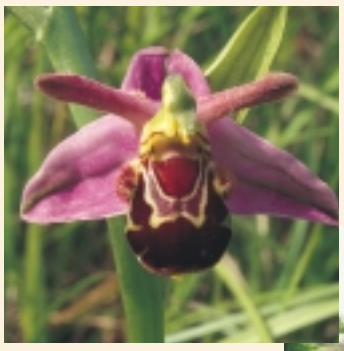
ENGLISH NATURE

Natural Areas in the Yorkshire & the Humber Region

helping to set the regional agenda for nature



Introduction

Regional strategies and policy documents are being drawn up by the newly-created regional organisations. These are Required to encompass the protection and management of the environment by applying the principles of sustainable development.

This document has been produced by English Nature, the Government body that promotes the conservation of wildlife and natural features throughout England. It is for use by the Regional Development Agency, the Government Regional Office and the Regional Chambers, when making regional policy. We hope that it will provide a starting point for discussion with our network of Regional Lead Teams, who can provide valuable support, and links into wider partnerships.

The conservation of nature is a key test of policy in all three facets of sustainable development, the social, the economic and the environmental. While its role in the environment is self evident, it also has social implications through the spiritual, cultural and recreational value of people's experience of the natural world; and economic implications through the provision of exploitable resources and the attractiveness to investors of high quality environments.

If we are serious about achieving sustainable development, then understanding the priorities for the conservation of the biodiversity and Earth heritage resource of the Region is therefore essential. This report is a first step towards that understanding, and provides the basis for integrating local and national priorities for nature into the Regional decision-making framework. It contains information of direct relevance to the development of Regional Planning Guidance and Single Programming Documents to support the delivery of European Union Structural Funding, regeneration funding and other economic and social programmes.

The Ministry of Agriculture, Fisheries and Food, the Environment Agency, the country forestry organisations, local authorities and statutory and other agencies involved in land use and land management issues will also find it relevant and, we hope, of value.

We envisage that this document can therefore be used at a number of key points within the regional strategy-making and planning process.

Humber Bridge. Peter Roworth/English Nature

School visit to Thorne Moor. Peter Roworth/English Nature

Relevant Government Planning Policy Guidance (PPG)

PPG 7: The Countryside: environmental quality and economic and social development
PPG 9: Nature Conservation
PPG 11: Regional Planning Guidance
PPG 12: Development Plans and Regional Planning Guidance (presently under review)
PPG 13: Transport

Department of the Environment, Transport and the Regions Policy Guidance: Policy appraisal and the environment (DETR, 1998).

Natural Areas as a Regional framework for nature

English Nature has divided England into a series of **Natural Areas**. Their boundaries are based on the distribution of wildlife and natural features and the land use patterns and human history of each area. They do not follow administrative boundaries but relate instead to variations in the character of the landscape. They reflect our cultural heritage and are central to English Nature's organisational strategy *Beyond 2000*.

We worked with the Countryside Commission (soon to become the Countryside Agency) to identify a joint approach to the characterisation of the countryside into locally distinctive units called character areas. Where the wildlife and natural features are similar between adjacent character areas we have merged them into one Natural Area - so, a Natural Area may contain sevaral character areas that are considered to be different landscape types.

Natural Areas offer a more effective framework for the planning and achievement of nature conservation objectives than do administrative boundaries. Although they are not formal designations they are now recognised in Government Planning Policy Guidance (PPG) and other statutory advice.

Within this framework, we have, with our key partners in the Region, identified the chief threats to, and opportunities for, nature conservation. Together, we have defined a range of issues, and set associated objectives that we believe provide a starting point for regional action to protect and manage our biodiversity and geological assets. These objectives are set out in the sections which follow.

Objectives for sustainable development and nature conservation in the Yorkshire and the Humber Region

Yorkshire and the Humber is a Region of dramatic, and often sharp, contrasts that is always associated with a strong sense of identity and community. Dense urban populations can be found in and around the major conurbations, traditionally linked to the coal and heavy industries but also around the wool towns. Agriculture is the dominant land use and underpins the rural economy.

The diverse landscapes, from the open spaces of the arable farming which dominates the lowlands to the rugged coasts and uplands, support a characteristic combination of wildlife and geological heritage. Areas like the Pennines, the lowland peatlands and the Lower Derwent Valley, to name but a few, have an outstanding diversity of habitats and species that are very rare, and of very high quality, of which the Region can be justifiably proud. The natural beauty of the Region, in particular the National Parks, provides the mainstay of a significant tourism industry.

The distribution of wildlife and the texture of the landscape are the product of complex interactions. The basic physical qualities of the rock, soil and climate have set the scene, but the detail has been, and will continue to be, shaped through human activity which is driven by economic, social, and environmental forces.

Natural Areas covered in the Yorkshire and the Humber Region report

Our ability to exploit the environment for economic gain is beginning to jeopardise our present and future well-being. Since our decisions can have far-reaching effects on present and future generations, we need to look at how we can act to maintain and improve both our local and global environments. There is no doubt that work at the Regional level can be a powerful force in steering local agendas for environmental action, whilst providing strong links to national and international programmes.

Sustainable development requires integration, rather than balance or trade off. Decision makers need to build environmental and social criteria into the heart of their policies and programmes - and ensure that they are given the same weight as economic considerations at the beginning of the process. This is what is meant by integration, and contrasts with the more familiar situation, where proposals are drawn up against economic criteria alone and are only weighed against their environmental impact when they are about to be implemented.

The basic means for many of the regional level structures and organisations to act will be through the planning process for built development and infrastructure. Planners have a key role in incorporating economic, environmental and social factors into decisions about where to put homes, jobs, shops and leisure facilities. In this way, demands on land, the environment and nature can be

managed more sustainably. Regional Planning Guidance will be written to help with this process.

Current government policy encourages investment in urban areas and existing centres rather than out of town sites. This means re-using previously developed urban land as much as possible, while ensuring that the quality of towns or cities is maintained or improved. The challenge will be to determine which patterns and locations of development prove most sustainable.

Conserving and enhancing nature can be compatible with development and, whilst the built environment has fewer designated sites, Local Nature Reserves, pocket parks, green space and even private gardens, are the only contact the majority of people have with nature. They are also important reservoirs of biodiversity.

Another essential role will be played by those charged with the design and implementation of policy and programmes for forestry, agriculture, water and recreation. Farming is the Yorkshire and the Humber Region's major land use. The habitats described in the following chapters are predominantly part of agricultural management systems. **Farmland therefore provides a major source of opportunity for habitat creation and maintenance, and species protection and enhancement. Its importance is reflected in the issues and objectives that are listed at the start of each section.**

The intensification of agriculture, and associated decline in traditional land management, combined with the huge growth of the major towns and cities, has resulted in the reclamation and loss of much of the lowland semi-natural habitat of value to wildlife in the Yorkshire and the Humber Region. The semi-natural habitats that remain are often small and isolated and are adversely affected by agricultural practices and pressure from development, including the use of pesticides and fertilisers, run-off of pollutants from industrial and housing estates, and the lowering of water tables through drainage and abstraction. Similar pressures of agricultural intensification, notably overgrazing, inappropriate burning regimes and a move from traditional grassland management, are applied to the wildlife of the uplands.

The populations of birds, mammals and plants which rely on the agricultural systems themselves have also plummeted. Major priorities therefore include: the sensitive management of existing habitats; increasing the area of existing habitats and the re-establishing the links between them; and restoring the conditions in which the wildlife of cereal fields and pasture can also thrive.

Upland hay meadows in Swaledale.
English Nature

How the contents of the report may be applied

Specific application	Relevant contents
Sustainable development	We have sought to set biodiversity and Earth heritage in the context of sustainable development - and to define the latter as a process of integration.
Providing context	Descriptive text which outlines the natural character of the Region.
Identifying issues and objectives	Specific issues and objectives written for direct inclusion in policy documents and/or distillation into policy to protect and enhance nature.
Links to international site designations and biodiversity	Key Natural Areas are named in each section in order to ensure that national priorities for habitat conservation are taken into account. They are identified as supporting nationally important concentrations of a habitat or Earth heritage feature and/or international sites (Special Protection Areas and Special Areas of Conservation) and biodiversity habitats and species.
Benchmarks for nature	A checklist is provided (Annex 1) to make an assessment of the contribution of policies, projects and programmes to the delivery of sustainability in relation to nature.
Key contact points	The English Nature contact addresses are provided for the Region, including the Regional Lead Team, together with a list of sources of information (Annex 2).

Glossary

BAP: Biodiversity Action Plans for habitats and species.

Biodiversity: Simply means the variety of life on earth. It covers everything from human beings to oak trees, bacteria to blue whales. Many Regions have already produced or are working on Biodiversity Audits and Action Plans which begin to catalogue and summarise their wealth of wildlife. This document complements these and other initiatives, including work on Local Agenda 21 and Local Biodiversity Action Plans, and existing Nature Conservation Strategies.

Earth heritage: We have a rich and diverse heritage of rocks, fossils, minerals and land forms. The protection and management of these features is an integral part of nature conservation.

European Union Habitats and Birds Directives requires the Government to designate and protect some of the most important areas for wildlife. They are or will be classified as Special Protection Areas (SPAs) and/or Special Areas of Conservation (SACs). These sites are also Sites of Special Scientific Interest (SSSIs) but meet specific criteria for international importance. In the case of marine SACs the SSSI designation only applies down to the low water mark.

Habitat: is the natural home of any plant, and where animals feed, breed and rest.

Statutory guidance from the Secretary of State to the Regional Development Agencies (RDA) includes: Sustainable Development; Rural Policy; Regional Economic Strategies. **White Papers** include: Building Partnerships for Prosperity; The United Kingdom Sustainable Development Strategy; Rural White Paper; Urban White Paper.

Sustainable development: was defined by the 1987 World Commission Report on Environment and Development as "development which meets the needs of the present without compromising the ability of future generations to meet their needs". It is often described as a 'three legged stool' whose legs comprise environmental, economic and social. If any one of them is missing as a consideration in decisions, the stool will topple.

Earth heritage

Key issues and objectives

Issue: site protection

- **Protect** sites from the threat of landfill.
- **Review** proposals for aggregate extraction against nature conservation objectives.
- **Discourage** cliff-top development which may require future damaging coast protection works.

Issue: maintenance of existing resources

- **Maintain** existing geological sites by:
  - **agreeing** the conservation of exposures in working and disused quarries with extraction companies;
  - **ensuring** appropriate management of sites, (e.g. by scrub clearance).

Issue: recreation and education

- **Encourage** local caving organisations to be responsible for cave systems by undertaking cave conservation plans.
- **Promote** responsible fossil collection and protect vulnerable sites.
- **Promote** the geological resource by:
  - **explaining** the influence of geology on local habitats and scenery through site **interpretation** using signboards, leaflets and trail guides, etc;
  - **assessing** and **promoting** the educational and research value of sites.

The Yorkshire Dales are dominated by vast tracts of limestones of Carboniferous age, associated with shales and sandstones; the latter two support surface streams which descend through potholes and dolines into the extensive limestone cave systems below. The surface limestone has been shaped by glaciers to form valley side cliffs, scars and limestone pavements.

Rocks of Jurassic age dominate the North York Moors and Hills and Saltburn to Bridlington coast. Lower Jurassic rocks include mudstones, shales, sandstones - best exposed on coastal tracts - and ironstones, which have been extensively mined. Overlying shales were formerly exploited for alum and are now world famous for fossils. Much of the northern moors area is underlain by Middle Jurassic sandstones and siltstones of international importance for their fossil flora. Middle and Upper Jurassic limestones and sandstones are also rich in fossils, and include coral reefs. Subsequent glacial deposits of clay, sand and gravel and the action of glacial meltwater contributed to the landscape of the Moors today.

The Vale of Pickering is underlain by Upper Jurassic clays and limestones. The latter forms a distinct ridge along the border with the North Yorks Moors and Hills and forms a regionally important exposure on the coast between Scarborough and Filey Brigg.

The Yorkshire Wolds are characterised by Chalk, representing the best sequence of Upper Cretaceous sediments in Northern England; dramatically exposed along the coast at Flamborough Head. Kimmeridge Clay is present along the northern edge of the Wolds and the most complete Lower Cretaceous marine sequence in the UK occurs around Speeton.

Holderness is underlain by glacial deposits resting on Chalk, forming a more or less continuous lowland plain, the coastal section of which forms the northern part of the Bridlington to Skegness Natural Area; dominated by rapid erosion.

Cliff erosion, Humber Estuary. Peter Roworth/English Nature

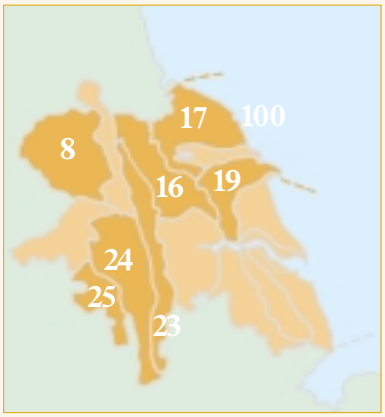
The Vales of York and Mowbray are underlain by sandstone and mudstones. Much of the original topography is now concealed by glacially-deposited clays, gravels and sands. The Humberhead Levels are essentially a low lying extension of the Vale of York.

The Southern Pennines and Dark Peak are dominated by Carboniferous rocks, particularly Millstone Grit. Subsequent frost weathering has resulted in the distinctive tors and the gritstone plateaus of these areas support acid peat bogs and moorland.

Upper Carboniferous rocks also dominate the landscape of the Coal Measures which was further shaped by the extensive mining industry based on the numerous coal seams, formed by ancient peat deposits. Clays, sands and gravels were deposited during recent glaciations. The Southern Magnesian Limestone area is characterised by a Magnesian Limestone escarpment which runs from south of Sheffield to the Durham coast. Cave deposits contain evidence of early human occupation making this a key locality for study of the Palaeolithic inhabitation of the British Isles.

Lower and Middle Jurassic limestones and clays, overlain by a semi-continuous sheet of wind-blown sand, characterise the northern part of the North Lincolnshire Coversands and Clay Vales. To the south the sands are absent and only thin bands of limestone occur in the clays. The Lincolnshire Wolds and Lincolnshire Coast and Marshes are characterised by a thick sequence of Chalk resting on sandstones, ironstones and clays. The Chalk is only well exposed on the south bank of the Humber.

Main Earth heritage features of key Natural Areas



8. Yorkshire Dales

- Exposures of Carboniferous rocks
- Areas of limestone pavement, potholes, dolines and scars
- Underground cave systems and associated surface and subsurface streams
- Geological influence on the character of the Dales landscape and National Park

16. Vale of York and Mowbray

- Upper Jurassic stratigraphy
- Pleistocene stratigraphy and fossils

17. North York Moors and Hills

- Coastal and inland exposures of Jurassic rocks of international importance for study of strata and fossils
- Historically important ironstone and alum shale mines
- The most northern Jurassic limestone platform area in Europe
- Exceptional ice-age meltwater erosion feature and important glacial deposits
- Other erosion features including tors

19. Yorkshire Wolds

- Upper Jurassic stratigraphy
- Lower Cretaceous marine layers
- Upper Cretaceous stratigraphy
- Pleistocene deposits, especially cliff and beach lines
- Coastal geomorphology
- Wolds drainage pattern

23. Southern Magnesian Limestone

- Permian Magnesian Limestone of the Yorkshire Province
- Pleistocene stratigraphy and vertebrates
- Early settlement by palaeolithic man

24. Coal Measures

- Namurian and Westphalian stratigraphy and sedimentology
- Economic resource - Westphalian Coal Measures
- International importance - proposed stratotype and established type localities
- Plant fossils

25. Dark Peak

- Upper Carboniferous stratigraphy and sediments
- Landslips and their geological context
- The development of the underground cave systems in limestone areas
- Quaternary development of the Pennines

100. Saltburn to Bridlington

- Jurassic stratigraphy and palaeontology
- Lower Cretaceous marine sequence/stratigraphy
- Upper Cretaceous stratigraphy
- Pleistocene deposits especially fossil cliff line and raised beach
- Ironstone and alum shales

Freshwater

Key issues and objectives

Issue: water quality

- **Maintain** high water quality by:
  - **improving** sewage treatment where necessary;
  - **preventing** contamination from pollution sources such as mine water especially when mine pumping stops;
  - **safeguarding** all watercourses, particularly mesotrophic water bodies, from agricultural and urban run-off.

Issue: water quantity

- **Ensure** optimum supply of water to wetland sites by:
  - appropriate water level and supply management;
  - improving understanding of river dynamics.
- **Reduce** siltation and run-off from the uplands.

Issue: lack of or inappropriate management

- **Manage** water and waterside habitats appropriately by:
  - **re-establishing** natural waterside habitats;
  - **re-creation** of natural flow regimes or river dynamics;
  - **reducing** grazing of waterside margins.
- **Balance** recreational and wildlife objectives, particularly in canals and lakes.
- **Protect** plant and animal communities from the influence of introduced species.

The rivers, streams and ditches are the most abundant freshwater habitat in the Region. Important riverine and floodplain meadows (also discussed in the lowland grassland and heath chapter) are found in the Derwent Valley and are a Special Protection Area (SPA) for their wintering bird populations, such as teal, wigeon, Bewick's and whooper swans. In the summer these meadows are also important for breeding waders such as lapwing, redshank and snipe.

Three nationally important rivers occur in the Region - the Malham-Arncliffe streams, the Derwent and the Hull Headwaters; these are designated as SSSIs, being the best examples of their type in England. Other rivers are important such as the River Swale, a near natural river where the river flora has several species close to the northern edge of their range, including water crowfoot.

The lack of industry and intensive agriculture on the North York Moors and Hills results in high water quality for the Rivers Rye, Derwent and Esk. However, much could be done, by working with farmers and landowners, both in the Pennines and North York Moors, to restore and enhance riverside habitats. Calcareous springs rise off the Yorkshire Wolds to form the most northerly chalk streams in Britain, eventually feeding the River Hull.

The Humberhead Levels are crossed by the Rivers Aire, Went, Don, Torne, Idle and Trent. The chalk rich rivers and streams which rise in the Lincolnshire Wolds support a rich fauna and some cross the North Lincolnshire Coversands and Clay Vales before feeding the Humber, mainly through the Rivers Bain and Ancholme which are both of high quality. Chalk rivers and streams are a priority BAP habitat.

Canals are a feature of the industrial Coal Measures, Vale of York and Mowbray and the Southern Pennines where their plant communities are similar to those formerly found in lowland rivers. Significant populations of floating water-plantain, a priority BAP species, occur in them. Canals which have become isolated from

River Swale. Peter Wakely/English Nature

Clay pits, Humber Estuary. Peter Roworth/English Nature

the main waterways system can provide high quality refuges for wildlife, particularly the Pocklington Canal in the Vale of York and Mowbray and the Leven Canal in Holderness.

Drains and ditches feature strongly in the Vale of Pickering and the Humberhead Levels where the Hatfield Chase Ditches have a rich assemblage of aquatic and emergent plants and invertebrates.

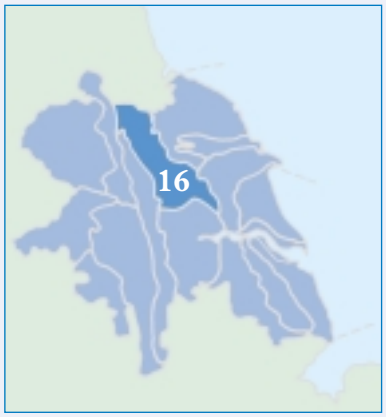
Hornsea Mere, Holderness, is the largest natural lake in the Region. It is an SPA with internationally important populations of wintering gadwall. Malham Tarn and Semer Water in the Yorkshire Dales are notable low nutrient lakes. Malham Tarn is the highest marl lake in the UK and as such forms part of the Craven Limestone Complex candidate Special Area of Conservation (SAC). Mesotrophic lakes are a priority BAP habitat and a notable example is Fairburn Ings in the Southern Magnesian Limestone.

Most other bodies of open water are of artificial origin, including reservoirs, gravel pits, mining subsidence pools, mill ponds and dew ponds, but are nonetheless important for wildlife especially wintering wildfowl such as teal and pochard. Farm ponds are a declining resource. Great-crested newts, a priority BAP species, require watery habitats for breeding and are found throughout the area. There is an internationally important population at Denby Grange Colliery Ponds, in the Southern Magnesian Limestone, which is a candidate SAC for this species.

Many of the Region's rivers and lakes provide an ideal environment for the white-clawed crayfish, depressed river mussel, both priority BAP species, and the following important fish species: sea lamprey, river lamprey, brook lamprey, bullhead, and Atlantic salmon.

The otter and water vole are priority BAP species found throughout the Region, however the Vale of York and Mowbray and the North York Moors and Hills are of high priority for the otter and the Dark Peak is a high priority area for the water vole. The pipistrelle bat, another priority BAP species distributed across the Region, can exploit a variety of habitats but is particularly associated with ponds and rivers for feeding.

Of the many invertebrates that occur in the Region, those that are nationally scarce include the alderfly *Sialis nigripes*, various mayflies such as *Heptagenia fuscogrisea* and the tansy beetle which has a major stronghold on the banks of the Ouse.



Characteristic habitats of key Natural Areas

16. Vale of York and Mowbray

- Important rivers and streams
- Some canals
- Numerous small artificial water bodies, particularly field ponds

NB Priority BAP habitats in italics

Candidate Special Areas of Conservation

- Denby Grange Colliery Ponds (Southern Magnesian Limestone)
- Craven Limestone Complex (Yorkshire Dales)

Special Protection Areas

- Lower Derwent Valley (Vale of York and Mowbray; Humberhead Levels)
- Hornsea Mere (Holderness)

Inland rock

Key issues and objectives

Issue: destruction of limestone pavements and rock removal

- **Protect** limestone pavements through:
  - Limestone Pavement Orders;
  - encouraging joint biological/geological management initiatives.
- **Avoid** extensive use of stone and scree for creating new footpaths and walls.

Issue: recreation

- **Control** rock and boulder climbing to protect rock surfaces, their vegetation and nesting birds.
- **Consider** the impact of footpaths and new tracks on inland rock habitats.

Issue: agriculture

- **Establish** grazing regimes to benefit the vegetation.

The development of vegetation on the many rock faces, crevices and screes throughout the Yorkshire and the Humber Region is influenced by several factors including type and stability of rock, slope, aspect and shelter. The less stable and more exposed the habitat, the more specialised the flora.

Limestone pavements, which are a non renewable resource, characterise the Craven Uplands of the Yorkshire Dales where a significant proportion of this rare habitat is found. The pavements were formed during three glacial periods leaving a limestone surface which has been eroded to clints (surface rock), grikes (deep fissures) and runnels (shallower drainage channels). These features provide very different habitats.

There are two candidate Special Areas of Conservation (SACs), the Ingleborough Complex and the Craven Limestone Complex. The Ingleborough Complex has not only the most extensive series of limestone pavements in the UK, but also significant crevice communities which are developed on limestone scars and are characteristic of the area. The flora is a mix of northern and southern species including purple saxifrage, yellow saxifrage, alpine meadow-grass, hoary whitlowgrass, lesser meadow-rue, wall lettuce and baneberry. Fern species present include green spleenwort and brittle bladder-fern.

The Craven Limestone Complex was selected as a candidate SAC on the basis of its large size and as an example of a mid-altitudinal pavement. It provides a refuge for downy currant, alpine cinquefoil and baneberry.

Calaminarian grasslands (grasslands rich in metal ore) are also found in

Bee orchid. Peter Wakely/English Nature

Limestone pavement, Ingleborough, North Yorkshire. Peter Wakely/English Nature

the Yorkshire Dales. These have a very localised distribution as they are associated with mining waste, particularly lead mining, and have a distinctive range of species able to cope with high concentrations of heavy metals.

The Yorkshire Wolds have open chalk habitats in disused quarries, railway cuttings and eroded screes with bee orchid and the BAP species red hemp-nettle. The lace bug *Trigonocranus emmeae*, the predatory ground beetle *Licinus depressus*, the flea beetle *Longitarsus suturalis* and the snail *Helicella itala* are all associated with bare chalk habitats.

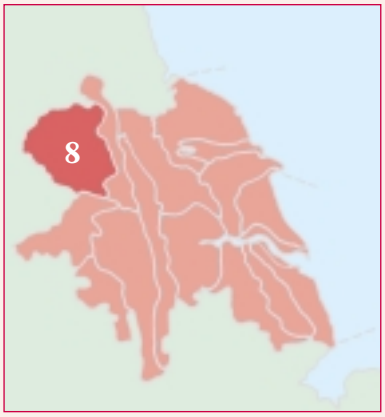
The gritstone edges and boulder slopes of the Dark Peak, the Southern Pennines and the North York Moors and Hills are home to the Killarney fern (another priority BAP species) and provide winter roosting for bats. The peregrine falcon, dependent on secluded rock faces for nesting, is found in the Dark Peak, Southern Pennines and Yorkshire Dales.

Candidate Special Areas of Conservation

- Ingleborough Complex (Yorkshire Dales)
- Craven Limestone Complex (Yorkshire Dales)

Special Protection Areas

None



Characteristic habitats of key Natural Areas

8. Yorkshire Dales

- Locally extensive *limestone pavements*
- Localised 'Calaminarian' or metal rich grassland

NB Priority BAP habitats in italics

Bog, fen and swamp

Key issues and objectives

Issue: loss of habitat

- **Re-establish** bog, fen and swamp habitat by:
  - **restoring** water levels;
  - **creating** large reedbeds;
  - **removal** of encroaching trees and scrub.
- **Cease** peat extraction from lowland raised bog SSSIs.

Issue: inappropriate management

- **Manage** existing bog, fen and swamp by:
  - **reducing** burning and grazing of blanket bogs;
  - **blocking** artificial drainage systems within bogs;
  - **cutting** reedbeds to benefit rare species associated with them, e.g. bitterns.

Issue: water

- **Enhance** water quality and soil water levels through:
  - **control** of agricultural drainage and run-off;
  - **restricting** aquifer extraction.

The Yorkshire and the Humber Region has extensive areas of both blanket bog and raised bog. *Sphagnum* mosses are typically a major component of both types. Raised bog is characteristic of relatively lower, flat areas whereas blanket bogs follow the contours of higher, undulating land. The water supply to both types of bog is sustained by rainfall.

Thorne Moor, in the Humberhead Levels, is the largest single area of raised peat bog in England. It is a candidate Special Area of Conservation (SAC) where over four thousand species of plant and animal live, many of which are uncommon

Broadhead Clough, West Yorkshire. Peter Wakely/English Nature

Common cottongrass. Peter Roworth/English Nature

invertebrates. Some of them, such as the mire pill beetle *Curimopsis nigrita* and the ground beetle *Bembidion humerale*, are found only in the Humberhead Levels. The Humberhead Peatlands National Nature Reserve is of outstanding importance for birds, with seventy five species breeding, most notably the nightjar. It encompasses parts of Thorne and Hatfield Moors, a potential Special Protection Area (SPA), and includes Crowle and Goole Moors. The Craven Limestone Complex candidate SAC in the Yorkshire Dales supports a small number of raised peat bogs, the most notable being Malham Tarn Moss.

Candidate Special Areas of Conservation

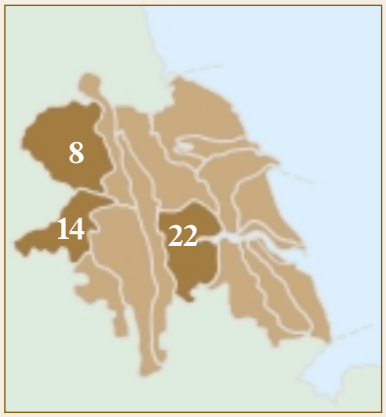
- Thorne Moor (Humberhead Levels)
- Craven Limestone Complex (Yorkshire Dales)
- Ellers Wood and Sand Dale (North York Moors and Hills)

Special Protection Areas

- South Pennine Moors (Southern Pennines; Dark Peak plus South West Peak in the East Midlands Region)

Potential Special Protection Areas

- Thorne and Hatfield Moors (Humberhead Levels)
- North Pennine Moors (Yorkshire Dales plus North Pennines in the North East Region)
- North York Moors (North Yorks Moors and Hills)



Characteristic habitats of key Natural Areas

8. Yorkshire Dales

- Extensive areas of *blanket bog*
- Some *fens* and *reedbeds*
- Small amounts of *purple moor grass and rush pasture*
- Small fragments of *raised bog*
- Widespread flushes and springs

14. Southern Pennines

- Extensive *blanket bog*
- Frequent springs and flushes
- Small areas of *fen*

22. Humberhead Levels

- Large areas of *lowland raised bog*, including largest single area in England
- Scattered *fens*
- Some *reedbeds* and swamp

NB Priority BAP habitats in italics

Extensive areas of blanket bog occur across the Yorkshire Dales, Southern Pennines and into the Dark Peak where they are of considerable importance being towards the southern edge of their range. Small areas of blanket bog also occur on the North York Moors. All these areas are valued for their vegetation and breeding bird communities. The South Pennine Moors is an SPA and the North Pennine Moors and North York Moors are potential SPAs for high densities of breeding waders such as golden plover, curlew and dunlin and large populations of birds of prey, particularly merlin and short-eared owl. Long-term overgrazing, burning, drainage and pollution have had an adverse effect on bog communities making those that remain more valuable.

Flushes and springs are small areas of emerging ground water found throughout the Region among peat bogs, wet grassland and fen. Flushes support at least three BAP species, the Geyer's whorl snail and soldier fly *Odontomyia hydroleon* in the North York Moors and Hills and the yellow marsh saxifrage in the Yorkshire Dales.

Species-rich flushes fed by the basic springs associated with limestone, support many plant species and important invertebrate communities. These occur in the Lincolnshire Wolds, Southern Magnesian Limestone and the North Lincolnshire Coversands and Clay Vales. The flushes associated with the cloughs and river valleys of the Dark Peak are predominantly acidic with mosses, soft rush and small sedges. Reed bunting, another BAP species, is associated with these.

The Craven Limestone Complex candidate SAC is notable for extensive complexes of tufa-forming hard water springs. Ellers Wood and Sand Dale is a candidate SAC for

Thorne Moor. Peter Roworth/English Nature

Denaby Ings, South Yorkshire. Adrian Fowles/English Nature

the population of Geyer's whorl snail which occurs in a tufa-rich flush.

Fens, swamps and reedbeds receive their nutrients and water from soil, rock and groundwater as well as rainfall. Their vegetation depends both on status and degree of movement of the water and is characterised, amongst other things, by mosses, rushes, sedges, reeds and, sometimes, purple moor-grass, as it merges into fen meadow.

Fens found in the North York Moors are associated with the springline of the Southern Magnesian Limestone and support the nationally scarce narrow-leaved marsh-orchid.

Fen meadow and woodland occur in the Vale of York and Mowbray, notably at Askham Bog where a large population of the rare elongated sedge is found. Fragments of fen meadow exist on the Vale of Pickering and Lincolnshire Wolds.

Scarce fen species include the marsh carpet moth, the ground beetles *Drominius sigma* and *Trechus rivularis* and marsh pea.

Some of the largest reedbeds in the Region are found at Whitton and Blacktoft Sands along the Humber Estuary. Large stretches of fresh-water reedbed at Barton and Barrow Claypits provide an important refuge for water voles. There are scattered reedbeds, often associated with disused quarries, clay and gravel pits in the Vale of York and Mowbray, Lincolnshire Coast and Marshes and Holderness (notably at Hornsea Mere). Reed warblers, sedge warblers and bearded tits are present, and bitterns overwinter. Rare invertebrates include the wainscot moth.

Swamp communities occur in the Vale of York and Mowbray, Coal Measures and in the Humberhead Levels along the River Derwent floodplain. Here the characteristic reed sweet-grass provides a habitat for water rail and spotted crake.

Woodland

Key issues and objectives

Issue: loss of habitat

- **Create** new native broadleaved woodland and, where appropriate, scrub around existing blocks and to link small fragments, (e.g. along river corridors).
- **Protect** ancient and semi-natural woodland.

Issue: commercial woodland

- **Restructure** large conifer plantations through:
  - design plans to **improve** conservation value;
  - **restoration** of native broadleaved trees on ancient woodland sites.
- Identify **appropriate** areas for new commercial woodland which:
  - **provide** habitat for conifer specialists;
  - **avoid conflict** with other conservation aims.

Issue: management

- **Promote** woodland development by natural regeneration through:
  - **changes** to farming regimes;
  - **control** of grazing animals;
  - **encouraging** small scale use of material from semi-natural stands, (e.g. charcoal).
- **Promote** recreational activities which are sensitive to nature conservation objectives.

Issue: loss and neglect of hedges

- **Protect** existing hedgerows using legislation.
- **Restore** and **re-establish** hedgerow boundaries to **link** existing fragments using locally native species.

The Yorkshire and the Humber Region as a whole is not extensively wooded and the ancient and semi-natural broadleaved woodland that remains is generally confined to the steeper dale sides or in gills and cloughs. Of particular importance are the upland mixed ash woods and the upland oakwoods. The ash-dominated woodland is found on limestone and the oak woods on the more acid rocks. There are tracts of wet alder woodland in damp riverside areas.

The largest remnants of both ancient and semi-natural woodland occur in the North York Moors and Hills. The Yorkshire Dales has mainly smaller woods, but over half of these are still semi-natural and they are also very diverse. Areas of juniper scrub, a rare habitat, are found on Ingleborough and are one of the habitats for which the Ingleborough Complex is a candidate Special Area of Conservation (SAC).

The Coal Measures and Southern Magnesian Limestone both have a comparatively high density of ancient woodlands particularly mixed oak, ash and lime. The woods on the Southern Magnesian Limestone include species at the southern edge of their range such as baneberry while others are at the northern edge such as green-flowered helleborine, wood barley and the nationally scarce large-leaved lime.

The North Lincolnshire Coversands and Clay Vales are sparsely wooded in the north, but have a relatively high density of ancient woodland in the south where the small-leaved limewoods are important.

The rest of the Region has only a thin scattering of ancient and semi-natural woodland, with Holderness, the Humberhead Levels, the Lincolnshire Wolds, Lincolnshire Coast and Marshes and the Vale of Pickering being poorly wooded. Some of these, however, will be important for the creation of new mixed deciduous and wet woodlands.

There are areas of lowland wood pasture and parkland throughout the Region, many of which contain very old trees of significance for bats, invertebrates and lichens. Duncombe Park in the North York Moors and Hills is of national importance.

Conifer plantations are present throughout the Region with some extensive areas in the North York

Juniper scrub, Swaledale. English Nature

Oak-birch woodland, Southern Pennines.
Peter Roworth/English Nature

Moors and Hills and the Coal Measures. Although largely consisting of introduced conifers, these can provide habitats for some native species including goshawk and nightjar.

BAP species associated with woodland in the Region include the nightjar, red wood ant, pearl-bordered fritillary and several species of moth including the netted carpet moth and orange upperwing moth. Bird species of note include the buzzard, woodcock, marsh tit, nightingale and hawfinch. Upland woodland is important for redstart, pied flycatcher and wood warbler.

The Humberhead Levels and the Lincolnshire Coast and Marshes are considered the only Natural Areas in the Region of significance for their hedgerows. In the Dark Peak, North Lincolnshire Coversands and Clay Vales and Coal Measures the hedgerows make a small contribution to the Region. In the Vale of Pickering there are older and more species rich hedgerows confined to country lanes. Elsewhere less rich hawthorn hedgerows provide important wildlife corridors. BAP bird species which depend on hedgerows include linnet, bullfinch and song thrush.

Scrub habitats are an important part of the woodland fringe. They are very much reduced and scarce across the Region, particularly in the Yorkshire Dales.

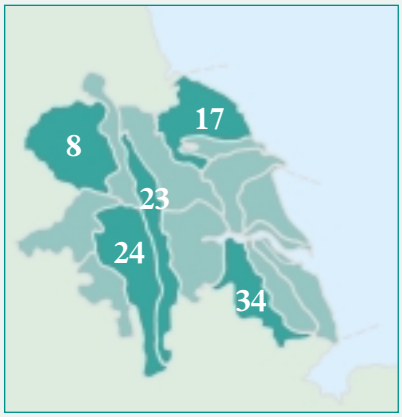
Candidate Special Areas of Conservation

- Ingleborough Complex (Yorkshire Dales)

Special Protection Areas

None

Characteristic habitats of key Natural Areas



8. Yorkshire Dales

- Significant areas of *upland mixed ash woodland*
- Small amounts of *upland oak woodland* and *wet woodland*
- Small remnants of juniper scrub

17. North York Moors and Hills

- Extensive conifer plantations
- Frequent areas of *upland mixed ash woodland* and *upland oak woodland*
- *Wet woodland* in damp areas and riversides
- Local but notable *lowland wood pastures and parklands*

23. Southern Magnesian Limestone

- Fragments of lowland oak and mixed deciduous woods
- *Lowland wood pastures and parkland* of limited area
- Small areas of *wet woodland* with alder

24. Coal Measures

- High density of lowland oak and mixed deciduous woods with ash and lime
- Extensive conifer plantations
- Locally important *lowland wood pastures and parkland*
- Some areas of *wet woodland* with alder
- Significant *hedgerows*

34. North Lincolnshire Coversands and Clay Vales

- Important concentrations of lowland oak and mixed deciduous woods, particularly limewoods
- Extensive conifer plantations in the north of the area
- *Wet woodland* including oak/alder woods on riversides and fen edge gravels
- Ancient semi-natural woodland on the Coversands
- Significant *hedgerows*

NB Priority BAP habitats in italics

Lowland grassland and heath

Key issues and objectives

Issue: opportunities for habitat creation

- **Create** or **restore** grassland and heaths on farmland, disused quarries and secondary woodland, particularly where this links existing fragments.
- **Implement** existing heathland re-creation strategies.

Issue: lack of appropriate management

- **Promote** appropriate management through:
  - extensive, low-intensity **grazing** on grasslands and heaths;
  - controlled **scrub clearance** on heaths;
  - sensitive **water management** on wet sites.

Issue: pressure for agricultural intensification

- **Avoid** further agricultural intensification by:
  - **encouraging** traditional, low-intensity agriculture;
  - **promoting** the uptake of agri-environment and other environmental support schemes;
  - **creating** cereal field margins to halt decline in arable plant species;
  - **reducing** use of fertilisers and pesticides.

The Lower Derwent Valley in the Vale of York and Mowbray and the Humberhead Levels contains the greatest area of high quality, lowland hay meadows in the UK and as such is designated as a candidate Special Area of Conservation (SAC). A notable feature of the site is the abundance of narrow-leaved water-dropwort. These meadows and their associated floodplain grazing marshes are also important for breeding and wintering birds and are a Special Protection Area (SPA). There is an important concentration of floodplain grazing marsh in the Humberhead Levels that forms part of the Humber Flats and Marshes SPA. Elsewhere in the Region this habitat is scarce.

Chalk grasslands in the dry valleys of the Yorkshire Wolds are of substantial interest. The Southern Magnesian Limestone area is notable for having a significant proportion of the remaining Magnesian Limestone grassland in England. These are both species-rich habitats, particularly for orchids and the rare, parasitic thistle broomrape, which is found only in Yorkshire.

Neutral grasslands are scattered throughout the Region, particularly in The Vale of York and Mowbray, surviving in areas where agriculture is less intense.

The Saltburn to Bridlington coastline has areas of important coastal grassland.

Lowland heath is found on the North Lincolnshire Coversands and Clay Vales, often in association with parched acid grassland, sand dune communities and calcicolous grassland. These sites provide an important habitat for lichens, mosses and invertebrates, particularly beetles, flies and moths such as the Portland moth. Risby Warren is a nationally important site that has notable sand dune features and the largest area of parched acid grassland in the country. The site is also one of the most floristically-rich areas of acid grassland in northern England.

Lowland hay meadows, Went Ings, South Yorkshire. Peter Roworth/English Nature

Inland sand dune, Risby Warren, North Lincolnshire. Peter Wakely/English Nature

Large nationally important lowland heaths are also found in the Vale of York and Mowbray and Humberhead Levels at Strensall and Skipwith Commons. All these areas support rare plant species such as Deptford pink, pillwort (both BAP species) and marsh gentian. They are valuable breeding habitats for the BAP species nightjar and, on the North Lincolnshire Coversands and Clay Vales, woodlark.

The Vale of Pickering has a few sizeable lowland heathland sites whilst the Coal Measures only has a small area. This type of habitat is absent from the rest of the Region.

The cereal field margins in the Region, as over much of northern England, are generally poor, with the highest number of arable plant species being recorded from the Humberhead Levels. BAP species associated with arable, grassland and heathland throughout the Region are the brown hare, grey partridge, turtle dove and corn bunting.

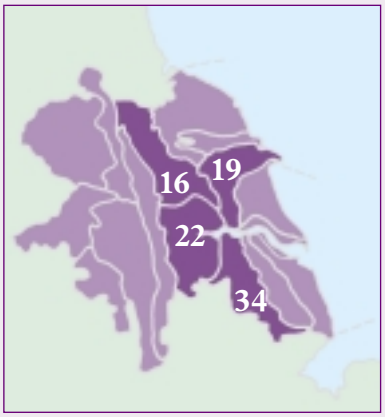
Some arable land on the Lincolnshire Coast and Marshes is of national importance for birds, particularly pink-footed geese and wigeon, which feed in cultivated fields, and golden plover and lapwing which feed and roost in winter.

Candidate Special Areas of Conservation

- Lower Derwent Valley (The Vale of York and Mowbray; Humberhead Levels)

Special Protection Areas

- Lower Derwent Valley (The Vale of York and Mowbray; Humberhead Levels)
- Humber Flats, Marshes and Coast (Humber Estuary; Bridlington to Skegness)



Characteristic habitats of key Natural Areas

16. Vale of York and Mowbray

- Some extensive areas of *lowland hay meadow*
- Extensive areas of *coastal and floodplain grazing marsh*
- Some large areas of *lowland heathland* and *dry acid grassland*
- Small fragments of *lowland calcareous grassland*

19. Yorkshire Wolds

- Extensive *lowland calcareous grassland*

22. Humberhead Levels

- Some large areas of *coastal and floodplain grazing marsh*
- Fragmented *lowland hay meadows*
- Small patches of *lowland heath*
- Relatively species rich *cereal field margins*

34. North Lincolnshire Coversands and Clay Vales

- Significant areas of parched *(dry) acid grassland*
- Extensive, nationally important *lowland heath*
- Small areas of *lowland calcareous grassland* associated with disused quarries
- Significant, fragmented areas of species-rich dry neutral grassland

NB Priority BAP habitats in italics

Upland grassland and heath

Key issues and objectives

Issue: habitat fragmentation

- **Recreate** upland grasslands and heaths especially where this would **link** existing fragments.
- **Restore** herb-rich upland hay meadows and pastures.
- **Extend** and restore wet pasture land for breeding birds.

Issue: inappropriate management

- **Control** overgrazing by **reducing** stocking levels.
- **Encourage** sensitive burning regimes.
- **Restore** a variety of traditional management regimes, particularly for hay meadows and pastures.

Issue: pressure for agricultural intensification

- **Avoid** further agricultural intensification by **promoting** the uptake of agri-environment and other environmental support schemes.

Heathland, Dark Peak. Peter Roworth/English Nature

There are four Natural Areas within the Yorkshire and the Humber Region classified as upland. These are the Yorkshire Dales, North York Moors and Hills, Southern Pennines and Dark Peak.

Upland limestone grasslands are very species-rich and occur in the southern part of the North York Moors and Hills and in the Yorkshire Dales, where the Craven Limestone Complex candidate Special Area of Conservation (SAC) is the second most extensive area of upland limestone grassland in the UK. They support a range of BAP species including the lady's-slipper orchid, arctic sandwort, the northern brown argus butterfly and the prickly sedge.

Upland hay meadows now cover a very small area in the UK and are scattered across fields in the north of England. A wide range of rare and local species are associated with them, such as globeflower and lady's mantle. The hay meadows in the Yorkshire Dales are considered of international importance and form part of the North Pennine Dales Meadows, a candidate SAC for this habitat. There are also a few meadows remaining in the Southern Pennines.

The only montane vegetation in the Region is in the Yorkshire Dales where small areas occur on hills above 600 m. The vegetation is characterised by mat grass, sedges, low mats of dwarf shrubs, lichens and arctic-alpine plants. Some of these communities are at their most southerly location in Britain.

Upland acid grasslands are extensive in the UK, but have mostly developed from heathland through overgrazing and are thus of relatively low value as grasslands. More natural, species-rich examples do occur. These are of high conservation value but are very restricted in their distribution, being found particularly in the Southern Pennines and the North York Moors and Hills.

Bracken communities are widespread among upland grassland, especially in the North York Moors and Hills. Whilst bracken should be controlled

when in competition with valued moorland vegetation it is important in the uplands as a wildlife habitat in its own right, supporting some breeding birds such as twite, whinchat and the priority BAP species skylark.

Upland heathland is generally above the limit of enclosed land but below the natural tree line and is managed by rotational burning and grazing. Heather is the dominant plant, associated with other dwarf shrubs such as bilberry. The North York Moors and Hills hold the largest continuous tract of heather moor in England. The extensive areas of heathland in the Yorkshire Dales and the Southern Pennines are also of great importance. The Dark Peak has more limited areas of upland heath. Extensive areas of wet heath are found on the North York Moors and Hills.

Upland hay meadows, North Yorkshire.
Peter Wakely/English Nature

The upland grassland and heath are an important component of the moorland landscape and often grade into rush pasture and blanket bog. This mosaic of habitats makes heather moorland of great importance for upland breeding birds with the South Pennine Moors being a Special Protection Area (SPA) and the North Pennine Moors and North York Moors potential SPAs. Breeding birds include merlin, golden plover, peregrine, short-eared owl, red grouse and ring ouzel. Upland enclosed grasslands in the Yorkshire Dales are also of particular importance for breeding birds. The unimproved rough pastures are used for nesting and feeding by large numbers of redshank, snipe, curlew and lapwing. There is also a small population of black grouse, a BAP species, present in these habitats.

Candidate Special Areas of Conservation

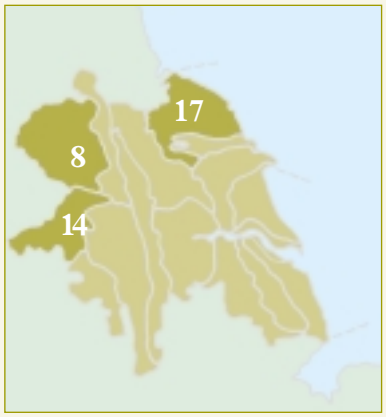
- Craven Limestone Complex (Yorkshire Dales)
- North Pennine Dales Meadows (Yorkshire Dales)

Special Protection Areas

- South Pennine Moors (Southern Pennines; Dark Peak plus South West Peak in the East Midlands Region)

Potential Special Protection Areas

- North Pennine Moors (Yorkshire Dales; plus North Pennines in the North East Region)
- North York Moors (North York Moors and Hills)



Characteristic habitats of key Natural Areas

8. Yorkshire Dales

- Extensive *upland calcareous grassland*
- Some *upland heathland*
- Significant fragments of *upland hay meadow*
- Neutral grassland in upland valleys
- Small areas of montane grassland

14. Southern Pennines

- Extensive areas of dry *upland heath* in mosaics with acid grasslands, some wet heath
- Some *upland hay meadows* in valleys
- Extensive areas of acid grasslands

17. North York Moors and Hills

- Extensive areas of dry *upland heath*
- Some upland acid grassland
- Small areas of *upland calcareous grassland*

NB Priority BAP habitats in italics

Maritime

Key issues and objectives

Issue: maintenance of coastal processes

- **Allow** natural, dynamic coastal processes to operate by:
  - **avoiding** hard sea defences where these would interrupt the natural flow of sediments and destroy habitats, except where important settlements and economic concerns are identified;
  - **avoiding** dredging and sand extraction that would remove sediment from the system;
  - **defining** an appropriate setback line to which the coast be allowed to erode.

Issue: water quality

- **Maintain** and improve high water quality by:
  - **reducing** inputs of untreated sewage effluents;
  - **reducing** contamination from industrial discharges and agricultural run-off;
  - **minimising** the threat of pollution, e.g. oil, and managing emergency incidents.

Issue: recreation and tourism

- **Manage** recreational pressures to avoid conflict with, and where possible complement, nature conservation objectives.

Issue: species/habitat management

- **Maintain** and where appropriate increase populations of key species.
- **Minimise** disturbance to breeding, feeding and roosting birds from recreational and industrial activities.

Issue: fisheries

- Work towards **sustainable fishery management**, especially in sensitive areas.

The coastline from Saltburn to Bridlington is dominated by hard cliffs of chalk, limestone and sandstone. Internationally important hard chalk cliffs, chalk reefs and sea caves are present at Flamborough Head which is a candidate Special Area of Conservation (SAC) for these features. There are also some very high soft cliffs of boulder clay which have well-developed under-cliffs and a range of soft cliff vegetation including scrub and near-natural coastal woodland. There are nationally important populations of cliff invertebrates, many of which are associated with plant communities arising from the natural instability of the boulder clay. The shoreline

Humber Estuary. Peter Roworth/English Nature

consists of wave-cut rock platforms, interspersed with sand and shingle beaches. These support a range of intertidal and subtidal communities. The sea bed is rugged for about 3 km offshore then becomes sandy with rocky outcrops to about 10 km.

The sea cliffs at Bempton and Flamborough are a Special Protection Area (SPA) because they support the largest seabird colony in England with internationally important numbers of kittiwakes and nationally important numbers of guillemots, razorbills and gannets. The Bridlington to Skegness Natural Area is characterised by soft cliffs of eroding boulder clay, intertidal sandflats and mudflats, saltmarshes and sand dunes. These provide a harsh but diverse and valuable wildlife resource, particularly for migratory waders and wildfowl, which make the area of outstanding ornithological significance. The offshore seabed mainly comprises sand and gravel banks that are an important influence on the shape of the coast. The seabed here gently dips to the east and is mainly at a depth of less than 20 m. The extensive sand dune system along the North Lincolnshire Coast starts

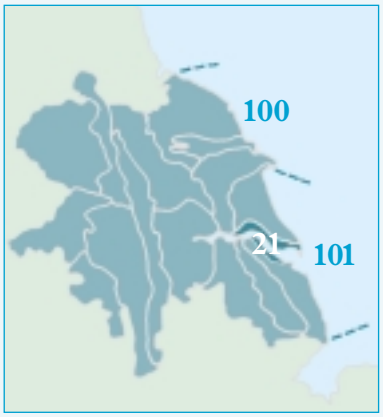
Light house at Spurn. Peter Wakely/English Nature

Candidate Special Areas of Conservation

- Flamborough Head (Saltburn to Bridlington)

Special Protection Areas

- Flamborough Head to Bempton Cliffs (Saltburn to Bridlington)
- Humber Flats Marshes and Coast (Humber Estuary; Bridlington to Skegness)



Characteristic habitats of key Natural Areas

100. Saltburn to Bridlington

- Hard chalk *maritime cliffs and slopes* along the coast
- Wave cut rock platforms interspersed with sand and shingle beaches along the coast
- *Sublittoral/littoral chalk reefs* at Flamborough Head
- Large, partly submerged sea caves at Flamborough Head
- Soft cliffs at Cayton and Cornelian Bay

101. Bridlington to Skegness

- Sandy beaches fringe most of the coast
- Continuous *coastal sand dunes*
- Extensive soft *cliffs* at Holderness
- Substantial intertidal sand and *mudflats* along the North Lincolnshire coast
- Some, but not extensive, *saltmarsh* and small *coastal vegetated shingle structures*
- Small area of *saline lagoons*

21. Humber Estuary

- Extensive intertidal sand and *mudflats*
- Fragmented areas of *saltmarsh*
- Some large *saline lagoons*
- Some *coastal sand dunes* at Spurn and Cleethorpes
- Sandy beaches at the estuary mouth

NB Priority BAP habitats in italics

Flamborough Head, East Yorkshire. Peter Wakely/English Nature

at Cleethorpes and forms part of the Humber Flats, Marshes and Coast SPA. Harbour porpoises are recorded throughout the year off Spurn Head.

The eroding cliffs of the Holderness coast provide the sediment which is fundamental to the maintenance of sandflats and mudflats, saltmarsh and sand dunes in the Humber Estuary and along the coastline as far south as the Wash and East Anglia. This process is important both for maintaining wildlife habitats and coastal protection.

The Humber Estuary is dominated by extensive intertidal habitats including mudflats and sandy beaches. The habitats on the shores and at the mouth of the Humber are of international nature conservation importance. Saline lagoons are found at North Killingholme Haven Pits, Easington and the Humberstone Fitties. They provide a specialised habitat for species such as the rare lagoon worm and lagoon sand shrimp. The Humber Flats, Marshes and Coast are an SPA, being one of the top ten sites in Europe for wintering waterfowl. They have internationally important populations of dark-bellied brent geese, golden plover, grey plover, lapwing and knot. There are also important breeding populations of little tern, avocet and marsh harrier.

There is an intimate link between the estuary and surrounding arable land with species such as pink-footed geese and wigeon using the mudflats and sandflats for roosting before leaving the estuary to feed on agricultural land.

Annex 1: Benchmarks for nature

The conservation of nature is a key test of sustainable development. The list below provides a set of questions to be applied as positive indicators for biodiversity and Earth heritage, where relevant strategies, policies, projects and programmes are under consideration. These may include developments such as agricultural improvement or intensification, coastal and flood defence works and water abstraction, as well as built development or infrastructure such as roads, rail and energy.

Policy links

- Is there compatibility with relevant policies within: any local/regional biodiversity action plan, sustainable development plan, nature conservation strategy or priority setting document for nature; any Government Planning Policy Guidance or Regional Planning Guidance; Local Development Plans/Unitary Development Plans/Structure Plans/etc?
- Is there active contribution to the resolution of Natural Area issues and the delivery of UK, Regional and Local Biodiversity Action Plan targets and Natural Area objectives?
- Has there been an appraisal of the environmental impact of policies, plans and programmes within regional strategic documents? (See: the eight step approach in Department of the Environment, Transport and the Regions Policy Guidance: 'Policy Appraisal and the Environment', DETR 1998)

Biodiversity and Earth heritage

- Will any areas with local/national/international designation for nature conservation be affected or directly damaged?
- Is there scope for the enhancement of biodiversity through the provision of: opportunities for achieving the targets for priority habitats and species in the context of UK, Regional and Local Biodiversity Action Plans; improved habitat and/or the creation of additional habitat for plants and animals, appropriate to the local character?
- Will any non-designated habitat such as woodland, grassland and other vegetation, linking habitats

Moss Moor, Southern Pennines. Peter Roworth/English Nature

such as trees, hedges, grass strips, ditches, that may be destroyed, or fragmented be fully compensated/mitigated for?

- Do any plant and tree planting programmes use an appropriate mix of species native to the Natural Area in question?
- Will any habitat be in danger of abandonment, under management, change or intensification of management? (e.g. Overgrazing, loss of crop rotations and arable-pasture mosaics; shift from spring sown to autumn sown cereals, loss of winter stubbles, application of artificial fertiliser, etc. - leading to impacts on associated farmland species)
- Will any habitat be in danger of a secondary or indirect damage? (e.g. Wetland or aquatic habitats and ecosystems in danger of drying out, loss or degradation as a result of over-abstraction of surface and groundwaters, pollution and eutrophication of surface and groundwaters; development in a flood plain which may require canalisation of watercourses impacting on river valley wetlands and aquatic ecosystems; coastal development that impacts on natural processes; etc.)
- Is there scope for the enhancement of geological interest? (e.g. Through the improvement of geological exposures or features; the creation of additional geological exposures or features, etc.)

Environmental good practice for nature

- Has an environmental impact assessment been carried out?
- Will post implementation impacts be assessed and managed by regular review and monitoring programmes?

Community involvement for nature

- Will all sections of the community be consulted as part of the decision making process?
- Have the needs of local communities for access to, and experience of, nature been taken into account?
- Does the project help vulnerable, disadvantaged or excluded groups to gain access to nature and wildspace?
- Will there be a contribution to improving the quality of life by local inhabitants, for example: through improved general access to nature, but in particular on foot or by public transport?
- Will local distinctiveness for nature be valued, and community and cultural identity be strengthened?
- Will community enterprises for nature be encouraged?

Swans at Crowle, North East Lincolnshire.
Peter Roworth/English Nature

Designated areas

National/International Nature Conservation Designations:

- Sites of Special Scientific Interest (SSSI)
- National Nature Reserves (NNR)
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Ramsar Sites

Local Nature Conservation Designations (often non-statutory but recognised in local plans, PPG and other similar documents):

- Sites of Importance for Nature Conservation (SINC - locally other terms may be used)
- Local Nature Reserves (LNR)
- Regionally Important Geological/Geomorphological Sites (RIGS)
- Non-statutory nature reserves

(Modified and adapted from a document produced by the Environment & Energy Management Team, Government Office for the South West).

Annex 2: Sources of information

Each Natural Area has an associated profile which contains the issues and objectives specific to that ecological unit. These have already been passed on to our key partners, including local authorities. The complete set of profiles for England is available from English Nature's local teams on a CD-ROM.

National overviews of habitats, species and earth heritage

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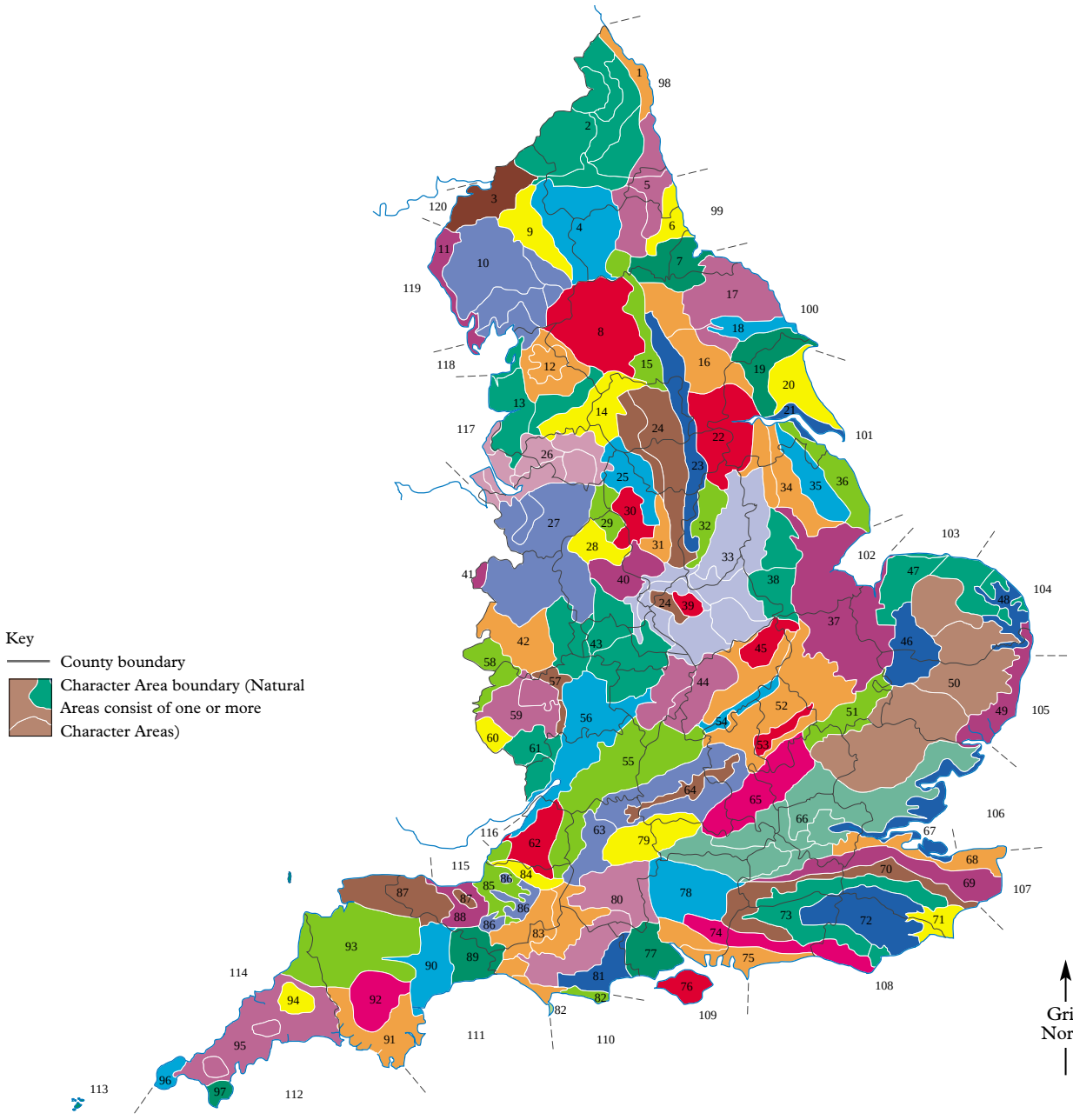
All available free from the Enquiry Service, English Nature, Northminster House, Peterborough PE1 1UA Tel. 01733 455101 Fax. 01733 568834.

Natural Areas CD-ROM.

Available, priced £15, from Telelink Ltd., PO Box 100, Fareham, Hampshire PO14 2SX Tel. 01329 331300 Fax. 01329 330034.

Natural Area Profiles

The individual profiles used in this report are available from the Local Team, address and telephone number shown on the back cover, or can be found on English Nature's web page at www.english-nature.org.uk.



1	North Northumberland Coastal Plain	25	Dark Peak	49	Suffolk Coast and Heaths	73	Low Weald and Pevensey	97	The Lizard
2	Border Uplands	26	Urban Mersey Basin	50	East Anglian Plain	74	South Downs	98	Northumberland Coast
3	Solway Basin	27	Meres and Mosses	51	East Anglian Chalk	75	South Coast Plain and Hampshire Lowlands	99	Tyne to Tees Coast
4	North Pennines	28	Potteries and Churnet Valley	52	West Anglian Plain	76	Isle of Wight	100	Saltburn to Bridlington
5	Northumbria Coal Measures	29	South West Peak	53	Bedfordshire Greensand Ridge	77	New Forest	101	Bridlington to Skegness
6	Durham Magnesian Limestone Plateau	30	White Peak	54	Yardley/Whittlewood Ridge	78	Hampshire Downs	102	The Wash
7	Tees Lowlands	31	Derbyshire Peak Fringe and Lower Derwent	55	Cotswolds	79	Berkshire and Marlborough Downs	103	Old Hunstanton to Sheringham
8	Yorkshire Dales	32	Sherwood	56	Severn and Avon Vales	80	South Wessex Downs	104	Sheringham to Lowestoft
9	Eden Valley	33	Trent Valley and Rises	57	Malvern Hills and Teme Valley	81	Dorset Heaths	105	Suffolk Coast
10	Cumbria Fells and Dales	34	North Lincolnshire Coversands and Clay Vales	58	Clun and North West Herefordshire Hills	82	Isles of Portland and Purbeck	106	North Kent Coast
11	West Cumbria Coastal Plain	35	Lincolnshire Wolds	59	Central Herefordshire	83	Wessex Vales	107	East Kent Coast
12	Forest of Bowland	36	Lincolnshire Coast and Marshes	60	Black Mountains and Golden Valley	84	Mendip Hills	108	Folkestone to Selsey Bill
13	Lancashire Plain and Valleys	37	The Fens	61	Dean Plateau and Wye Valley	85	Somerset Levels and Moors	109	Solent and Poole Bay
14	Southern Pennines	38	Lincolnshire and Rutland Limestone	62	Bristol, Avon Valleys and Ridges	86	Mid Somerset Hills	110	South Dorset Coast
15	Pennine Dales Fringe	39	Charnwood	63	Thames and Avon Vales	87	Exmoor and the Quantocks	111	Lyme Bay
16	Vale of York and Mowbray	40	Needwood and South Derbyshire Claylands	64	Midvale Ridge	88	Vale of Taunton and Quantock Fringes	112	Start Point to Land's End
17	North York Moors and Hills	41	Oswestry Uplands	65	Chilterns	89	Blackdowns	113	Isles of Scilly
18	Vale of Pickering	42	Shropshire Hills	66	London Basin	90	Devon Redlands	114	Land's End to Minehead
19	Yorkshire Wolds	43	Midlands Plateau	67	Greater Thames Estuary	91	South Devon	115	Bridgwater Bay
20	Holderness	44	Midland Clay Pastures	68	North Kent Plain	92	Dartmoor	116	Severn Estuary
21	Humber Estuary	45	Rockingham Forest	69	North Downs	93	The Culm	117	Liverpool Bay
22	Humberhead Levels	46	Breckland	70	Wealden Greensand	94	Bodmin Moor	118	Morecambe Bay
23	Southern Magnesian Limestone	47	North Norfolk	71	Romney Marshes	95	Cornish Killas and Granites	119	Cumbrian Coast
24	Coal Measures	48	The Broads	72	High Weald	96	West Penwith	120	Solway Firth

Revised to December 1996

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23 Southern Magnesian Limestone
24 Coal Measures

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16 Vale of York and Mowbray
17 North York Moors and Hills
18 Vale of Pickering
19 Yorkshire Wolds
20 Holderness
100 Saltburn to Bridlington
101 Bridlington to Skegness

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