery. In the bottom of the valley is a lake surrounded by parkland and woodland. The village's setting is dominated by steep woodland which has a ground flora of wild garlic in spring. The LCA is generally well-treed, with valley-side woodlands, riparian trees, hedgerow trees and small copses.

The LCA is relatively well enclosed by the surrounding landform and vegetation (including Dalby and Wykeham Forests, and Raincliffe Wood). There are views in to the LCA from surrounding high land, and from the edges of Scalby and Newby.

Landscape Character Area 7b: Harwood Dale

Fig.113 A typical scene in LCA 7b, south of Harwood Dale, looking up the valley of the Lownorth Beck towards Langdale Forest and Fylingdales Moor.



Map showing the location of LCA 7b within the National Park

This LCA forms the northern part of the LCT, and comprises the upper reaches of the River Derwent (also known by local names of Harwood Dale, Lownorth Beck and Jugger Howe Beck) and its tributaries.

The Harwood Dale LCA is more influenced by sandstone geology, although the Corallian limestone escarpment is still visible on the southern skyline. Its elevation, and smoother topography, means that this LCA has a more open feel. There are long views along the Dales, and also across to the adjacent forests and moorland. Fields are generally medium to large in size, and regular in shape. The varied field boundaries, comprising hedges (including some gorse hedges), dry stone walls and fences also give it a slightly more upland character. Harwood Dale does not have the estate influences of Hackness, with almost all settlement comprising large isolated farms. A group of farms form the dispersed hamlet of Harwood Dale. Much of the land is improved pasture, but there are some arable fields, and also some rough pasture (the latter is close to the edges of forest and moorland and enhances the upland feel in these places).

Scar Wood is an SSSI and comprises ancient coppice woodland on either side of the Lownorth Beck. The ground flora is diverse, including carpets of bluebells in spring. Open flushes on the western side of the stream support a range of plant species including orchids.

St Margaret's Church was built in 1634, at a time of rapid change within the Church of England. This is a relatively rare example of a rural Anglican parish church from this time. It was built by Sir Posthumus Hoby in memory of his wife Margaret, who had died the previous year. It was located close to Dale Hall (the site now occupied by Chapel Farm). St Margaret's Church was abandoned in 1862 when a new church was constructed nearby, and the building is now a ruin. It is set with a churchyard (also part of the Scheduled Monument designation).

Forces for Change acting on the Limestone Dales LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Abandonment of traditional agricultural buildings, and demand for new buildings	Changing farming practices require larger and more modern farm buildings. Old buildings no longer serving their original purpose may become derelict unless an alternative use can be found (e.g. conversion to holiday accommodation). This may lead to a loss of their historical integrity, or to the features and fittings associated with their original use. New larger agricultural buildings are likely to be much more prominent in the landscape and may also contribute to light pollution unless carefully designed. Stone walls may fall into disrepair and hedgerows become gappy if they are no longer required to be stockproof. They may be replaced with post-and-wire fencing. There has been some localised field boundary loss within the LCT.	All
Tree disease and invasive species	Ash Dieback is apparent within this LCT, and is likely to increase in the coming years, although some ash trees remain unaffected. It is likely to affect ash trees in woods, and roadside and hedgerow ash trees. Other tree diseases and invasive species are also threats to both the appearance of the landscape and the functioning of ecosystems.	All
Biodiversity loss	20th Century intensification of farming has resulted in biodiversity loss, particularly through the loss of flower-rich grassland due to switching from hay to silage, or to arable crops. This has led to a reduction in the variety and quantity of herbs and grasses, leading to declining numbers of insects, birds and other wildlife. In addition, swathes of valley-side ancient woodland in the LCT were replanted as plantation. This has led to a loss of ground flora and woodland habitats, and the species which they support.	All
Climate change	Increased temperatures and prolonged dry spells will affect the tree species which can survive, affecting woodland composition. Trees are also potentially vulnerable to increased intensity and frequency of storms, and increased rainfall risks damage to vegetation and increased flood risk to buildings. A longer growing season, and changing environmental conditions, may affect farming practices and choice of crops. Longer periods of lower rainfall will affect water levels in rivers and make farmland soils more prone to drought.	All
Additional tree cover	There are many opportunities to increase tree cover within this LCT. This could include extending and linking existing woodlands, new woodland planting, woodpasture, hedgerow trees, riparian trees, roadside trees, infield trees and parkland trees. There may also be opportunities for allowing natural colonisation (particularly on the moorland fringes found in higher parts of LCA 7b). When thinking about increasing tree cover, it is important to consider any potential impacts on existing habitats, such as flower-rich grassland. Such sites may not be designated or recorded. It could also impact on buried archaeology, or on the settings of Listed Buildings or Scheduled Monuments. In the narrower dales, large-scale tree planting on the valley floor could also affect the current visual	All

	composition of the landscape, where valley floors tend to be more open, and valley sides more wooded.	
Loss of rural character	Lanes currently have a strongly rural character with few urbanising influences. Additional signage and other 'clutter' risks eroding this rural character. Suburban style property boundaries, such as tarmac driveways, concrete kerbs, ornamental planting and close-boarded fences also dilute the rural character, particularly in the vicinity of settlements on the south east periphery.	7a
Farming and land management	The consequences of past changes in farming practices are described in 'biodiversity loss' above. In addition the artificial fertilisation of fields, and the farming of livestock, may result in nitrate enrichment and the pollution of water supplies unless carefully managed. Forthcoming changes to agricultural grant schemes are likely to result in changes to how land is managed, with payments for 'public goods' such as climate change mitigation measures and supporting nature recovery. This is a change in emphasis to the subsidy system which will hopefully be a positive force for change in the landscape.	All
Loss of tranquillity and dark skies	Dark skies are threatened by light pollution from traffic, lightspill from agricultural buildings, and street lighting. The street-lit areas are on the National Park boundary, and outside the Dark Skies Buffer Area. Tranquillity is currently very high within the LCT, but would be affected by increases in traffic, noise, people and development.	All
Infrastructure and communications	There are currently few intrusive built features in this LCT, so the introduction of features such as mobile phone masts would be particularly noticeable.	All
Changes outside the National Park and in adjacent LCTs	There is intervisibility with agricultural land along the eastern boundary of the National Park, as well as with the edges of the settlements of Scalby and Newby which are adjacent to the National Park Boundary. Therefore developments within these areas are likely to affect views from the National Park. The Limestone Hills LCT also has strong visual connections with the more elevated LCTs which surround it (LCT 1 – Moorland, LCT 3-Forest, LCT 4 – Coastal Hinterland, and LCT 5 – Limestone Hills). Changes in these LCTs, for example changes in land management or the introduction of built development, may therefore impact on the Limestone Dales LCT.	All

Landscape Guidelines for the Limestone Dales LCT

Protect

- Protect the distinctive skylines above the dales (these are often – but not always – in adjacent LCTs). Avoid siting vertical structures in prominent locations.
- Protect the quiet and undeveloped character of the LCT.
- Protect dark night skies, particularly in the Dark Sky Core and Buffer Areas.
- Protect the relationship between farms and the surrounding landscape. Where new buildings are required, maintain this relationship through careful siting, design and mitigation (see National Park Design Guide).

- Protect historic buildings, and the distinctive estate character around Hackness Hall. Ensure that conversion of redundant farm buildings is sensitive to their former use and location.
- Protect the setting of the National Park, particularly from highly intrusive or cumulative development.

Manage

- Encourage active management of broadleaved woodland where it will provide clear landscape and biodiversity benefits alongside production of wood products where appropriate. Seek opportunities to restore Plantations on Ancient Woodland Sites to native woodland.
- Manage field boundaries, maintaining their diversity – for example gorse hedges and stone walls in higher areas. Aim to replant hedgerows which have been lost or become gappy, and consider opportunities to combine this with Natural Flood Management.
- Seek opportunities to extend and link habitats (for example field margins, verges and hedgerows) and to reinstate flower-rich grasslands of different types.
- Manage roadside and hedgerow trees, allowing new trees to grow out as standards.
- Plant new parkland trees to become the mature parkland trees of the future.
- Manage SSSIs and Scheduled Monuments in accordance with Management Plans.
- Consider opportunities for dynamic boundaries between farmland, scrub and moorland where this LCT adjoins LCT 1 (Moorland).

Plan

- Consider opportunities for increasing tree cover, for example through new native woodland planting, particularly where it can extend or link existing woodland. This should follow the landform (e.g. parallel to slopes along valley sides) and avoid straight edges. There may be opportunities to create woodpasture, promote wet woodland on valley floors, and allow natural colonisation on moorland fringes. There will also be opportunities to plant new hedgerows and promote hedgerow and parkland trees. Before commencing any tree planting, professional advice should be sought to ensure that there will be no negative effects on the historic environment, ecology or access.
- Promote Natural Flood Management Schemes where appropriate.
- Ensure development proposals within the National Park's setting are appropriately assessed, and adequate mitigation is in place, particularly where there may be cumulative impacts.
- Where communications masts or other vertical features are unavoidable, site them close to existing trees or buildings, and consider non-standard designs to minimise visual impact.
- Retain the rural character of lanes, avoiding unnecessary signage and urbanising features such as concrete kerbs, tarmac pavements/ driveways and close-boarded fencing, particularly where the LCT abuts settlements close to or outside the National Park boundary.
- Seek opportunities to underground overhead wires and poles where possible.
- Ensure that change to heritage assets is informed by an understanding of their importance, and can retain and where possible enhance their significance. Provision should be made for management plans, and research into materials, where appropriate.

LCT 8: Central Valley Landscape Character Type

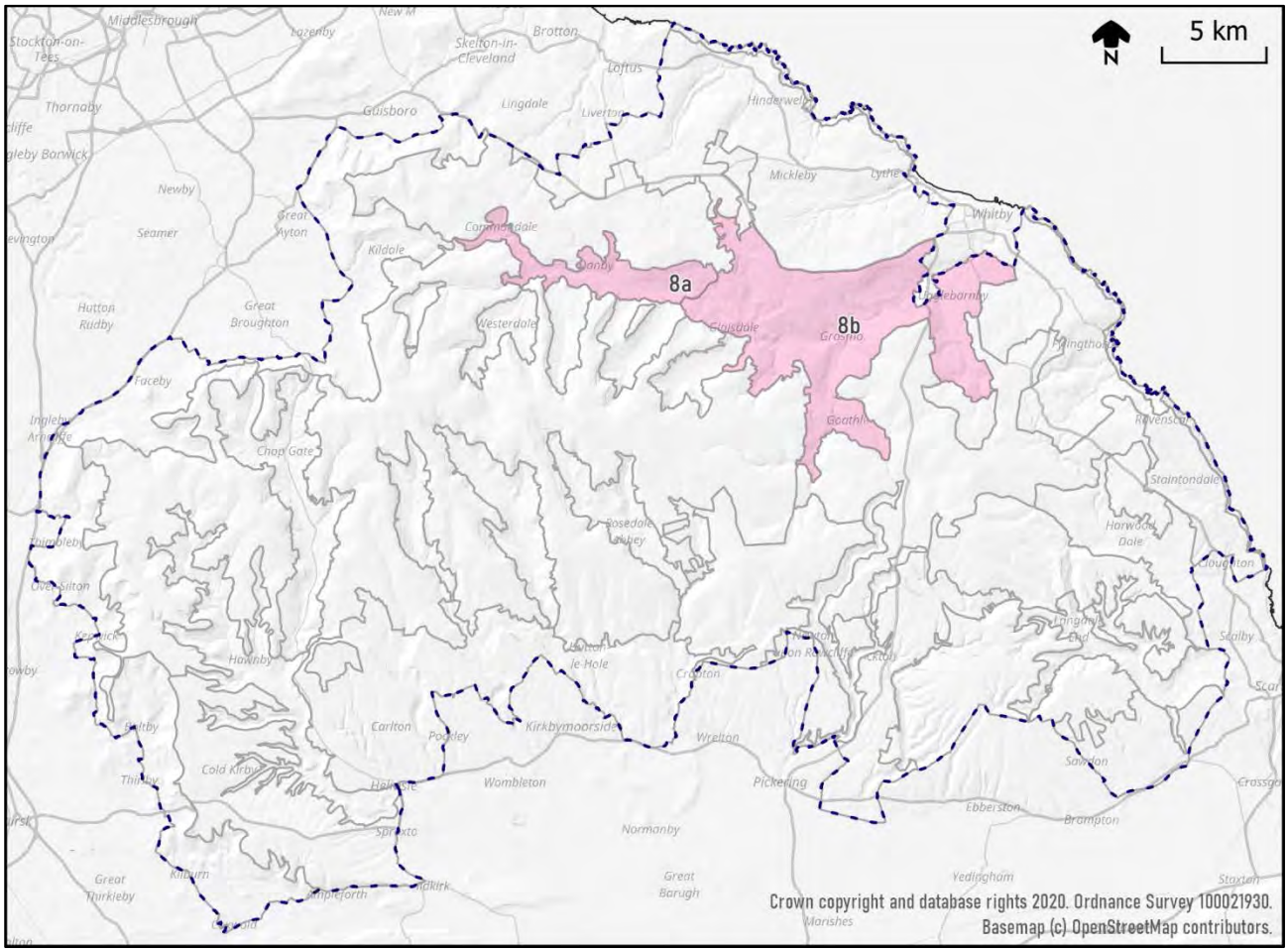
Fig.114 A typical scene within the Central Valley, looking north from Glaisdale village

Location, Context and Setting

This Landscape Character Type (LCT) is located towards the north of the North York Moors National Park, and runs between Commondale and the National Park boundary around Whitby and Sleights. It is relatively densely settled and includes several villages, including Castleton, Danby, Lealholm, Ainsthorpe, Glaisdale, Grosmont, Goathland, Aislaby and Egton, as well as numerous hamlets and many isolated farms. Its character is strongly influenced by the surrounding Moorland (LCT 1) and Moorland Dales (LCT 2) and to a lesser extent by the Coastal Hinterland (LCT 4) in the east. It is also influenced by (and visible from) land outside the National Park around Whitby and Sleights.

Summary Description

The Central Valley is a substantial valley running east-west, cut deep into the moorland which surrounds it and forms its horizons. It has many tributary valleys, and its unusual landforms are the result of glacial activity in the last Ice Age, some modified by later erosion by rivers which creates deep gorges. Streams rush along tributary valleys, bouncing over waterfalls and through woodland. Many historic villages, hamlets and farms sit within the landscape, mostly constructed of local stone with pantile or slate roofs. Some villages are popular with tourists and have a busy feel, but elsewhere there is a strong sense of peace and tranquillity. Trains (including the steam trains of the North Yorkshire Moors Railway) add dynamic features into the landscape and also provide opportunities to watch the ever-changing patterns of scenery. This is a well-treed and gentle farmed landscape which contrasts with and complements the surrounding open moorland. There are long views along and across the strongly rural landscape of the Central Valley.



Location map for Central Valley Landscape Character Type (LCT)
8a = Commondale – Upper Eskdake; 8b = Lower Esk Valley

Key Characteristics

- Underlying geology of deltaic sandstones, Lias mudstones and Cleveland ironstones, overlain by glacial and alluvial deposits.
- A deep valley with many tributaries, particularly on the south side. Hummocky topography in areas of glacial deposition, cut through by river gorges.
- Many springs and streams (sometimes with waterfalls) flowing into the meandering River Esk.
- Mainly agricultural land use (primarily improved pasture and arable), with extensive tree cover.
- Semi-natural habitats include extensive woodland, meadows, streams and riparian habitats, verges, and pockets of rough grass and moorland.
- Trees (mainly deciduous) in woodland in valley floors and sides, and in hedgerows.
- Complex and generally small-scale field pattern, often becoming larger and more regular on valley sides. Generally divided by hedgerows in valleys and walls higher on valley sides.
- Many historic villages (in variety of forms), hamlets and farms, constructed of local stone.
- A network of winding ancient lanes, with many fords and bridges.
- Railway lines and associated architecture (including steam railway) add to character.
- Many historic landscape features, including bridges, castles, churches and industrial remains.
- Very strong topographic, cultural and visual relationship with surrounding moorland and dales.
- Long views along and across valley with strong, smooth moorland horizons.
- Strong sense of tranquillity away from 'honeypot' villages and strongly rural feel.

Natural landscape features

The underlying geology is deltaic sandstone from the Jurassic period, overlaying softer Lias mudstones and Cleveland ironstones. These softer rocks have eroded when exposed at the surface to form a broader valley landform. The drift geology is also very important in this LCT, and comprises extensive glacial deposits which have led to a hummocky topography. Rivers flowing through the glacial deposits have created deep gorges. There are also bands of more recently-deposited river alluvium on the valley floor which form fertile soils.

Fig.115 Hummocky topography created by glacial deposits in the Central Valley, Egton Banks

The Central Valley is deep and winding, and carves through the surrounding moorland. It widens in the middle reaches where the underlying rock is more easily eroded. The valley is generally more open on the southern side, where it is joined by a number of moorland dales, and the tributary valleys of the Murk Esk and the Little Beck. The northern side of the valley is steeper, with fewer tributaries. The eastern end of the valley is more complex in form due to extensive glacial deposition of sand and gravels by ice and meltwater in the last Ice Age.

The River Esk follows a meandering course along the valley floor. It is often lined with trees, and occasionally runs through deep wooded gorges where it has eroded a route through glacial deposits. It is joined by tributaries along its length, some of which are substantial streams. Waterfalls occur where the tributary streams drop down the steep valley sides – Thomason Foss, Mallyan Spout and Falling Foss are notable examples.

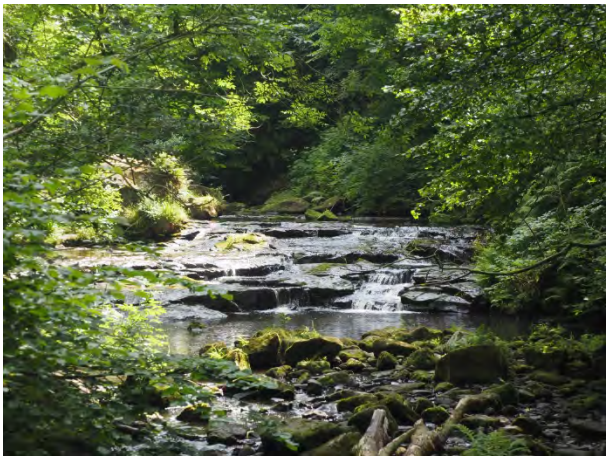


Fig.116 Waterfall and valley woodland in the Murk Esk tributary valley.

Broadleaved woodland (including Ancient Woodland and Plantations on Ancient Woodland Sites) is a feature of the upper, middle and lower valley sides, and woodland and riparian trees also follow the river and the tributary becks. . Trees (including veteran trees) occur in hedges, alongside roads, as infield trees, and in association with buildings and settlements. There are also occasional blocks of conifer plantation. The overall impression is of a well-treed, verdant landscape.

Semi-natural habitats include woodland, flushes, valley-floor grasslands, streams, and patches of rough grassland and moorland (mostly high on the valley sides, adjacent to LCT1). Some are designated nationally or internationally. Littlebeck Wood (in the Littlebeck Valley) is a Local Nature Reserve.

Designation	Sites
SAC and SPA	Small areas of the North York Moors SAC, SPA and SSSI occur within this LCT near the margins with LCT 1.
Sac	Arnecliff and Park Hole Woods
SSSI	Arnecliff and Park Hole Woods; Beck Hole; Littlebeck Woods
LNR	Little Beck Woods (Yorkshire WT)

Key designated nature conservation sites

Cultural landscape features

This is a well-settled landscape with a long history of occupation and a strong sense of history. This is reflected in the density of settlement, with numerous attractive villages, hamlets and farms within the LCT. In general, the buildings exhibit a consistency of materials (mostly stone walls and pantile (or very occasionally slate) roofs) but there are some exceptions, such as Commondale (built in locally-fired brick). However the form of the traditional settlements is very varied, with no clear pattern across the LCT. Some villages (for example Castleton and Lealholm) are nucleated in form. Others (such as Egton and Aislaby) are more linear, whilst others (such as Goathland and Glaisdale) are more dispersed and include village greens. Many villages have some later ribbon expansion along roads which can create the impression of a linear village. Some of the larger settlements such as Grosmont and Goathland were heavily influenced by the development of the iron industry. In addition to the villages, there are numerous hamlets and farms at the edge of the valley floor or on the valley sides. Farms are often nestled into sheltered hollows of the landform.

Fig.117 Vernacular buildings in Castleton village

Settlements are linked by a network of steep, narrow, winding lanes made for horses rather than cars. The lanes are characterised by fords and bridges where they cross rivers, streams and railway lines. There are many historic and more modern bridges within the Central Valley. Beggar's Bridge is a particularly good example of a packhorse bridge, built in 1619.

Fig.118 Beggar's Bridge over the River Esk, Glaisdale

The Central Valley connects at its western end with Kildale to create a through route between the Tees lowlands and the coast at Whitby. The Middlesbrough – Whitby line therefore runs along the floor of the Central Valley, with several stations serving local villages. In addition the northern part of the North York Moors Railway descends from the moors into Goathland, and then runs through the Murk Esk tributary valley before joining the Middlesbrough-Whitby line at Grosmont. Railway lines and their associated

architecture, sounds, and the smells of steam trains therefore make a significant contribution to the sense of place.

Fig.119 Goathland Railway Station, on the North Yorkshire Moors Steam Railway

As well as the working railway lines there are tracks of former tramways and inclines which used to serve quarries (mostly ironstone) on the valley sides.

There are castles at Castleton and Danby, both of which are Scheduled Monuments. The 14th Century Danby Castle was the home of Catherine Parr (later a wife of Henry VIII). The park pales of medieval hunting estates can still be seen on the valley sides.

Land use in the Central Valley is a mixture of improved pasture, arable agriculture (mostly on the valley floor), woodland and unimproved grassland. There are also patches of bracken, scrub and moorland (mostly at the tops of valley sides and forming a transitional boundary with the adjacent Moorland LCT). Field patterns vary in terms of shape and size, but the overall impression is of an intricate, small-scale pattern of field covering much of the valley, and larger, more regular fields on the upper valley sides. In the upper part of the dale, fields are generally divided by low dry-stone walls of local stone. Hedges (often with frequent hedgerow trees) are more common in lower areas.

Designation	Sites
Scheduled Monuments	Castleton Castle; Danby Castle; Prehistoric barrows on Ugthorpe Moor and Egton Low Moor; Roman Fort on Lease Rigg; Wheeldale Roman Road (part)
Conservation Areas	Numerous, including Castleton, Lealholm, Egton, Egton Bridge, Aislaby and Goathland.
Listed Buildings	Numerous, including houses, farms, churches, schools, shops, bridges, pubs, manors, railway features and a walled garden. Concentrated in Conservation Areas.

Key designated heritage conservation sites

Perceptual qualities and views

There is a sense of enclosure within the Central Valley, but also a constant awareness of the moorlands above. The gentle feel of the Central Valley contrasts with the surrounding open moorland. In places the topography creates a small-scale and intimate feel. But elsewhere the scale is larger, and the valley opens up to become more expansive. However it still retains its strongly rural feel. Deciduous woodland and field patterns create variety and interest in views, with seasonal changes as trees and hedgerow plants come into leaf and flower, and autumn colours become more vivid. In late summer, the flowering heather creates striking purple horizons.

Some villages such as Castleton and Goathland are particularly popular with tourists (the latter partly because of the presence of the North Yorkshire Moor's Steam Railway, and the village's use as a filming location). This can give them a 'honeypot' feel, with lots of people and parked vehicles. However, despite the settled feel of the Central Valley, there is still a strong sense of peace and tranquillity, particularly in the less accessible parts of the LCT. Small parts of the LCT are remote land in planning

policy ENV3 because of their woodland land cover.

The starry skies can be appreciated at the Dark Skies Viewpoint at The Moors National Park Centre near Danby, although the LCT is not within the Dark Skies Core Area or Buffer Zone.

Where topography permits there are long views along the valley from the valley floor. There are also frequent views across the valley from the valley sides.

Fig.120 A long view looking west along the Esk Valley, from the valley floor south of Houlsyke

The surrounding Moorland and Moorland Dale LCTs have very close topographical, cultural and visual relationships with the Central Valley LCT. Moorland forms strong and smooth horizons in almost every view. The simplicity of the surrounding moorland contrasts with the intricate and green Central Valley. There are also strong visual connections with the adjacent Moorland Dales LCT, specifically Danby Dale, Fryup Dale and Glaisdale.

The network of lanes and the railways enable people to travel through the LCT appreciating its ever-changing patterns of scenery.

Around Sleights there is strong intervisibility with land outside the National Park boundary, which forms the setting of the National Park.

Fig.121 View from Aislaby church over the National Park setting around Sleights

Ecosystem Services provided by the Central Valley LCT

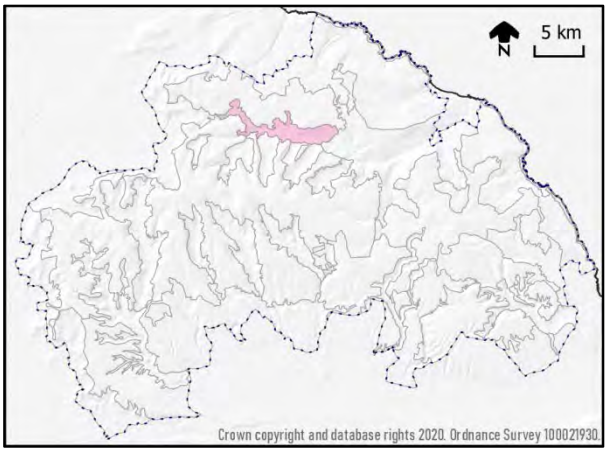
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	The historic villages, buildings and railway lines create a sense of history. This cultural heritage is valued by local people and visitors. Views from trains, roads and footpaths provide opportunities for aesthetic experiences in enjoying tranquillity, contributing to people's health and wellbeing. The Moors National Park Centre near Danby provides educational resources and opportunities to appreciate dark skies. The geodiversity of this LCT also offers opportunities for research and education regarding glacial landforms.	There are further opportunities to connect railway stations with villages (perhaps through additional bus services) and to create walks/ cycle routes from or between stations. There is also potential for a geology trail telling the story of Esk Dale's glacial features.
Provisioning Services	Fertile soils support arable and pastoral agriculture, directly contributing to food supplies, and also fibre in the form of wool. Trees provide timber, wood fibre and biomass, and the extensive network of rivers and streams provide fresh water.	Opportunities to manage farmland and woodland to enhance biodiversity and reduce pollution. Changing climatic conditions provide opportunities to experiment with growing new crops, which could also benefit biodiversity.
Regulating Services	Woodland helps with carbon sequestration and improves air quality by absorbing pollutants. Soils and vegetation absorb rainwater and slow water flow (particularly in tributary valleys), helping to regulate downstream flooding. Valley floor floodplains also help to regulate flooding downstream. Plants and trees provide habitat for pollinating insects	Tree planting/ colonisation schemes have potential to increase carbon storage and reduce pollution. Trees and hedgerows can also contribute to Natural Flood Management (NFM) schemes. Changes to agricultural practices could reduce pollution and runoff.
Supporting Services	The LCT provides habitats and habitat links for a range of species, particularly along river corridors, woodlands, verges and hedgerow networks. It also contributes to soil formation and photosynthesis.	Carefully-designed tree and hedgerow planting, and good management of field edges and verges can enhance habitat links. There are opportunities to increase pollinator habitats.

Landscape Character Area Descriptions

There are two distinctive Landscape Character Areas (LCAs) within the Central Valley LCT. These are described on the following pages.

Landscape Character Area 8a: Commondale – Upper Eskdale

Fig.122 A typical scene in LCA 8a, looking east from Danby Castle. Both sides of the valley can be seen



Map showing the location of LCA 8a within the National Park

This LCA is located to the north of the centre of the National Park. It comprises the western end of the Central Valley LCT, from Commondale to Lealholm.

The western end of the LCA is marked by the watershed between Esk Dale and Kildale. Here, the Sleddale Beck rises as springs and moorland streams, before joining the Commondale Beck, then the River Esk itself near Castleton. East of Danby, the valley floor broadens out, before the River Esk enters the steep and wooded Crunkly Gill gorge west of Lealholm.

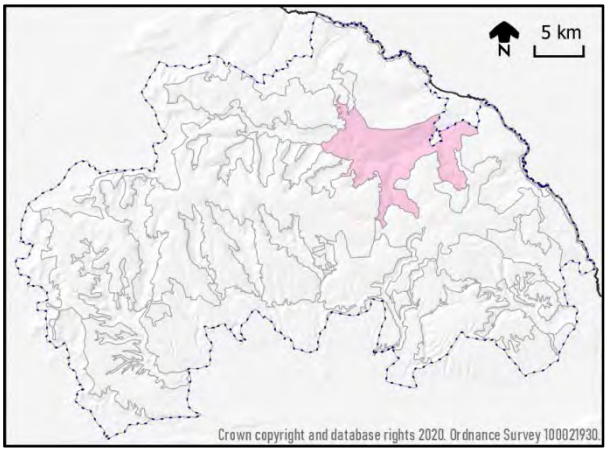
To the north is the smooth profile of Danby Low Moor and Danby Beacon; whilst to the south are the Moorland Dales of Westerdale, Danby Dale and Fryup Dale, separated by the elevated moorland ridges of Castleton Rigg, Danby Rigg and Heads. The Central Valley is relatively narrow within this LCA, and it is easy to see both sides of the valley in a single view, creating an intimate and enclosed feel. The tributary valleys are steep and V-shaped with narrow valley floors.

The village of Castleton stands on a knoll at the end of Danby Dale, at the meeting point of several roads across the moor. The site of its castle overlooks the Esk Valley. The valley floor at Castleton, with its cricket pitch, pub, bridge and riverside trees is a bucolic scene. Danby and Ainthorpe are both settlements with older cores which have seen modern linear development. Commondale is unusual in that many of the buildings (including houses, a chapel and offices) are constructed of a distinctive orange-red brick, made in the former brickworks here. Roads tend to follow the valley sides, but the railway line runs along the valley floor, occasionally crossing meanders on bridges. There are also numerous bridges where lanes weave over and under the railway line.

Danby Castle sits on the valley side at the end of Danby Rigg. Dating from the 14th Century, it comprises a central courtyard with four towers and is still used for the Danby Court Leet. On the opposite side of the valley is its former hunting lodge, now The Moors National Park Centre. Medieval park pales, which demarked the hunting estate, can still be seen on the valley side.

Landscape Character Area 8b: Lower Esk Valley

Fig.123 A typical scene in LCA 8b, looking west from Fair Head Line, east of Grosmont



Map showing the location of LCA 8b within the National Park

This LCA is located in the north-east of the National Park, and comprises the lower, broader part of the Esk Valley between Lealholm and Sleights. It also includes the broad tributary valleys of the Murk Esk, Stonegate Beck and Little Beck. The villages of Lealholm, Glaisdale, Egton, Egton Bridge, Goathland, Grosmont and Aislaby are all within this LCA, as well as hamlets including Ugglebarnby, Littlebeck and Iburndale. In addition there are numerous farms on the valley sides. Most of the buildings are vernacular in style, constructed of local stone, with pantile or slate roofs. There are also some more modern properties, particularly on the edges of villages which can in places create a localised more suburban character (for example on the edge of Sleights). Railway architecture is also apparent along the railway lines, particularly at Grosmont, where the Middlesbrough-Whitby line and North Yorkshire Moors Steam Railway meet.

Within the broad valley landform there is a complex topography of glacial deposits, resulting in a hummocky appearance. The roads and paths through the valley are often steep and winding as they negotiate the uneven topography. Towards the east the valley floor floodplain becomes slightly wider, and the river meanders larger. There are extensive areas of woodland on the valley floor and sides which (together with the hedgerow and infield trees) add to the soft and verdant appearance of the landscape.

There is a gradual transition at the tops of the valley sides with the surrounding Moorland and Coastal Plain LCTs. Here, the presence of rough grassland and stone walls creates a more upland feel.

Views are often panoramic from valley sides, and also sudden, revealed in gaps between trees or by the topography. Within the broad valley it is an intricate, small-scale landscape which contrasts with the open moorlands above.

Forces for Change acting on the Central Valley LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Infrastructure and communications	The populated nature of the Central Valley means that there is demand for telecommunications coverage, which is a challenge in a strongly rural landscape. Existing examples of masts include a standard design mast sited in a fairly prominent elevated location in the centre of the valley, and a bespoke design mast (painted dark green to blend with the surrounding trees) located in a discreet valley-floor location.	All
Settlement expansion	The LCT contains several of the 'larger villages' within the National Park, which may be a focus for future small-scale expansion (e.g. small affordable housing schemes). There may therefore be pressure for settlement expansion which does not fit traditional settlement form, or which would be overly intrusive (e.g. extending linear settlements so they appear to expand into open moorland). There is also a risk that building designs and boundary treatments may be suburban rather than rural in character.	All
Biodiversity loss	Past decades have seen a decline in biodiversity resulting from farms switching from hay to silage. Hay meadows support much richer biodiversity than grass grown for silage, and their rich variety of herbs and grasses provide habitat and food for pollinators, butterflies and birds. Grassland may also have been lost to arable, reducing biodiversity and potentially increasing risk of soil loss. The 20th century also saw some replanting of Ancient Woodlands with plantation, reducing their variety of trees and habitats, and the species they could support.	All
Abandonment of traditional agricultural buildings, and demand for new buildings	Changing farming practices require larger and more modern farm buildings. Old buildings no longer serving their original purpose may become derelict unless an alternative use can be found (e.g. conversion to holiday accommodation or business premises). This may result in loss of historic integrity and fittings associated with its original use. New larger agricultural buildings are likely to be much more prominent in the landscape and may also contribute to light pollution unless carefully designed. Stone walls and hedgerows may become derelict/ gappy if they are no longer required to be stockproof, or be replaced with post and wire fencing.	All
Tree disease and invasive species	Ash dieback is present in nearby LCTs and will presumably spread to this LCT in coming years. It will affect many woodland ash trees, as well as those in fields and hedgerows, and alongside roads. Other tree diseases and invasive species of plants and animals threaten the appearance of the landscape and the functioning of woodland and river ecosystems.	All
Additional tree cover	There are opportunities to increase tree cover within this LCT, for example through new woodland planting, woodpasture, hedgerow trees, riparian trees, infield trees and parkland trees. There may be opportunities for natural colonisation on valley sides close to the surrounding moorland, or in valley floors to create wet woodland.	

	When thinking about increasing tree cover, it is important to consider any potential impacts on the distinctive field patterns which are a feature of the landscape, or the blocking of views within the valley. It could also damage sites (such as flower-rich grassland) which are already important for biodiversity. Not all these sites are designated or recorded. It may also damage buried archaeology, or affect the settings of Conservation Areas, Scheduled Monuments or Listed Buildings.	
Climate change	Rising temperatures will affect the species of trees which can thrive, potentially affecting the composition of woodlands and hedgerows. Increased rainfall and intensity of storms will lead to flooding and damage to trees and buildings. Drought will affect river levels and cause problems for crops and livestock. Warmer temperatures and longer growing seasons may affect farmers' crop choices, with new crops becoming part of the landscape.	All
Loss of rural character	Increased signage and 'clutter' on roads, and urbanising features such as concrete kerbs, can lead to a loss of rural character. It can be a particular issue on the approach to villages, and may be associated with village-edge development. Some traditional signposts are sometimes in poor condition.	All
Visitor pressure	Concentrations of visitors at key destinations can lead to issues such as inappropriate parking, erosion of paths, littering, trampling of sensitive habitats and wildlife disturbance.	All
Farming and land management	The consequences of past changes in farming practices are described in 'biodiversity loss' above. In addition the artificial fertilisation of fields, and the farming of livestock, may result in nitrate enrichment and the pollution of water supplies unless carefully managed. Forthcoming changes to agricultural grant schemes are likely to result in changes to how land is managed, with payments for 'public goods' such as climate change mitigation measures and supporting nature recovery. This is a change in emphasis to the subsidy system which will hopefully be a positive force for change in the landscape.	All
Loss of tranquillity and dark skies	Dark skies are threatened by new development, traffic, street lighting, security lighting and lightspill from agricultural buildings. None of the LCT is within the Dark Skies core or buffer areas. Levels of tranquillity are impacted by development, traffic, noise and people.	All
Changes outside the National Park and in adjacent LCTs	At the eastern end of the National Park there is intervisibility between the LCT and the area outside the National Park around Sleights, Ruswarp and Whitby. Poorly sited or designed development here could result in adverse impacts on the setting of the National Park. Fields outside the National Park but adjoining existing development are particularly vulnerable. Development outside the National Park may also contribute to light and noise pollution, and may be cumulative in its effects. There is very strong intervisibility and ecological connection between the Central Valley, and LCT 1 (Moorland), LCT 2 (Moorland Dales) and	8b

	LCT 4 (Coastal Hinterland). Therefore changes taking place in these LCTs may impact on the Central Valley. Conversely, changes (such as new tree planting) within the Central Valley will be visible from surrounding higher LCTs.	

Landscape Guidelines for the Central Valley LCT

Protect

- Protect prominent skylines within the valley. Avoid siting telecommunications masts or buildings where they would break sensitive skylines.
- Protect dark night skies.
- Protect historic buildings and the distinctive built forms of this LCT, including those associated with former industry and the railway lines. Ensure that conversion of redundant farm buildings is sensitive to their former use and location.
- Protect the relationship between farms/settlements and the surrounding landscape. Where new buildings are required, maintain this relationship through careful siting, design and mitigation (see National Park Design Guide). Pay particular attention to the settings of Listed Buildings and Conservation Areas.
- Protect the settings to settlements, and the diversity of distinctive settlement forms.
- Protect archaeological sites, and take an integrated approach to managing those sites which are vulnerable to damage by climate change, changing management or visitor erosion.
- Protect the smooth skylines which form the horizons to this LCT (these may be in other LCTs).
- Protect the sense of tranquillity found in the more remote parts of this LCT
- Protect the setting of the National Park, particularly from highly intrusive or cumulative development.

Manage

- Encourage active management of broadleaved woodland where it will provide clear landscape and biodiversity benefits alongside production of wood products where appropriate. Seek opportunities to revert Plantations on Ancient Woodland Sites to native deciduous woodland.
- Manage grassland, riparian and moorland habitats, seeking opportunities to create connections with similar habitats in this LCT and adjacent LCTs, and to expand flower-rich grassland sites.
- Manage farmland, seeking opportunities to enhance biodiversity and to reduce pollution and runoff.
- Manage rivers and watercourses, seeking opportunities to reduce water pollution and flood risk using Natural Flood Management techniques.
- Manage hedgerows and dry stone walls using traditional methods where possible. Use hedgerows to improve habitat connectivity between woodlands, using species present in existing local hedgerows.
- Manage roadside and hedgerow trees, allowing new trees to grow out as standards.

- Manage SSSIs, Scheduled Monuments and other significant heritage sites, attempting to retain them in optimal condition.
- Consider opportunities for dynamic boundaries between farmland, scrub and moorland where this LCT adjoins LCT 1.

Plan

- Consider opportunities for increasing tree cover, for example through encouraging roadside and hedgerow trees, woodpasture and new native woodland. Ideally this would extend and link existing areas of deciduous woodland. It could include valley floor wet woodland, or mixed woodland on valley sides. Avoid planting woodland in areas of strong field patterns, or where trees would obscure popular views. Also avoid planting woodlands with straight edges or containing straight lines of trees. Include glades and rides to maximise habitat diversity, and use a mix of native species. There may also be opportunities for natural colonisation in moorland fringe locations. Before commencing any tree planting, professional advice should be sought to ensure that there will be no negative effects on the historic environment, ecology or access.
- Promote Natural Flood Management techniques where appropriate.
- Ensure development proposals within the National Park's setting are appropriately assessed, and adequate mitigation is in place, particularly where there may be cumulative impacts.
- Use existing or new hedgerows or woodlands to screen any new development on the peripheries of settlements and help it to integrate into the landscape.
- Where communications masts or other vertical features are unavoidable, site them close to existing trees or buildings, and consider non-standard designs to minimise visual impact. Avoid siting masts on open skylines.
- Seek opportunities to underground overhead wires and poles where possible.
- Retain the rural character of settlements, avoiding unnecessary signage and urbanising features such as concrete kerbs, tarmac pavements/ driveways and close-boarded fencing.
- Plan any new small-scale development in villages to ensure that it complements and enhances the existing village form, for example avoid linear expansion to a nucleated village.
- Take great care in the design and siting of new farm buildings, ensuring that they are located close to existing farm buildings, and that their design and materials will minimise their visual impact. Use native tree and hedgerow planting to help screen them, and minimise the use of cut and fill.
- Ensure that change to heritage assets is informed by an understanding of their importance, and can retain and where possible enhance their significance. Provision should be made for management plans, and research into materials, where appropriate.
- Work with transport providers to develop and promote walks from or between railway stations. This would be a sustainable way to encourage visitors from the Middlesbrough conurbation to visit the National Park.
- Explore the potential to enhance links (for example bus services or regular taxis) between stations and local villages so that local people can use trains more easily and are less reliant on cars for travel.

LCT 9: Western Escarpment Landscape Character Type

Fig.124 The Western Escarpment, with agricultural fields below, near Guisborough

Location, Context and Setting

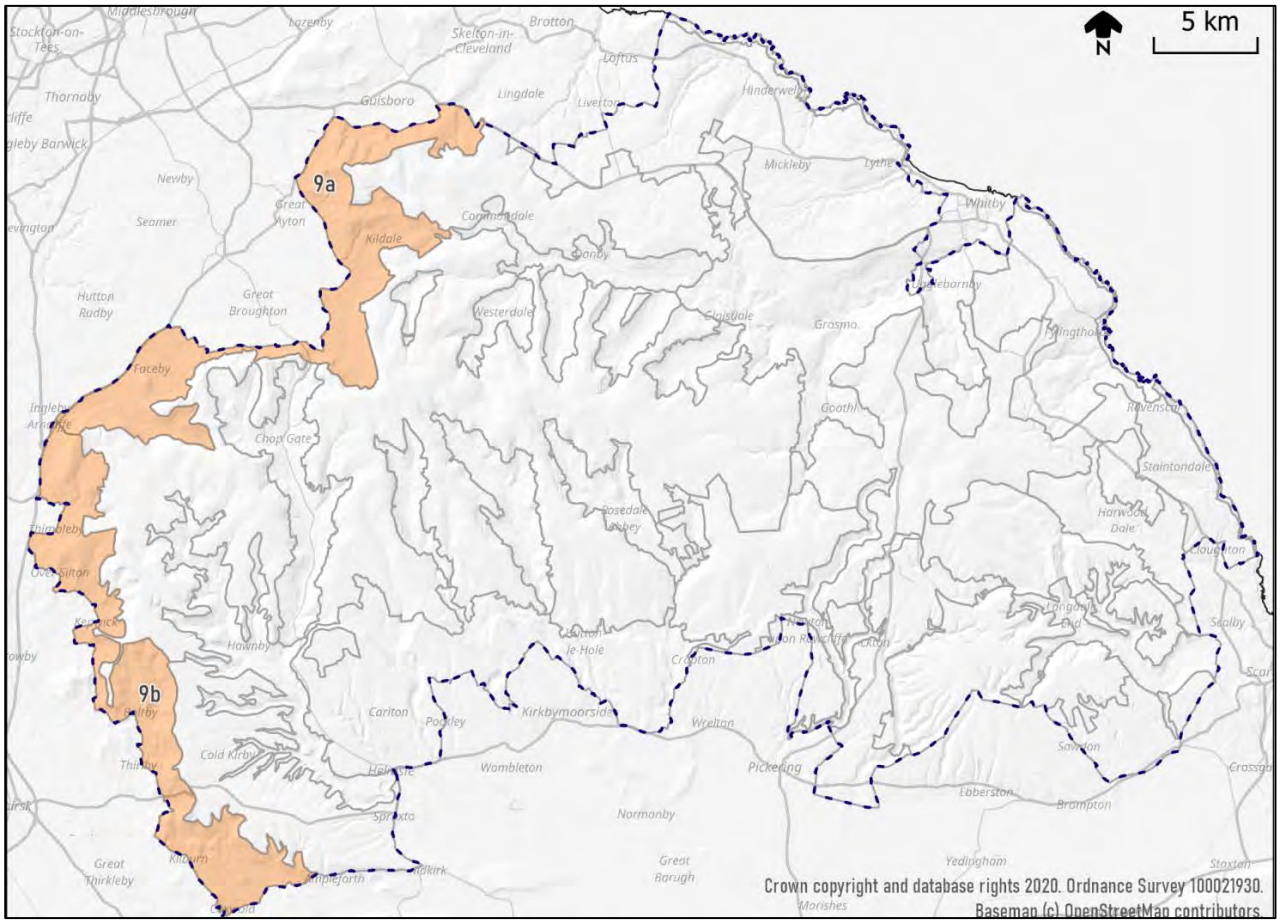
This Landscape Character Type (LCT) is located on the western edge of the North York Moors National Park. It comprises the escarpment and foothills between the National Park Boundary and the high land of the Moorland and Limestone Hills LCTs which forms the Cleveland and Hambleton Hills. The larger villages of Swainby and Osmotherley are within this LCT, along with several smaller villages, many hamlets and farms. The LCT has very strong intervisibility with the Vales of York and Pickering, and the Cleveland Plain, which form the western setting to the National Park. The panoramic views to the west are integral to the LCT's character, and the escarpment is a constant presence above the lowlands.

Summary Description

The dramatic, tree-clad escarpment rises up from the lowlands and forms a dominating feature in the landscape, connecting the lowlands to the west and the high moors to the east. Its distinctive shapes of flat promontories, indentations, crags and outlying conical hills add interest and variety to views from a very wide area. Landmarks such as Roseberry Topping, Captain Cook's Monument and Kilburn White Horse add to the sense of place.

Nestling beneath the escarpment, in its foothills and dales, is a rich historic landscape. These more gentle slopes contain a mosaic of fields dotted with attractive historic villages, farms, castles and estates. Byland Abbey and Mount Grace Priory form dramatic ruins against the backdrop of the escarpment and are a legacy of the importance of this area in the medieval period.

The magnificent views over the surrounding lowlands are fundamental to the character of the Western Escarpment. They are very popular with visitors and enjoyed from viewpoints and paths.



Location map for Western Escarpment Landscape Character Type (LCT) 9a = Cleveland Foothills; 9b = Hambleton Foothills

Key Characteristics

- Underlying geology of banded mudstones, ironstone and limestone, capped with Deltaic Sandstone and Corallian limestones.
- Complex topography of indented escarpment rising approx. 200m, with gentle slopes at the base and vertical crags at the top. Distinctive outlying conical hills e.g. Roseberry Topping.
- Numerous springs and streams flow into lowlands below. Reservoirs, ponds and Gormire Lake.
- Land uses predominantly a mixture of agriculture (arable and improved pasture) and forestry.
- Semi-natural habitats include extensive woodland areas, patches of moorland (heather and grass), flushes, meadows, hedgerows and verges.
- Extensive forestry and woodland blocks on the escarpment, with riparian, parkland, hedgerow, roadside and in-field trees in lower areas.
- Generally irregular and medium-scale field pattern, with well-established hedges in lower areas, with occasional stone walls and fences. Often a smaller field pattern around villages.
- Many historic villages at base of scarp, often linear or nucleated, constructed of local stone.
- Rich archaeology including prehistoric cairns often sited close to the escarpment edges, and numerous industrial sites, including ironstone and alum working along the steep slopes.
- Outstanding surviving medieval sites, including abbey, priory, churches, castles and manors.
- Winding lanes and tracks at base, but few routes (including Sutton Bank) up escarpment.
- Roseberry Topping, Captain Cook Monument & Kilburn White Horse are prominent landmarks.
- Panoramic views from escarpment, including exceptional views over surrounding lowlands.
- Strong sense of tranquillity away from main roads and settlements.

Natural landscape features

The geology of the Western Escarpment comprises layers of soft Lias mudstones and Cleveland Ironstone with thin limestone beds which form the lower and middle slopes. The highest parts of the escarpment are capped with deltaic sandstone, and – in the south – Corallian limestone. The sandstone and limestone can occasionally be seen in crags / quarries along the top of the escarpment or capping the summits of outlying conical hills.

The topography is complex, reflecting the indented shape of the Western Escarpment. Some of indentations run back as dales (e.g. Kildale and Scugdale). Sometimes flat-topped promontories occur between the indentations or dales. There are occasional prominent rock outcrops, often occurring as vertical faces near the top of the escarpment. Distinctive outlying conical hills are capped by hard rocks. The most famous of these is Roseberry Topping, but they occur throughout the LCT.

Fig.125 The lopsided pinnacle of Roseberry Topping is a prominent landmark and geological SSSI.

The elevation ranges from approx. 70m above sea level at the National Park boundary to approx. 300m at the top of the escarpment. The escarpment often has a convex shape, with gentle foothills at the base rising up to near-vertical crags at the top.

Gormire Lake, below Sutton Bank, is the largest natural lake in the National Park, and is the remains of a glacial lake formed in the last Ice Age. It is an SSSI, along with the adjacent Garbutt Wood. There are also smaller lakes, pools and reservoirs. Numerous streams flow down the dales and the escarpment, and through the foothills at the base into the River Tees and River Swale.

Fig.126 Gormire Lake SSSI and Garbutt Wood

Many of the steepest parts of the Escarpment are covered by trees. These are a mixture of deciduous woodlands (including some Ancient Woodlands), Plantations on Ancient Woodland Sites, and other large and small plantations. Often the woodland and forest emphasise the shape of the landform. On lower slopes, which are generally farmed, there are also many hedgerow trees, roadside trees, riparian trees, parkland trees and copses which add to the soft and verdant feel of the landscape.

Other semi-natural habitats include patches of unimproved pasture, moorland (grass and heather), meadow, bracken, scrub and rock. Some are designated, as shown in the following table below.

Designation	Sites
SAC, SPA, SSSI	Small parts of the North York Moors designations where this LCT abuts moorland.
SSSI	Mostly geological, including Roseberry Topping; Kildale Hall; Cliff Ridge; Whinsill Dyke; Gormire
LWS	Wileycat Wood; Aysdale Gate Wood; Hutton Hall Grassland; Hutton Village Grassland; Newton Wood
LGS	Roseberry Topping; Guisborough Forest
LNR	Garbutt Wood (Yorks. Wildlife Trust)

Key designated nature conservation sites

Cultural landscape features

At the foot of the dramatic escarpment is a rich cultural landscape with a particularly impressive range of surviving medieval sites and features. This is reflected in the large number of Scheduled Monuments, Listed Buildings and Conservation Areas found within this LCT.

The dramatic ruins of Byland Abbey and Mount Grace Priory still show the importance of these ecclesiastical sites in the medieval period. There are also many smaller religious sites in the form of parish churches. Other medieval sites include castles (for example Whorlton Castle), deserted medieval villages and moated sites. Most of the settlements and farms, and the lanes which link them, also have medieval (or older) origins. Country estates, such as Kepwick Hall and Hutton Hall, as well as smaller estates, influence the landscape through their architecture, the presence of estate structures such as walled gardens, and parkland and avenue trees. The stone tower of Captain Cook's Monument, high on the escarpment above Kildale, is visible from a wide area.

Fig.127 Byland Abbey

The fertile soils and availability of fresh water meant that many villages developed at the base of the escarpment. They are generally nucleated (such as Osmotherley) or linear in form (such as Boltby and Swainby). The linear villages may run parallel to or at right angles to the escarpment. Most of the buildings within the historic cores of the villages are vernacular in style (sometimes with estate influences such as decorative barge boards) and built of local stone, with pantile roofs. There are often more modern houses on the edges of settlements which are not always sympathetic to village character.

Fig.128 Boltby is a typical example of a linear village below the escarpment

Disused quarries and mineral workings dot the landscape, including extraction sites for sandstone, ironstone, alum and jet. Some are Scheduled Monuments. The Cleveland Dyke of igneous rock is visible as a V-shaped notch where it has been quarried at Whinstone

Ridge. Within the LCT are the remains of railway lines which transported material quarried within the National Park. The line through Kildale is still open as the passenger service between Middlesbrough and Whitby. The railway incline which formerly carried ironstone from the Rosedale mines to Battersby Junction is now a public right of way, with a shallow descent of the scarp.

Land use within the Western Escarpment is predominantly woodland/ forestry on the steep slopes of the escarpment, and agriculture (mainly improved pasture or arable) on the lower slopes beneath. Farms are generally fairly large in size and often isolated, nestled into sheltered folds in the landform. Fields are variable in size and shape, generally being smaller and less regular in shape around villages. Hedgerows are often well-developed, particularly alongside roads, and contain a variety of native species as well as hedgerow trees. There are occasional stone walls, particularly on higher land, and some use of fencing.

Fig.129 Farmland scene on lower slopes west of Boltby

Main roads (the A170, A172 and A173) generally skirt the periphery of the LCT, sometimes forming the National Park Boundary. Sutton Bank, where the A170 climbs the escarpment, is notoriously steep and prohibited to caravans. Within the LCT, a network of winding lanes, tracks and footpaths provides access to villages and farms at the base of the escarpment, but there are few through routes. Only a small number of roads climb the escarpment. Some of these roads and tracks have their origin as historic drove roads, used by drovers walking livestock from Scotland to markets in London.

Designation	Sites
Scheduled Monuments	Whorlton Castle; Pinchinthorpe Hall; Kildale Hall Garth; Easby Castle Motte; Byland Abbey; Hood Hill Motte & Bailey; Ravensthorpe Manor; Kirby Knowle medieval settlement; Mount Grace Priory.
Conservation Areas	Swainby, Carlton in Cleveland; Hutton Lowcross; Osmotherley; Thimbleby; Nether Silton; Kepwick; Boltby; Kilburn; Coxwold
HPG	Arncliffe Hall
Listed Buildings	Numerous, including houses, farms, churches, schools, castles, abbeys; chimney to ironstone workings; halls; bridges and monuments.

Key designated heritage conservation sites

Perceptual qualities and views

There is a striking contrast between the colours, textures and patterns of the escarpment, and the scarp foot and dales below. Because the escarpment and lower land are so intervisible, this contrast is a key part of the character of the LCT.

The extensive and varied tree cover on the escarpment gives it a darker, strongly-textured appearance. The occasional crags and patches of moorland add variety, for example through purple heather and yellow gorse. Within the trees there is a strong sense of enclosure, which emphasises the sudden and expansive views which appear when you emerge from the trees.

The farmland of the dales and foothills is much lighter in colour, and more open in feel. Fields create irregular patterns which contrast with the larger blocks of trees on the

escarpment. The farmland also has a much more settled and less dramatic character. The many historic villages and sites give it a strong sense of history.

Much of the LCT is relatively quiet and inaccessible, with few through roads (Sutton Bank is an exception). Away from villages and main roads the area has a strong sense of tranquillity and dark skies. The escarpment also has a sense of remoteness, which is enhanced by the sense of detachment from the more settled lowlands visible below. Much of the woodland and moorland pockets are identified as remote land due to their landcover, and parts of the LCT (for example around Nether Silton and Boltby Forest) are Policy ENV 3 Remote Areas.

Dramatic, panoramic views – both towards and from the escarpment – are fundamental to the character of the LCT. From the escarpment there are magnificent views over the Hambleton Hills, and the lowlands of the Vale of York, Vale of Mowbray, and the Tees Lowlands, where the landscape appears as a vast patchwork spreading into the distance. There are also long views eastwards towards the heart of the North York Moors.

Fig.130 View south from the summit of Roseberry Topping. The southern part of the Western Escarpment forms the horizon

All these views can be appreciated from numerous paths (including parts of the Cleveland Way) and viewpoints. Carparks and other visitor infrastructure cater for the many visitors who come to enjoy them.

Several of these popular viewpoints are also distinctive landmarks in their own right, for example Captain Cook's Monument, Roseberry Topping and Kilburn White Horse. These features all provide a sense of orientation in views over a wide distance.

Fig.131 Captain Cook's Monument, Easby Moor

The escarpment is a constant presence in views from the villages and farmland at its foot. It is also a key feature in views from beyond the National Park boundary, where it forms a dramatic and distinctive horizon. This LCT is therefore extremely important in views towards the National Park from the surrounding lowlands.

Fig.132 Roseberry Topping and the Western Escarpment as seen from outside the National Park near Middlesbrough

Fig.133 View of the Western Escarpment as seen from outside the National Park south of Ampleforth (In the Howardian Hills AONB)

Ecosystem Services provided by the Western Escarpment LCT

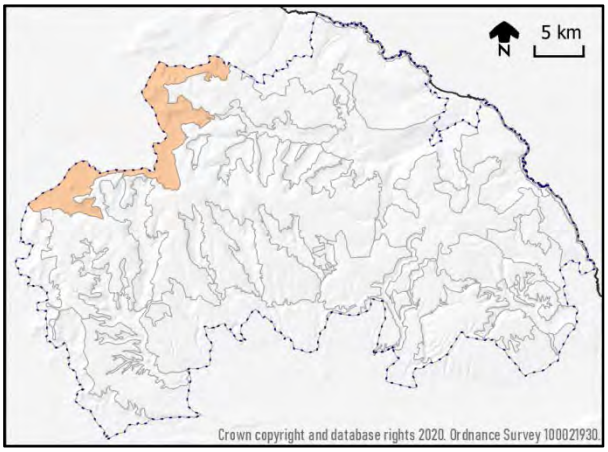
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	Popular viewpoints such as Roseberry Topping and Captain Cook's Monument provide opportunities for outdoor recreation and the appreciation of views, contributing to people's health and wellbeing. Historic sites and villages provide opportunities to enjoy and learn about the history of the area, as well as contributing to the aesthetic experience. People can also experience tranquillity and dark skies.	There are opportunities to reduce dependence on car travel to access viewpoints and historic sites, for example by supporting bus services and developing off-road circular walks from larger settlements (including those outside the National Park).
Provisioning Services	Extensive areas of plantations and woodlands provide large quantities of timber, wood fibre and biomass. Farmland provides food and fibre (in the form of wool). Springs, streams and reservoirs provide and store fresh water.	There may be opportunities to experiment with growing new crops and tree species to reflect changing climatic conditions. There are also opportunities to improve farming practices to enhance biodiversity.
Regulating Services	Trees play an important role in storing carbon, helping to mitigate climate change. They also improve air quality by absorbing pollutants. Soils and vegetation absorb rainwater and slow water flow, helping to regulate downstream flooding. Plants provide habitats for pollinating insects.	Tree planting/ colonisation schemes have potential to increase carbon storage and reduce pollution. Trees and hedgerows can also contribute to Natural Flood Management (NFM) schemes. Changes to agricultural practices could reduce pollution and runoff.
Supporting Services	Woodlands (particularly native woodlands), moorland, grassland, hedgerows, crags, verges and streams provide habitats and habitat links for a range of species. Trees and plants contribute to soil formation and photosynthesis.	There are opportunities to extend and link habitats, and to manage habitats such as field edges, to enhance them and make them more resilient to climate change.

Landscape Character Area Descriptions

There are two distinctive Landscape Character Areas (LCAs) within the Western Escarpment LCT. These are described on the following pages.

Landscape Character Area 9a: Cleveland Foothills

Fig.134 A typical scene in LCA 9a, showing the escarpment looking north from Carlton Moor. Roseberry Topping can be seen on the skyline



Map showing the location of LCA 9a within the National Park

This LCA is located in the north-west of the National Park, and comprises the transition between the lowlands of the Tees Lowlands and Vale of Mowbray (outside the National Park) and the uplands of the Cleveland Hills (LCT 1). It includes the villages of Hutton Village, Kildale, Battersby, Ingleby Greenhow, Carlton in Cleveland, Faceby and Swainby, as well as numerous hamlets and farms.

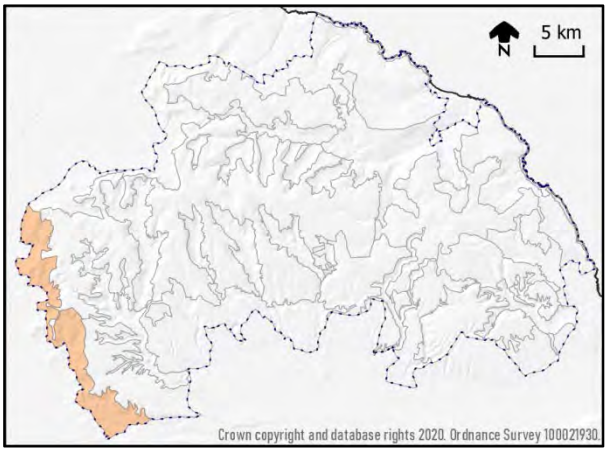
The scarp is steep and strongly indented, comprising a series of flat-topped promontories. It is well-treed, with extensive conifer/ mixed plantations and some deciduous woodland. At its base is a band of gently-rolling farmland, where most of the villages are located. The parkland at Hutton provides a softer and more pastoral character on the edge of Guisborough. The Cleveland Way passes through the parkland, connecting with Guisborough Forest and Walkway Visitor Centre at Pinchinthorpe, which forms a gateway to the National Park.

A number of dales cut through the escarpment. The largest of these is Kildale, which forms a watershed with Esk Dale and is used as the route of the Middlesbrough-Whitby railway line, and as a road connection into the National Park. Captain Cook's monument overlooks Kildale from Easby Moor, and is a prominent landmark with outstanding views. There is also a route through the escarpment to Bilsdale, used by the B1257.

The outlying conical hills of Roseberry Topping and Whorl Hill are very distinctive features, providing a strong sense of place. From Roseberry Topping there are 360 degree views taking in the open moorland, the sea, Teesside, Middlesbrough, the Cleveland Plain, the valley of the River Leven and the escarpment stretching down to the south.

Landscape Character Area 9b: Hambleton Foothills

Fig.135 A typical scene in LCA 9b, looking south-east from Kilburn White Horse



Map showing the location of LCA 9b within the National Park

This LCA is located on the south-western edge of the National Park, and comprises the transition between the lowlands of the Vales of York and Mowbray to the west, and the Howardian Hills to the south (all outside the National Park) and the uplands of the Hambleton Hills (LCAs 1a and 5a). It contains many picturesque villages, the largest of which is Osmotherley.

The topography is complex, comprising the indented escarpment, outlying conical hills, and lower foothills dropping gradually down into the Vale of York and the Vale of Pickering. Inland cliffs can be seen at the top of the escarpment (for example at Roulston Scar), which in places is capped by Corallian limestone. This adds local variation to the soils, habitats and trees.

Much of the escarpment is covered in trees. Some of the forests have car parks and trails, whilst others (such as Boltby) are inaccessible by road, although they can be reached using the Cleveland Way and other public rights of way. The lower land below the escarpment is also very well treed, including numerous mature oaks, sycamore and chestnut trees. Some of these reflect the influence of the parkland estates and country houses which are present in this LCA and add to the lushness of the landscape.

This is an ancient landscape with many historic features, particularly from the medieval period. Byland Abbey and Mount Grace Priory are both located within this LCA, as well as numerous historic villages (many of which are Conservation Areas) and Listed Buildings. Villages and farms are connected by narrow lanes winding between high hedges. In contrast, the A170 climbs the escarpment at Sutton Bank – one of the steepest 'A' roads in the country.

There are magnificent views looking up at the escarpment from below, and also from the top looking out over the foothills to the Vale of Pickering (to the south) and the Vale of York (to the west) which form the setting to the National Park. The view from Sutton Bank was described by author James Herriot as 'The finest view in England'.

Forces for Change acting on the Western Escarpment LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Infrastructure and communication	The skyline of the escarpment is especially sensitive because of its prominence, distinctive shape and visibility over a wide area. It is the visible part of the National Park in views from the lowlands. The construction of any structures such as masts which break the skyline would therefore have significant impacts.	All
Settlement expansion	There is likely to be development pressure, particularly in the larger villages, to accommodate new housing and related development. There is a risk that such development may not fit with the form or character of the settlement, or that elements such as property boundaries could introduce a suburban – rather than rural – character	All
Abandonment of traditional agricultural buildings, and demand for new buildings	Changing farming practices require larger and more modern farm buildings. Old buildings no longer serving their original purpose may become derelict unless an alternative use can be found (e.g. conversion to holiday accommodation). This may result in loss of historical integrity or fittings associated with their original uses. New larger agricultural buildings are likely to be much more prominent in the landscape and may also contribute to light pollution unless carefully designed. Hedgerows may become gappy if they are no longer required to be stockproof, or they may be replaced by post-and-wire fencing.	All
Loss of rural character	Increased signage and 'clutter' on roads can lead to a loss of rural character. It is most likely to occur on the approaches to villages and along main roads, although it is not yet a major problem in this LCT.	All
Tree disease and invasive species	Pathogens currently pose risks to many different trees within the UK. For example, larch is susceptible to phytophthora, and Ash Dieback is already present in the National Park. Invasive species are also threats to both the appearance of the landscape and the functioning of ecosystems.	
Biodiversity loss	20th Century forestation of former moorland and woodland areas of the escarpment reduced biodiversity. Intensification of agriculture at the base of the escarpment has resulted in some localised field boundary loss, and also a reduction in farmland habitats such as flower-rich grasslands, hedgerows and field margins.	
Additional tree cover	There are many opportunities within this LCT to increase tree cover in a variety of ways, including new/extended woodland, woodpasture, and new individual trees including hedgerow trees, parkland trees, roadside trees, infield trees, riparian trees and parkland trees. There may also be opportunities for natural colonisation, particularly on steep slopes or close to the boundaries with moorland. When thinking about increasing tree cover, it is important to consider the future impacts of tree growth on the long views which are integral to the character of this LCT. It may also impact on habitats which are already rich in biodiversity (such as flower-rich grassland) and on buried archaeology. New tree cover in lower parts of the LCT may	

	affect the current distinction between the wooded scarp and the more open agricultural land below.	
Climate change	Increased temperatures, higher concentrations of nitrogen and longer growing seasons may enable more vigorous tree growth, and the opportunity to grow alternative species of trees. However, some species susceptible to heat or drought (such as beech and fir) may no longer thrive in a changing climate. New pests and diseases thrive in warmer temperatures. More frequent and intense storms make trees vulnerable to wind throw, particularly mature planted trees growing in shallow soils. Heavy rain erodes soil exposed after tree felling. Warmer temperatures and longer growing season may affect farmers' crop choices.	
Erosion and soil loss	Felling of trees on steep slopes can result in increased erosion of soils and run-off of water, increasing downstream flood risk. This can also occur along tracks, particularly if they have been churned up or compacted by vehicles. Ploughing of soils on steeper slopes may result in soil erosion and run-off of soil into watercourses.	All
Damage to earthworks and buried archaeology	Tree/ scrub roots physically damage earthworks and buried archaeology. It is also vulnerable to physical and chemical attack by bracken, and to damage by burrowing animals. People can also cause damage where access is easy or there are large numbers of visitors.	All
Illegal vehicle use	Unauthorised use of vehicles such as 4x4s and trail bikes can damage track surfaces, making them more vulnerable to erosion, and creating scars within the landscape. They can also damage habitats.	All
Overgrowing of viewpoints	Viewpoints need regular management of vegetation in order to keep them open and views visible.	
Farming and land management	The consequences of past changes in farming practices are described in 'biodiversity loss' above. In addition the artificial fertilisation of fields, and the farming of livestock, may result in nitrate enrichment and the pollution of water supplies unless carefully managed. Forthcoming changes to agricultural grant schemes are likely to result in changes to how land is managed, with payments for 'public goods' such as managing water and improving biodiversity. This is a change in emphasis to the subsidy system which will hopefully be a positive force for change in the landscape. Within the LCT there are places where management of land for horses is not being done sensitively. Intensive pheasant-rearing impacts on landscape character and biodiversity in some parts of the LCT, with large enclosures, blue plastic feed bins, growing of feed/ cover crops such as maize and millet, and loss of woodland ground flora.	
Changing forest management practices	This is a positive change enabling restoration of semi-natural habitats such as Ancient Woodland which were previously planted with non-native trees. The introduction of 'fuzzy forestry' creates softer, more gradual and naturalistic edges to plantations, reducing the geometric appearance of the original forest boundaries. Modern forestry management encourages the creation of glades and rides, increasing	All

	diversity of woodland habitats and promoting insects (particularly butterflies) and birds. Felling coupes are becoming smaller, reducing their visual impact, and straight edges and rides are being replaced to fit better with the landform and reduce artificial lines in the landscape. Forest management is also influenced by timber price and demand, and by the availability and emphasis of grant schemes.	
Recreation and visitor pressure	Concentrations of visitors at key destinations can lead to issues with parking, erosion of paths, damage to fragile habitats, disturbance of wildlife, and littering.	
Loss of tranquillity and dark skies	Dark skies are affected by light pollution from traffic, street lighting, buildings, security lighting and agricultural buildings. Many of these sources are outside the National Park, and increased development is likely to exacerbate the problem. Tranquillity is affected by development, noise, traffic and people. Sources outside the National Park may impact on levels of tranquillity within this LCT.	
Changes outside the National Park and in adjacent LCTs	Views out over surrounding lowland landscapes (which form the setting to the National Park) are a key feature of this LCT. Developments within the setting are likely to affect these views, particularly if there is a cumulative impact. Visible developments may include infrastructure, energy and development schemes. Because of the difference in height, such developments will be seen from above, meaning their full extent can be seen. They may also impact on tranquillity and dark skies. There are also visual and ecological connections between this LCT and the adjacent Moorland and Limestone Hills LCTs. Changes within these LCTs may therefore impact on the Western Escarpment.	All

Landscape Guidelines for the Western Escarpment LCT

Protect

- Protect the distinctive and prominent skylines created by the escarpment, avoiding all forms of built development.
- Protect dark night skies, particularly around the Dark Sky Viewpoint at Sutton Bank National Park Centre (just outside this LCT).
- Protect significant archaeological sites – both well-known complexes, and those not open to the public.
- Protect the strongly-rural character and sense of tranquillity away from main roads and large settlements.
- Protect the distinctive linear and nucleated forms of historic settlements, and the character of the buildings within them.
- Protect the relationship between farms/settlements and the surrounding landscape. Where new buildings are required, maintain this relationship through careful siting, design and mitigation (see National Park Design Guide).
- Protect the settings to settlements, for example historic field patterns and mature trees.

- Protect the setting of the National Park, particularly from highly intrusive or cumulative development.

Manage

- Continue efforts to increase the biodiversity of forests, and the range of habitats within them. Seek opportunities to restore Ancient Woodland sites with native broadleaved species, including through natural colonisation.
- Continue to improve the fit of forests into the landscape, including through the replacement of abrupt edges with more gradual boundaries (particularly at the junctions of forest and moorland), and by allowing forest edges to reflect the underlying landform.
- Encourage active management of broadleaved woodland where it will provide clear landscape and biodiversity benefits alongside production of wood products where appropriate. Seek opportunities to extend and link deciduous woodland.
- Manage grassland and moorland habitats, seeking opportunities to create connections with similar habitats in this LCT and adjacent LCTs.
- Manage hedgerows and dry stone walls using traditional methods where possible. Use new hedgerows to improve habitat connectivity between woodlands, and to promote Natural Flood Management where appropriate, using species present in existing local hedgerows. Plant new hedgerow and roadside trees, and encourage existing trees within hedgerows to grow out as standards.
- Manage farmland, promoting good soil health and minimising pollution and runoff. Seek opportunities for Natural Flood Management.
- Encourage good practice with regard to pheasant-rearing, to minimise landscape and biodiversity impacts.
- Manage parklands, promoting the use of Parkland Management Plans and the planting of new trees to become the parkland trees and avenues of the future.
- Manage popular visitor sites, paying particular attention to path maintenance and making sure that fragile habitats are not being damaged.
- Manage viewpoints, ensuring that they are kept open and free from vegetation growth.
- Manage SSSIs and Scheduled Monuments to ensure that they remain within 'favourable' or 'not at risk' status.
- Consider opportunities for dynamic boundaries between farmland, trees, scrub and moorland where this LCT adjoins LCT 1.

Plan

- Seek opportunities to expand native woodland cover using planting and/or natural colonisation as appropriate. New individual trees, in hedges, along roads and streams and in parkland should also be encouraged. There may also be opportunities to introduce woodpasture. Before commencing any tree planting, professional advice should be sought to ensure that there will be no negative effects on the historic environment, ecology or access. Also make sure that new tree growth will not block views from viewpoints.

- Promote Natural Flood Management techniques where appropriate.
- Ensure development proposals within the National Park's setting are appropriately assessed, and adequate mitigation is in place, particularly where there may be cumulative impacts. The impacts of noise and light pollution should be considered as part of this process.
- Use existing or new hedgerows or woodlands to screen new development on the peripheries of settlements and help it to integrate into the landscape.
- Where communications masts or other vertical features are unavoidable, site them where they will not break the skyline of the escarpment, and against a backdrop of trees. Use colour to minimise visual impact.
- Retain the rural character of settlements, avoiding unnecessary signage and urbanising features such as concrete kerbs, tarmac pavements/ driveways and close-boarded fencing.
- Promote sustainable access to popular viewpoints, particularly from settlements outside the boundary, to reduce dependency on car travel.
- Seek opportunities for LiDAR survey of forested areas to identify currently unknown archaeological sites and landscape features.
- Ensure that change to heritage assets is informed by an understanding of their importance, and can retain and where possible enhance their significance. Provision should be made for management plans, and research into materials, where appropriate.

LCT 10: Coast Landscape Character Type

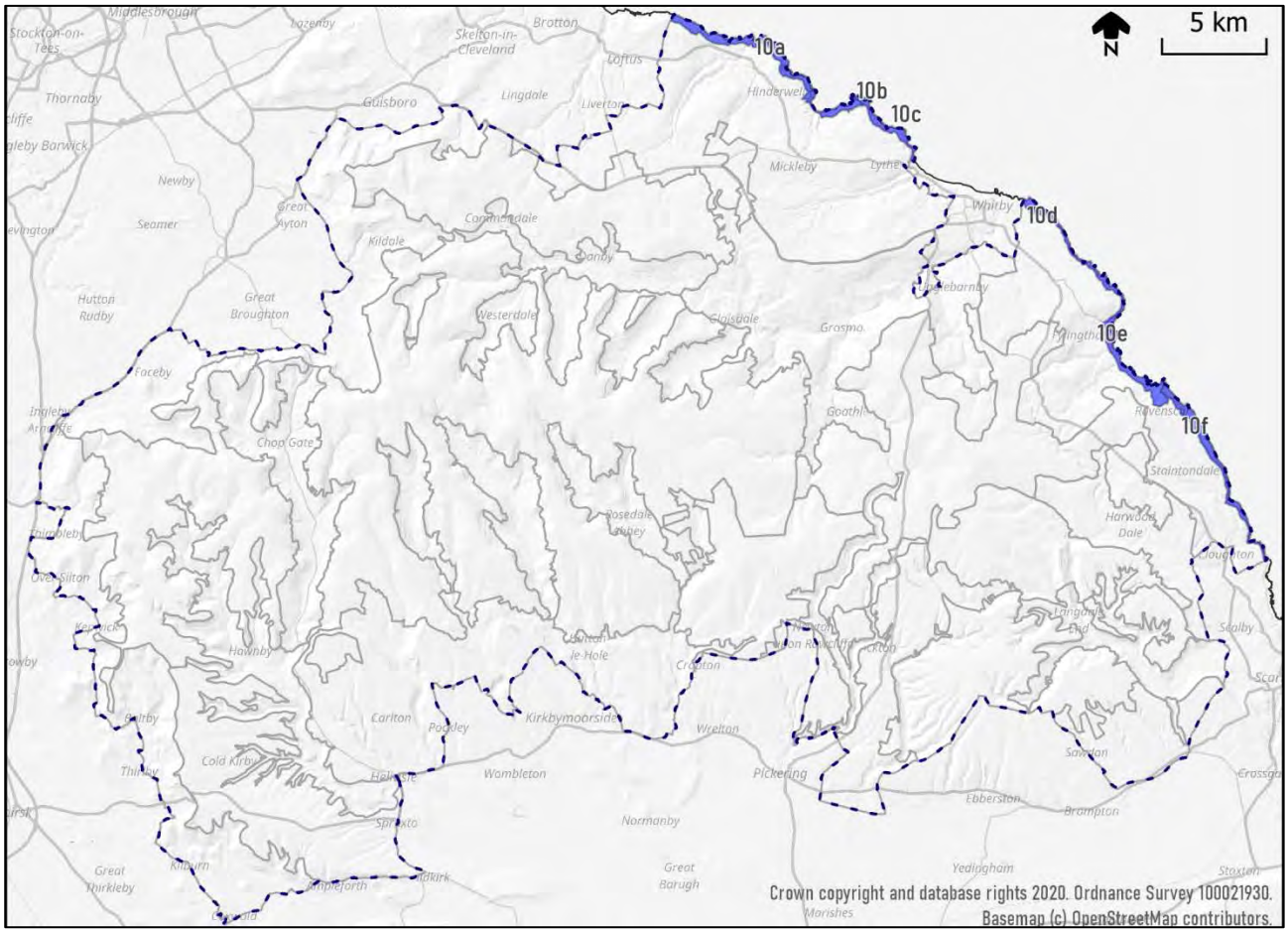
Fig.136 A typical scene within the Coast Landscape Character Type at Robin Hood's Bay, showing coastal grassland and woodland, historic coastal settlement, dramatic cliffs, and intertidal wave-cut platforms.

Location, Context and Setting

This Landscape Character Type (LCT) is located on the coast of the North York Moors National Park. It includes the settlements of Staithes, Runswick Bay and Robin Hood's Bay, but much of the LCT comprises inaccessible cliffs which can be appreciated from the England Coast Path or from the sea. The landward boundary of the LCT follows the England Coast Path/ Cleveland Way (with a couple of deviations to avoid splitting historic settlements) and the seaward boundary follows the National Park Boundary along the low water mark. The North Sea forms its marine setting, and LCT 4 (Coastal Hinterland) forms its landward setting. Land outside the National Park contributes to its setting around Boulby, Sandsend, Whitby and Burniston

Summary Description

This LCT is dominated by the sea and characterised by the spectacular coastline of the North York Moors National Park. It encompasses dramatic cliffs, picturesque historic fishing villages, broad bays, and striking intertidal features. The England Coast Path/ Cleveland Way enables access and coastal views for the entire length of the LCT. The LCT contains huge contrasts, from the coastal 'honeypots' of Staithes, Runswick Bay and Robin Hood's Bay, to inaccessible, wild and remote cliffs devoid of human influence. The coastline is dramatic and dynamic, constantly changing due to cliff falls and erosion. This in turn has led to the area becoming one of the most important places in the country for geological exposures and fossils. In past centuries it has been mined for alum and jet, and the remains of these industries add to the character of the coastline. There are uninterrupted views over the sea, with spectacular sunrises, and also strong visual connections with the Coastal Hinterland LCT, particularly in the bays where luxuriant wooded valleys run right down to the sea.



Location map for Coast Landscape Character Type (LCT) 10a = Staithes Coast; 10b = Runswick Bay; 10c = Kettleness to Sandsend; 10d = Saltwick to Ness Point; 10e = Robin Hood's Bay; 10f = Ravenscar to Burniston Point

Key Characteristics

- Visible geology of Jurassic sandstones, ironstones and shales, often containing fossils.
- Topography of high, rugged, often crumbling cliffs, interspersed with broad bays. The intertidal area contains a diversity of coastal geomorphological features including sand and shingle beaches, caves, reefs and wave cut platforms.
- Steep-sided gorges or coastal waterfalls where rivers and streams meet the sea.
- Much of the LCT is inaccessible, but there is some recreational land use, settlement and fishing.
- Coastal habitats include exposed and vegetated cliffs (including some of the most habitat-rich vegetated cliffs in the UK), coastal grassland, and a diversity of intertidal habitats.
- Tree cover limited to colonising trees and scrub on vegetated cliffs and wooded coastal valleys.
- Sections of cliff-top fencing (generally post and wire or post and rail) along England Coast Path demarcate it from adjacent fields, and provide a warning of the adjacent cliff edge.
- Extensive industrial archaeology, in particular alum workings along coastal cliffs, frequent military remains (WWII), and some shipwrecks.
- Picturesque historic fishing villages in tight coastal valleys, with houses appearing perched on top of each other up steep cliffs. Harbours or slipways provide access to the sea.
- Limited road access to the coast, particularly away from bays, but the England Coast Path runs the entire length of the LCT. Cliffs can also be appreciated from the shoreline and sea.
- Contrast between 'honeypot' villages, and remote, wild and tranquil cliffs.
- A dynamic and changing landscape and seascape, but a constant awareness of the sea.
- Magnificent and distinctive coastal views, and a strong artistic connection.

Natural landscape features

The geology of the Coast LCT is extremely complex, mainly comprising strata of Jurassic sandstones, ironstones and shales which occur in various combinations. The black shales of the Lower Jurassic period make up the lower sections of many of the cliffs, whereas the upper sections are the same sandstones as seen on the moorlands. The harder rocks (often sandstones) are associated with higher and sheerer cliffs. Where they are in alternating bands with softer rocks they form ledges and overhangs.

The softer Jurassic shales are more vulnerable to erosion and are associated with slumps and landslips. Erosion of these softer rocks has led to the creation of broad bays such as Runswick Bay and Robin Hood's Bay.

Fig.137 Banded shale cliffs at Boggle Hole, Robin Hood's Bay

The North York Moors coast is of enormous importance for its geology, particularly the exposures of different geological horizons (where layers of rock meet) and also for the fossils which are found here, including reptiles (for example ichthyosaurs and plesiosaurs), sea creatures such as ammonites, and fossil plants such as ferns and cycads. There are therefore numerous Local Geological Sites and Geological SSSIs along the coast. Mining for jet in shale cliffs has led to holes (known as 'hob holes') where miners followed the fossilized trunks of Jurassic monkey puzzle trees. Historic alum mining has resulted in entire headlands being quarried away, such as at Saltwick, Kettleness and Ravenscar.

Fig.138 Historic alum mining and processing has totally changed the shape of the headland at Kettleness

The highest cliffs (210m) are found at Boulby, which form the highest sea cliffs on the English East Coast. Cliff ledges provide habitats many nesting seabirds, including fulmar, herring gull, kittiwake and cormorant. The vegetated cliffs in the southern part of the LCT (south of Ravenscar) are designated Special Area of Conservation (SAC) for their 'vegetated sea cliffs of the Atlantic and Baltic coast habitat'. They contain a unique combination of geology, topography and plant communities, and are one of the best examples of vegetated cliffs in North-east England. Habitats include limestone grassland, acid heath, wet flushes, woodland and scrub. These cliffs are mostly inaccessible without specialist equipment, but smaller wooded coastal valleys can be reached, for example at Boggle Hole and Hayburn Wyke.

Fig.139 Coastal woodland at Hayburn Wyke

The intertidal zone contains a wealth of coastal geomorphological features, including sand and shingle beaches, reefs, pools, inlets, tidal rivers, caves and wave-cut platforms. These provide habitats for a wide range of crustaceans, seaweeds and other marine animals and plants. Because of the value of these areas for their habitats and geology, much of the intertidal has been designated SSSI. Runswick Bay is a Marine Conservation Zone (MCZ).

Fig.140 Intertidal zone at Robin Hood's Bay

Designation	Sites
SAC	Beast Cliff-Whitby (Robin Hood's Bay)
SSSI	Numerous, for geology (exposures and fossils) and coastal habitats.
LWS	Saltburn-Staithes Coast
LGS	Skinningrove to Staithes Coast
LNR	Hayburn Wyke (National Trust)
MCZ	Runswick Bay

Key designated nature conservation sites

Cultural landscape features

The historic fishing villages of Staithes, Runswick Bay and Robin Hood's Bay are some of the most distinctive and attractive settlements in the National Park. Here, the sea is an integral part of the locality. Red-roofed houses are crowded into tight cliff-foot locations, or confined to narrow valleys where there is a breach in the cliffs. Runswick Bay appears as a cluster of red-roofed buildings perched on top of each other up the cliff, overlooking a broad bay. Traditional buildings are often three-storey, constructed in stone or brick and render, and with pantile or slate roofs. Roads are very steep and narrow, and often the only access to houses is via a labyrinth of narrow alleys and steps. The coastal parts of all three settlements are Conservation Areas containing numerous Listed Buildings, and their traditional character has survived remarkably intact. The upper part of Robin Hood's Bay includes splendid Victorian villas and hotels, sited to make the most of views across the Bay.

Fig.141 Staithes village and harbour

Cultural landscape features are generally associated with the sea, whether that's as a source of food, a means of travel, a source of pleasure, or a source of danger.

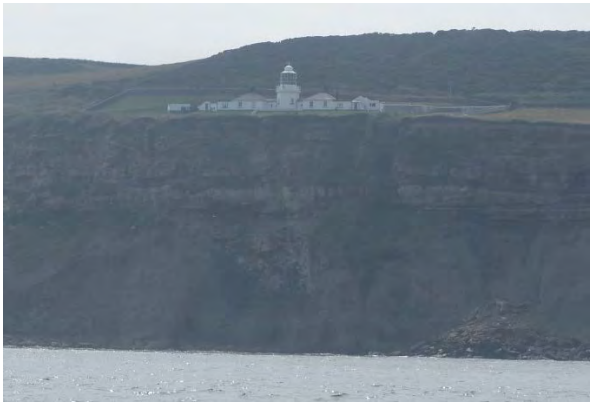


Fig.142 Ling Hill Lighthouse – Whitby High Light, from the sea

Such features include former mineral working sites, military defences, quays, slipways, the

clifftop hotel at Ravenscar (part of an unsuccessful speculative development) and Whitby Lighthouse. Protective structures such as sea defences and harbours are distinctive features of this LCT.

There are numerous Scheduled Monuments along the coast, mostly relating to former alum works. A number of these are at risk due to ongoing coastal erosion.

The intertidal area is rich in archaeology, including shipwrecks (for example the SS Woldridge at Port Mulgrave, of which only the boilers survive), slipways, harbour arms, and features thought to be associated with alum processing. There is also a strong association with the British tradition of saving lives at sea, including the lifeboat station at Runswick Bay. Traditional boats, known as cobles, are still a part of the coastal scene at Staithes.

The geological and cultural importance of LCT 10 means that the entire National Park coastline is included within the North Yorkshire and Cleveland Heritage Coast.

Designation	Sites
Scheduled Monuments	Numerous coastal Scheduled Monuments, mostly relating to historic alum works.
Conservation Areas	The most historic parts of Staithes, Runswick Bay and Robin Hoods Bay
Listed Buildings	Numerous, concentrated in Conservation Area settlements. Ling Hill Lighthouse and keepers cottages
North Yorkshire and Cleveland Heritage Coast	Entire LCT

Key designated heritage conservation sites

Fig.143 Coble boats at Staithes

Perceptual qualities and views

This is an exceptionally dynamic landscape and seascape, ever-changing in response to season, weather, light and tides. The sea can change from a bright blue reflective calm to a raging storm, to an impenetrable mist, utterly transforming the way the landscape and seascape are perceived. What is constant within this LCT is an awareness of the sea, whatever its mood. The characteristic dynamism of the coast is also physical, with frequent rock falls and slumps changing the profiles of the cliffs. Big skies and sweeping horizons are part of the seascape and add to its sense of spaciousness and drama.

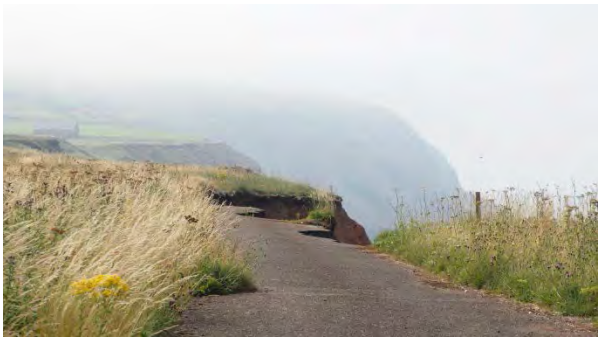


Fig.144 Coastal road lost to a landslip north of Staithes. Boulby Head is shrouded in mist in the distance.

The coast, particularly the bays and historic coastal villages, is a very popular place to visit, and many tourists and day visitors come here to enjoy the spectacular scenery, attractive villages, sandy beaches, and traditional seaside character. There are National Trust Visitor Centres at Robin Hood's Bay and

Ravenscar. In Staithes and Robin Hood's Bay car parking is restricted to the higher parts of the settlements, so the villages and seafronts remain largely free of vehicles.

Fig.145 Enjoying the beach at Runswick Bay in summer

There are marked contrasts between the 'honeypots' of the beaches and villages, and the more remote and inaccessible stretches of cliff. Here, access is only possible from the England Coast Path / Cleveland Way which runs along the cliff top. As a result there is a very strong sense of remoteness, wildness and tranquillity, and the naturalness of the coast can be appreciated. The coast is therefore identified as Remote Land in National Park Planning Policy.

The picturesque qualities of the coasts and coastal settlements (and the harsh realities of life for those who lived there) were appreciated by 19th and 20th Century artists, particularly watercolourists, who congregated at Staithes and Runswick Bay. The arrival of the railway in 1883 made the area easy to visit, and by 1900 it was considered to be an artists' haven. It remains popular with artists and photographers today.

'Staithes, Yorkshire' by John Wilson Carmichael (1799-1868) Photo Credit: British Watercolour Society. Public Domain Mark.

Views of the Coast LCT are experienced from sea to land, and from land to sea. The open sea forms the eastern horizon, occasionally punctuated by passing ships. Sea views are influenced by changing patterns of light, clouds, sun, moon and stars, and the sunrises over the sea are spectacular. The marine setting is key to the character of this LCT.

There are also strong visual relationships between the Coast LCT and the Coastal Hinterland (LCT 4), and some eastern parts of the Moorland (LCT 1). These visual relationships are particularly apparent in the bays, where the cliffs are lower, and the wooded valleys of the Coastal Hinterland meet the sea.

Near National Park boundaries, the setting of the LCT is influenced by areas outside the National Park, including west of Boulby, Sandsend, Whitby, and south from Burniston.

Fig.146 View south towards Scarborough from close to the National Park boundary at Burniston

Ecosystem Services provided by the Coast LCT

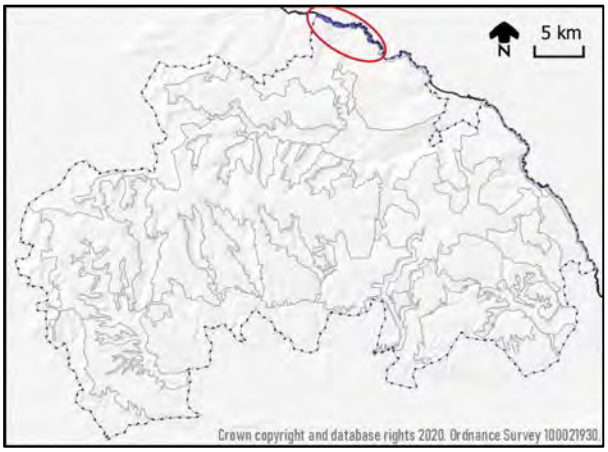
Type of Ecosystem Service	Existing Contributions	Opportunities
Cultural Services	The historic coastal settlements of Staithes, Runswick Bay and Robin Hood's Bay are very attractive, and popular with tourists. They have also been (and remain) artistic hubs. The England Coast Path / Cleveland Way which runs the entire length of the LCT provides long-distance walking opportunities, as well as magnificent views of the coastline, and the chance to experience some of the most remote, tranquil and wild parts of the National Park, as well as dark night skies. Time spent by the coast, whether on a remote stretch of coast path, on a popular sandy beach, or exploring rock pools, is of benefit to peoples' health and wellbeing. The LCT is of national and international significance for its geology, fossils and contribution to human understanding of geology and evolution.	The dynamic nature of the coast creates constant opportunities for geological study of newly-revealed exposures and fossils.
Provisioning Services	Fishing takes place along the coast, particularly shellfish and lobsters, with fishing boats working out of Staithes and Robin Hood's Bay.	The designation of a Marine Conservation Zone promotes best practice in sustainable fishing.
Regulating Services	Cliffs, beaches and shorelines absorb wave energy, helping to reduce (but not necessarily remove) the need for shoreline sea defences to protect coastal settlements from coastal erosion. This role is particularly important during storm events. Coastal processes such as longshore drift replenish beaches within or outside the LCT.	Climate change and associated sea level rise and increased storm events may mean that additional artificial sea defences are required. If designed with ecosystem services in mind, these could also provide habitats and access opportunities.
Supporting Services	The LCT provides a spectrum of coastal and marine habitats supporting a range of coastal and marine species, including birds, fish, crustaceans, coastal flowers and grasses, trees, seaweeds, and other species growing in intertidal habitats. Vegetation also helps to stabilise cliffs.	There is potential to expand and link coastal grassland and woodland habitats, increasing their value to wildlife and potentially helping to stabilise cliffs.

Landscape Character Area Descriptions

There are six distinctive Landscape Character Areas (LCAs) within the Coast LCT. These are described on the following pages.

Landscape Character Area 10a: Staithes Coast

Fig.147 A typical scene in LCA 10a, looking north over Staithes from the England Coast Path. The high cliffs of Boulby Head form the horizon.



Map showing the location of LCA 10a within the National Park

This LCA is the most northerly of the coastal LCAs, and extends from the National Park boundary west of Boulby to Runswick Bay. It comprises the cliff top, cliffs, and intertidal area between the England Coast Path and the low water mark. The boundary diverts from the England Coast Path for a short section at Staithes so that all of the historic part of the village is included within the Coast LCT.

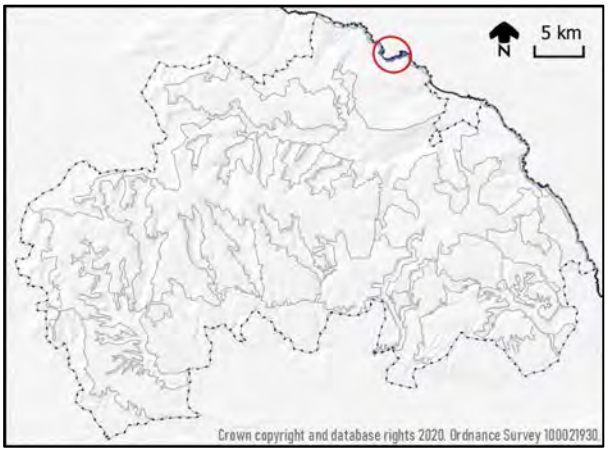
The LCA is dominated by the towering cliffs of Boulby Head. At 210m high, they are the highest sea cliffs on the East Coast. These cliffs (and the associated intertidal area) are designated as Local Geological Sites and Local Wildlife Sites. To the east of Staithes the cliffs and intertidal area are designated SSSI for their geological exposures. This area is also part of the Runswick Bay Marine Conservation Zone.

The picturesque fishing village of Staithes (a Conservation Area), with its sheltered harbour, and houses running down a narrow valley to the sea, is located in the centre of the LCA. Staithes is a popular tourist destination, so this part of the coast has a busier feel then elsewhere. South of Staithes is the remains of Port Mulgrave, with the terraced cottages of mine and harbour workers prominent on the cliff top.

The area has a long (and continuing) history of mineral extraction. The historic alum quarries at Boulby Cliff are designated SSSI for their unusual geological exposures and the fossil reptiles which have been found there, including plesiosaur and ichthyosaur. Port Mulgrave contains the remains of a harbour and associated tunnels constructed in the late 19th Century for the export of ironstone. Today, the prominent potash at Boulby (slightly inland from the coast, located in LCA 4A) dominates many views within the LCA, and appears within the setting of Staithes village in views from land and sea.

Landscape Character Area 10b: Runswick Bay

Fig.148 A typical scene in LCA 10b, looking over Runswick Bay from the England Coast Path. The village of Runswick Bay can be seen in the foreground, with Kettleness in the distance. Wooded valleys meet the coast here.



Map showing the location of LCA 10b within the National Park

This LCA comprises Runswick Bay, between the England Coast Path and the low water mark. It includes cliffs, beach, intertidal areas and the village of Runswick Bay. The eastern end of the Bay is marked by the distinctive headland of Kettleness. The shape of the headland has been dramatically altered by centuries of mining for alum, and it now resembles the head of a reptile rising from the water.

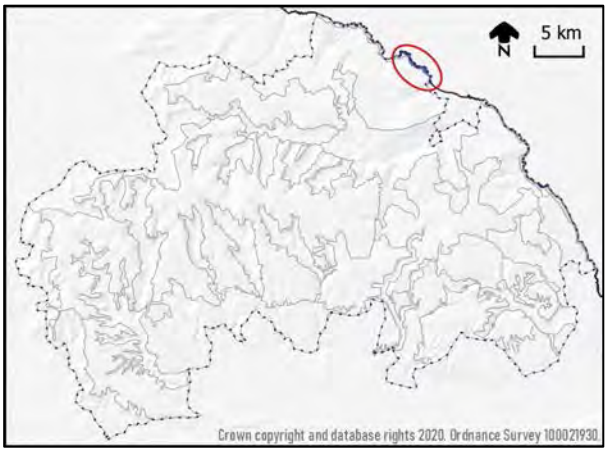
The intertidal habitats of Runswick Bay are relatively shallow, and contain underwater reef habitats, boulders, pools, caves and sandy beaches, exposed to very strong waves and currents. The rock and sediment forms a range of habitats which support a number of species, including various crustaceans. The LCA is part of the Runswick Bay Marine Conservation Zone. Unusual species are found here, including the Ocean Quahog, a cockle-shaped bi-valve which lives entirely buried in the sand with a small tube extending to the surface for breathing and feeding. Abundant sand eels provide food for gannets and other sea birds.

The cliffs are relatively low within this LCA compared to other parts of the coast. Where the wooded valleys of Nettle Dale, Dunsley Dale and Barnby Dales meet the sea there are no cliffs at all. The combination of a broad, sandy beach backed by low wooded land is a distinctive feature of this LCA.

The popular village of Runswick Bay runs steeply between the beach and the clifftop, with the red-roofed houses appearing to be stacked on top of each other. At the top of the beach is the old lifeboat house, with colourful boats pulled up alongside. Like the adjacent village of Staithes, Runswick Bay was a favourite haunt of artists in the 19th Century, and is now a Conservation Area. Further round the Bay, there are particularly good examples of former jet workings in the cliffs, known as 'hob holes'.

Landscape Character Area 10c: Kettleness to Sandsend

Fig.149 A typical scene in LCA 10c, showing the cliffs and disused alum quarries at Sandsend Ness. The tower of Lythe church appears as a triangle on the horizon.



Map showing the location of LCA 10c within the National Park

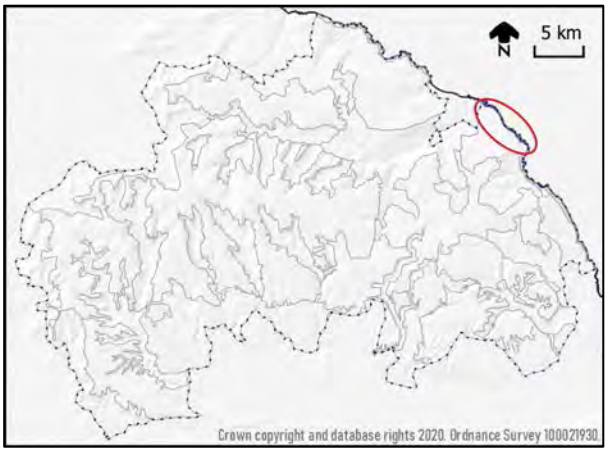
This LCA runs from Kettleness to the National Park boundary at Sandsend. It includes cliff top, cliffs and intertidal areas between the England Coast Path and the low water mark. It forms the southern part of the Runswick Bay Marine Conservation Zone.

The Kettleness to Sandsend Coast is relatively inaccessible, with road access only at Kettleness. There are no settlements within the LCA, and much of the LCA can therefore only be seen or experienced from the Coast Path or the sea. This gives it a particularly strong sense of remoteness and tranquilly, and a feeling of having escaped the crowds which can gather at the more accessible stretches of coast. This stretch of coastline has a marked lack of built features, which are limited to distant views of Sandsend and Whitby, and Lythe church tower, which can be seen on the skyline in views from the sea.

The cliffs are notable for their irregularity, resulting from a combination of historic alum mining, and natural coastal erosion. Some of the cliff tops and clefts are vegetated, but elsewhere the cliffs comprise exposed rock. Caves can be seen at the cliff bases. The geological stratifications within the cliffs are very apparent, as are the variations in colour of rock, which encompass many shades of brown, orange and grey.

Landscape Character Area 10d: Saltwick to Ness Point

Fig.150 A typical scene in LCA 10d, looking south from Saltwick. Slumped cliffs can be seen in the foreground



Map showing the location of LCA 10d within the National Park

This LCA runs from Saltwick (south of Whitby) to Ness Point, and includes the cliff top, cliffs and intertidal areas between the England Coast Path and the low tide mark. This is a relatively inaccessible stretch of coast, with no public roads or settlements, although there are some cliff-top caravan sites which reduce the sense of naturalness and isolation.

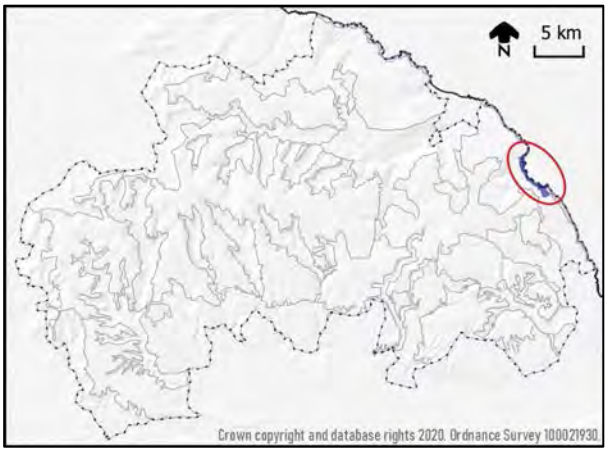
Whitby lighthouse is a landmark from the Coast Path and the sea. From the northern part of the LCA there are views from land and sea to the dramatic ruins of Whitby Abbey, which also adds to the sense of place.

The cliffs near Saltwick have a distinctive 'scalloped' profile when viewed from the sea, due to slumping of the cliff tops. Stacks and the small island of Saltwick Nab (former alum quarry and designated Scheduled Monument) add to the character of the shoreline.

In the southern part of the LCA, the bedding planes in the cliffs appear wider, and the cliffs are particularly dramatic. They appear as sheer and less vegetated, but also fragile, with evidence of cliff falls and undercutting. There are occasional wooded 'notches' where streams meet the coast, such as Oakham Beck and Rain Dale, creating spectacular coastal waterfalls after heavy rain. South of Maw Wyke, the LCA is designated SSSI for its geology and the sequence of marine biotopes found on the foreshore. Hawsker Bottoms and Maw Wyke are important palaeobotanical sites, and have provided rare fossils including Jurassic corals and fine examples of fossil ferns.

Landscape Character Area 10e: Robin Hood's Bay

Fig.151 A typical scene in LCA 10e, looking south across Robin Hood's Bay towards Ravenscar. The village of Robin Hood's Bay is on the right hand side of the picture.



Map showing the location of LCA 10e within the National Park

Robin Hood's Bay is the largest of the bays along this stretch of coast, and is clearly defined by Ness Point to the north and Ravenscar to the south. It includes part of the settlement of Robin Hood's Bay, and the Raven Hall Hotel and its grounds. The cliff tops, cliffs and intertidal areas between the England Coast Path and the low tide mark are included within this LCA. The boundary deviates from the England Coast Path through Robin Hood's Bay village in order to ensure that all of the historic settlement is included within the Coastal LCT.

The bay enables a much greater awareness of the inland landscape when viewed from the coast and sea, and this LCA displays a strong physical, visual and cultural relationship between LCT 4 (Coastal Hinterland) and LCT 10 (Coast).

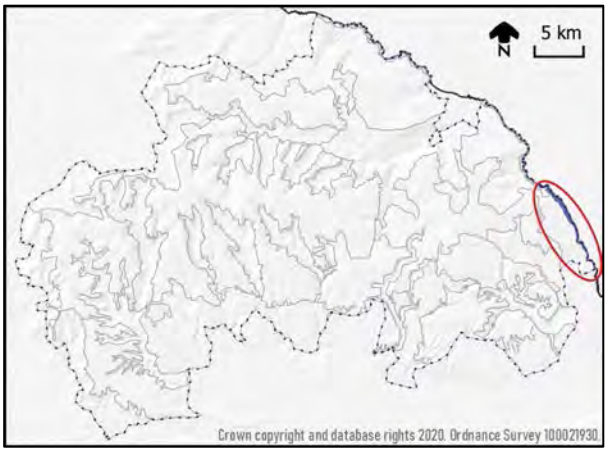
The village of Robin Hood's Bay is a striking, and popular, feature of the bay. In the oldest part of the village, a jumble of historic houses within a steep coastal valley appear to be perched on top of each other. Many properties can only be accessed by steep alleys or steps. Above them, on flatter land at the cliff top, large Victorian hotels and villas were sited for their views, and add to the character of the settlement. On the opposite side of the Bay, the Ravenscar Hotel can be seen on the horizon, part of a speculative Edwardian resort which was largely unsuccessful.

Erosion of the low cliffs in the centre of the Bay is particularly active, with recent damage to the Coast Path due to undercutting and slumping. The cliff line is broken by a series of notches where wooded valleys meet the sea. One contains the spectacularly-sited former watermill (now a Youth Hostel) at Boggle Hole.

The patterns of the intertidal wave cut platforms and reefs are striking at low tide. They are part of the Robin Hood's Bay SSSI, designated for its outstanding geological interest, its marine habitats and its coastal vegetation.

Landscape Character Area 10f: Ravenscar to Burniston Point

Fig.152 A typical scene in LCA 10f, showing the well-vegetated cliffs at Common Cliff, south of Ravenscar.



Map showing the location of LCA 10f within the National Park

This LCA comprises the coast between Ravenscar in the north and the National Park boundary at Burniston Point in the south. It includes the cliff top, cliffs and intertidal area between the England Coast Path and the low water mark. There are no settlements or roads in this stretch of coastline, so access is by boat or the England Coast Path.

The cliffs south of Ravenscar (including Beast Cliff and Common Cliff) are of exceptional importance for their conservation value, and are designated SSSI and Special Area of Conservation. The cliffs are largely inaccessible, and their geology, topography and drainage has enabled the establishment of a diverse range of coastal habitats which are rarely found adjacent, including limestone grassland, acid heath, scrub, flush habitats and woodland. Trees include pioneer species such as hawthorn, blackthorn and willow, with oak cover beginning to appear. Sandstone boulders support mosses and ferns, and freshwater pools support wetland plants and scrub. Pioneer plant communities thrive on newly-eroded material, whilst more stable parts of the cliffs are home to more established vegetation. Conservation grazing by cattle helps to manage habitats and retain their diversity. Primitive and undisturbed habitats also occur in the coastal valleys, the most accessible of which is Hayburn Wyke.

The cliffs become lower at the southern end of the LCA, but are still of great geological importance and designated SSSI. Cloughton Wyke is a particularly important site for fossil plants, including corals, cycads and ferns.

The small concrete structures of a WWII Radar Station can be seen on the cliff top to the south of Ravenscar. Its East Coast position meant it could provide early warnings of airborne attacks to inland cities.

Forces for Change acting on the Coast LCT

Issue/ Force for Change	Landscape sensitivities and potential impacts	LCAs affected
Dynamic coastal processes and climate change	Coastal processes such as landslips, slumping, erosion and flooding are particularly apparent in stretches of coast where the rocks are relatively soft, or their structure makes them vulnerable to slippage. Coasts are naturally dynamic environments, but climate change impacts (for example sea level rise, and increased frequency and intensity of storms and rainfall) exacerbate these processes. This in turn threatens coastal settlements, increasing the need for sea defences.	All
Biodiversity loss and 'coastal squeeze'	Coastal erosion leads to 'coastal squeeze': loss of coastal habitats (such as coastal grassland on cliff tops), and damage to paths and roads which may need to be re-routed further inland. This is already happening on several stretches of the England Coast Path. Raised seawater temperatures due to climate change may also affect which species can survive in coastal waters, impacting on biodiversity and food chains.	
Expansion or change in character of historic coastal settlements	The historic coastal fishing villages of Staithes, Runswick Bay and Robin Hood's Bay are amongst the most distinctive and attractive settlements in the National Park. Their character would be compromised by settlement expansion at the coast, loss of setting, or loss of character through insensitive modernisation such as installation of plastic windows or concrete roof tiles.	A, B, E
Visually intrusive coastal land uses	There is intervisibility between LCT 10 (Coast) and the adjacent LCT 4 (Coastal Hinterland). Therefore land uses in LCT 4 will impact on the appearance of the coast. Existing examples include caravan/ chalet parks, expansion of cliff-top settlements, and (most prominently) the potash mine at Boulby. Boulby mine can be seen from stretches of the Coast Path as well as the sea, and appears prominently in the setting of Staithes when viewed from the Coast Path and the sea. More subtle land use changes visible from the coast include biomass crops, vines, and non-native forestry plantations. Views from the LCT are vulnerable to visually-intrusive developments and land use changes outside the National Park, particularly around Whitby, Boulby and Burniston.	All
Marine developments	At present the seaward horizon is open, punctuated only by passing shipping. Marine developments such as offshore wind turbines would impact on the seaward setting of the National Park, including through light pollution. Associated on-shore infrastructure such as cable landings and substations could introduce man-made features into an otherwise entirely natural stretch of coastline, reducing the sense of remoteness, wildness and tranquillity.	All
Visitor pressure	The North Yorkshire Coast is one of the most highly-visited coastal areas of the country, with in excess of 10 million visitors per year. Concentrations of visitors at key destinations can lead to issues with parking, erosion of paths, trampling of fragile habitats, littering and disturbance of wildlife.	A, B, D, E

Loss of historic sites	Increasing coastal erosion, exacerbated by climate change leads to accelerating loss of historic coastal sites such as alum works, military defences and historic coastal buildings.	

Landscape Guidelines for the Coast LCT

Protect

- Protect the sense of remoteness and naturalness present along the coast, and avoid new placing new development or structures (such as communications masts) in isolated coastal locations.
- Protect the character and settings of historic coastal settlements, particularly Staithes, Runswick Bay and Robin Hood's Bay.
- Protect archaeological and nature conservation sites.
- Protect the clifftop skylines in views from the coast and coast path.
- Protect the marine setting of the National Park, particularly from developments which would impact on its tranquillity, wildness and remoteness.
- Protect the onshore setting of the National Park's Coast (for example around Boulby, Whitby and Burniston), particularly from highly intrusive or cumulative development.
- Protect dark night skies.

Manage

- Manage nature conservation sites where active management is required, such as through conservation grazing at Common Cliff / Beast Cliff SAC, in accordance with Management Plans. There are opportunities for natural colonisation of coastal woodland on cliffs.
- Manage coastal grasslands on cliff tops through grazing and/ or mowing as appropriate.
- Protect coastal archaeology through integrated management and a clear understanding of the implications of change for physical remains. Target Scheduled Monuments at Risk with appropriate management wherever possible.
- Manage the England Coast Path / Cleveland Way, re-routing inland where necessary in response to coastal erosion. Act quickly to re-use existing slabs and other structures where possible, so they are not lost. Keep signage and access structures such as gates low-key to minimise their impact and avoid damaging the sense of remoteness and wildness.

Plan

- Raise awareness of the coast's sensitive and unique nature amongst communities and visitors. Change perceptions so the coast becomes something to be supported rather than exploited.
- Ensure development proposals visible from the coast (within the National Park or its marine or landward setting) are appropriately assessed, and adequate mitigation is in place, particularly where there may be cumulative impacts.
- Use Conservation Area Appraisals, Design Guides, etc. to retain the distinctive character of historic coastal settlements. Protect their settings from development or land use changes which would harm views of the settlements from the coast or sea.

- Take a proactive and targeted approach to recording historic buildings, structures and remains that will be lost to coastal erosion.
- Where change to historic buildings / structures is enabled through the planning system, ensure that it protects / enhances the significance of the heritage asset in question and is informed by a proper understanding of the asset in advance.
- Work with other interested parties to manage the coast as a cohesive and holistic ecosystem which extends beyond artificial boundaries using integrated coastal zone management. Long term environmental improvements should be based around strategic change, applying natural capital and biodiversity net gain principles to the marine environment.
- Recognise the aspiration to protect the marine environment through a national marine park.

Part 4: Appendices

Fig.153 North Yorkshire Moors Railway at the head of Newtondale

Appendix A: References and Sources of Further Information

British Geological Survey *North York Moors Holiday Geology Map* (1998)

Chris Blandford Associates *North Yorkshire and York Landscape Characterisation Project* (2011)

Defra *Runswick Bay Marine Conservation Zone Factsheet* (2016)

Forestry Commission *Forest Plans for Cropton, Kilburn and Oldstead, Langdale, Wass and Pry Rigg, Dalby and Wykeham*

Gillespies *Ryedale Landscape Character Assessment* (1999)

Historic Environment Service *England's Historic Seascapes – Scarborough to Hartlepool and Adjacent Marine Zone* (2007)

LUC for Marine Management Organisation *Seascape Character Assessment for the North East Inshore and Offshore Marine Plan Areas* (2018)

LUC *Hambleton Landscape Character Assessment and Sensitivity Study* (2016)

LUC *Scarborough Landscape Study* (2013)

Natural England *National Character Area Profile 25: North York Moors and Cleveland Hills*

North York Moors National Park Authority (some with Ryedale District Council) *Conservation Area Appraisals for Ampleforth, Ayton, Castleton, Fylingthorpe, Helmsley, Osmotherley, Robin Hood's Bay, Staithes and Thornton-le-Dale*

North York Moors National Park Authority *Design Guide* (2008)

North York Moors National Park Authority *Local Plan* (2020)

North York Moors National Park Authority *North York Moors Management Plan* (2016)

Redcar and Cleveland Borough Council *Redcar and Cleveland Landscape Character Assessment* (2006)

Rosenburgh and Marrs *The Heather Beetle: A Review* (2010)

Scarborough Borough Council *Conservation Area Appraisal of Scalby* 2008

Truman, A.E. *Geology and Scenery in England and Wales* (1971 ed.)

White Young Green *North York Moors Landscape Character Assessment* (2003)

www.magic.defra.gov.uk (contains interactive map and links to national and international designation citations)

www.northyorkmoors.org

www.jncc.defra.gov.uk

www.artuk.org

www.nationaltrust.org.uk

www.english-heritage.org.uk

www.ywt.org.uk

www.nymr.co.uk

Appendix B: Changes made to Landscape Character Type / Area boundaries and names during the updating process

During the update process a small number of locations were identified where amendments to LCT/ LCA boundaries would strengthen the Assessment or make it easier to use. In these cases (set out below) changes were made to LCT/ LCA boundaries. Some of the LCT/ LCA names were also updated to make them clearer. Rectifying minor anomalies resulting from the past mapping or digitisation of the LCT boundaries did not form part of the brief.

LCT	Change made
LCT 1	Former LCA 1b split into two LCAs to recognise the distinctive character of the eastern moorland.
LCT 1/9	Roseberry Topping changed from LCT 1 to LCT 9 as it is not open moorland and better reflects the landscape characteristics of LCT 9.
LCT 2	Name changed from 'Narrow Moorland Dale' to 'Moorland Dales' to avoid confusion with narrow upland valleys within the Moorland LCT.
LCT 4/10	Former LCT 4 'Coast and Coastal Hinterland' split to recognise the distinctive character of the coast. LCT 4 now known as 'Coastal Hinterland'. LCT 10 known as 'Coast'.
LCT 5	LCAs simplified to reflect geographical distribution rather than topography.
LCT 5	Boundary of LCA 5a/2a tweaked so all designations associated with Duncombe Park are within LCT 2.
LCT 6	LCT name simplified from 'Narrow Glacial Channels and Griffs' to 'Glacial Channels'
LCT 8	Boundary between LCT 8 and LCT 4 near Ruswarp amended to give better consistency with the LCT boundaries of the neighbouring Assessment (outside the National Park).
LCT 9	LCT name changed from 'Upland Fringe' to 'Western Escarpment' as this was felt to be more geographically accurate.
LCT 10	This is a new LCT (containing six new LCAs) reflecting best practice in Seascape Character Assessment at the coast.

Appendix C: List of Consultees

The following organisations were consulted during the production of the updated Landscape Character Assessment:

Aaron Davies

Ancient Monuments Society

Ayton Moor

Baysdale Estate

Buglife - The Invertebrate Conservation Trust

Butterfly Conservation

Camphill Village Trust

Cawthorn Moor

Cleveland Naturalists Field Club

CNP

Commondale & Guisborough

Council for British Archaeology

Council for National Parks

Country Land & Business Association

Cowesby Estate

CPRE North Yorkshire

Dawnay Estates

Duchy of Lancaster

Duncombe Park Estate

Egton Estate

Environment Agency

Esk Valley Railway Development Company

Farndale Estate

Forestry Commission

Forestry England, Yorkshire Forest District

Fylingdales Moor MOD

Hackness Estate

Hambleton District Council

Highways England

Historic England

Howardian Hills AONB

Ingleby Moor

Kepwick Estate

Kildale Estate

Kirkby Knowle

Lord Derwent

Marine Management Organisation

Mexborough Estates

Mobile UK

Mulgrave Estate

National Grid

National Trust

Natural England

Natural England

Nawton Tower Estate

Newburgh Priory Estate

North Yorkshire County Council

Northern Gas Networks

Northern Powergrid

Northumbrian Water

North Yorkshire County Council

North York Moors Association (NYMA)

North Yorkshire Moors Railway

Office of Rail Regulation

Raincliffe Wood Community Enterprise

Ramblers' Association

Redcar & Cleveland Borough Council

Rosedale and Westerdale Estate

Roxby Estate

Royal Forestry Society

Royal Society for Protection of Birds (RSPB)

Ryedale District Council

Ryedale Natural History Society

Scarborough Borough Council

Scarborough Field Naturalists Society

Skelton & Gilling Estate

Sleights & Ugglebarnby

Snilesworth Estate

Society for the Protection of Ancient Buildings

Spaunton Estate

Tees Archaeology

Tees Rivers Trust

Tees Valley Wildlife Trust

The Conservation Volunteers (TCV)

The Rivers Trust

The Woodland Trust

Thimbleby Estate

Urra Estate

Whitby Naturalists

York, North Yorkshire & East Riding Local Enterprise Partnership

Yorkshire Archaeological & History Society

Yorkshire Archaeological Society

Yorkshire Derwent Catchment Partnership

Yorkshire Marine Nature Partnership

Yorkshire Peat Partnership

Yorkshire Water

Yorkshire Wildlife Trust

Appendix D: Glossary

Acronyms

AONB	Area of Outstanding Natural Beauty
AW	Ancient Woodland
CWS	County Wildlife Site
GIS	Geographic Information System
HER	Historic Environment Record
JNCC	Joint Nature Conservation Committee
LCA	Landscape Character Area
LCT	Landscape Character Type
LGS	Local Geological Site
MCA	Marine Character Area
MCZ	Marine Conservation Zone
NCA	National Character Area
NNR	National Nature Reserve
PAWS	Plantation on Ancient Woodland Site
RIGS	Regionally Important Geological Site
SSSI	Site of Special Scientific Interest
SAC	Special Area of Conservation

Technical Terms

Access Land Land mapped as 'open country' (mountain, moor, heath and down) or registered common land, to which the public has a right of access for recreation under the Countryside and Rights of Way (CROW) Act 2000

Alluvium Material deposited by a river

Alum A chemical substance containing aluminium, used in dyeing and tanning, and as an astringent

Ancient Woodland An area that has been wooded continuously since at least 1600AD.

Ash die-back Disease affecting ash trees (also called Chalara) caused by the fungus Hymenoscyphus fraxineus

Barrow A mound of earth or stones, usually covering a burial or burials

Blanket bog A peatland habitat found on flat or gently undulating ground in the British uplands where there is high rainfall. Under these 'waterlogged' conditions, peat forms from the partial decomposition of wetland plants, particularly Sphagnum mosses. The peat gradually accumulates, and over thousands of years can reach depths of several metres. The blanketing of the ground with peat gives this habitat its name.

Bronze Age Archaeological period c. 2,000-700BC

Cairn An artificial pile of stones

Calcareous Rocks containing calcium carbonate such as limestone or chalk

Carbon sequestration The absorption and storage of atmospheric carbon in, for example, trees and soils

Cist Stone-lined grave, covered with stone capstone, generally dating to the earlier part of the Bronze Age

Coping stones The stones which form the top of a wall

Coppice/coppicing Method of managing woodland in which trees are cut every 10-15 years for small diameter wood

Coupe An area of felled trees in a forestry harvesting operation

Curtilage The area of land surrounding a building, such as a garden. Not all buildings have a curtilage. For the purposes of listed building legislation it can be defined as *an area of land around a listed building within which other buildings pre-dating July 1948 may potentially be considered listed.*

Dispersed (settlement) A scattered settlement pattern with buildings spread out without a clear centre

Ecosystem services The benefits gained by people from the natural environment. (See section 1.4 for more information and associated terminology)

Exotic trees Species of trees which are not native to the UK, and which have been introduced from other parts of the world, often as part of ornamental planting schemes within gardens and estates

Flush A relatively fertile habitat which occurs where water emerges from springs and seepages (e.g. through cracks in rocks). The water keeps soil conditions moist and brings in nutrients derived from solution from soils and rocks.

Frost shattering The result of water repeatedly freezing and thawing inside open spaces in rocks. The forces produced are so great that the rock shatters

Geodiversity The natural range of geological features (rocks, minerals, fossils, structures) geomorphological features (landforms and processes) and soil features that make up the landscape

Griff A deep narrow valley or ravine

Holocene Geological period c. 0.01 million years ago to present

Improved (pasture) Fields used for grazing stock which have been made more fertile through the application of artificial fertilizer, liming, draining etc.

Incised Steeply and deeply cut

Incline A slope, in this case short for an 'inclined plane': A slope used to raise a load with less force

Iron Age Archaeological period c.400BC-43AD

Jurassic Geological period c.200-145 million years ago

Landscape Character Area (LCA) A single unique area which is the discrete geographical area of a particular landscape type. Each has its own individual character and identity.

Landscape Character Type (LCT) Distinct types of landscape that are relatively homogenous in character. Wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, historical land use, and settlement pattern.

Leat An artificially-cut water channel, often dug to provide a water supply for a mill

Lime kiln Site where limestone was burnt to provide lime for fertiliser, builders' mortar etc.

Linear development A settlement pattern which follows a line, such as a road or river bank

Lyme disease A bacterial infection spread to humans by infected ticks

Lynchet Earthwork formed by the downslope build-up of soil, caused by ploughing on a slope.

Masking (sound) A sound capable of obscuring the presence of unwanted noise

Mesolithic Archaeological period c. 10,000BC-4,000BC

Motte (and bailey) A mound, surrounded by a ditch, on which the strongpoint of a castle was built, overlooking the bailey (enclosed courtyard)

Natural Assets The elements of nature that produce value and benefits (directly and indirectly) to people (See section 1.4 for further explanation and associated terminology)

Neolithic Archaeological period c. 4,000-2,000BC

Non-Native species and invasive non-native species A species introduced (e.g. bu human action) outside its natural past or present distribution. An invasive non-native species is any non-native animal or plant that has the ability to spread, causing damage to the environment, economy, our health or the way we live

Nucleated settlement Settlement with a distinct core with buildings closely grouped together

Pale Earthwork (and sometimes a wall) marking the boundary of a medieval deer park

Periglacial An area where the freezing and melting of ground ice is the dominant process. The term literally means 'around a glacier' but a glacier is not necessary for periglacial conditions to occur.

Photosynthesis The process by which plants make food using the energy of sunlight

Phytophthora ramorum Destructive parasitic fungi causing brown rot in plants

Pillbox A small military defensive guard post, usually constructed of concrete, but occasionally of locally-available materials, with openings through which weapons can be fired

Pillow mounds Elongated artificial rabbit buries which provided a dry and easily-dug home for rabbits, which could then be trapped using ferrets or dogs and nets

Polyhalite An evaporite mineral containing sulphate, potassium, magnesium and calcium, used as fertilizer

Potash mined or manufactured salts containing water-soluble potassium, used for fertilizer

Promontory fort A type of hillfort, usually of Iron Age date, constructed on the projecting spur – or promontory – of a cliff or hill. The steep sides of the hill may act as an extra level of defence.

Rapid Coastal Zone Assessment Scheme A national attempt to quantify the English coastal archaeological resource. A series of *Rapid Coastal Zone Assessment Surveys* were commissioned by Historic England (formerly English Heritage) and are available online

Ridge and furrow Long parallel ridges of soil separated by linear depressions, caused by repeated ploughing using a heavy plough. Broad ridges (5m spacing) are indicative of the medieval period; narrower gaps suggest post-medieval cultivation

Riparian Of, or on, a riverbank

Royal hunting forest Land set aside and subject to forest law where hunting was reserved for the monarch, or, by invitation, the aristocracy.

Sphagnum moss Any moss of the genus *Sphagnum,* found in temperate bogs. Its leaves are capable of holding water, and its decomposing remains form peat

Time-depth Ability to see a range of historic features which have been created over many years

Unimproved grassland Grassland which has not been treated with fertilizer, lime or artificial drainage to improve yields

Vernacular Architecture concerned with domestic and functional rather than public or monumental buildings. It generally utilizes locally-available materials and techniques to create buildings with a distinctive local character.

Veteran trees Trees that are or look old relative to others of the same species. Characteristics include very large girth for the species, hollow or hollowing trunk and a large quantity of dead wood in the canopy

Wave-cut platform A nearly-flat area of bare rock that is found just offshore and close to mean sea level. It is cut by the actions of waves and weathering