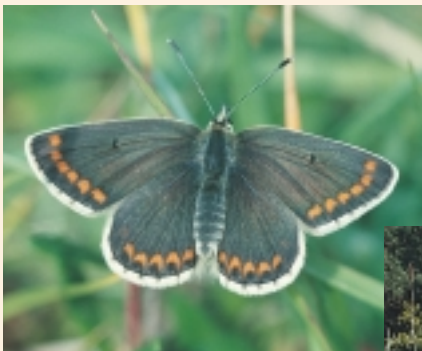
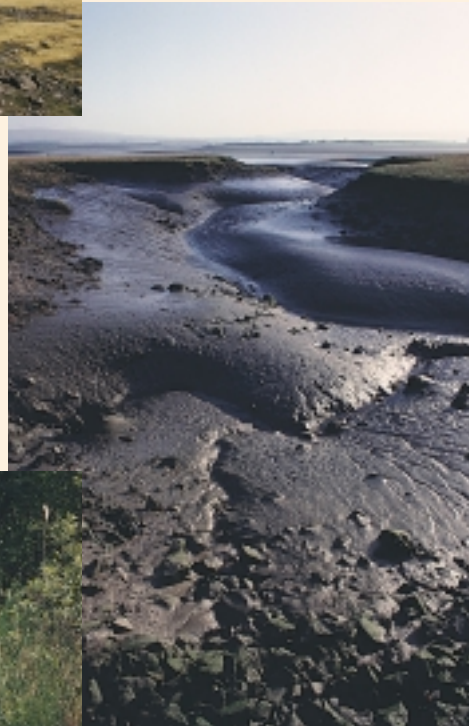




# Natural Areas in the North West Region

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helping to set the regional  
agenda for nature





# Introduction

**R**egional 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.



Lake District fells. J. Riggall/English Nature



Wildlife fun day. George Barker/English Nature

## 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 several 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.

### 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

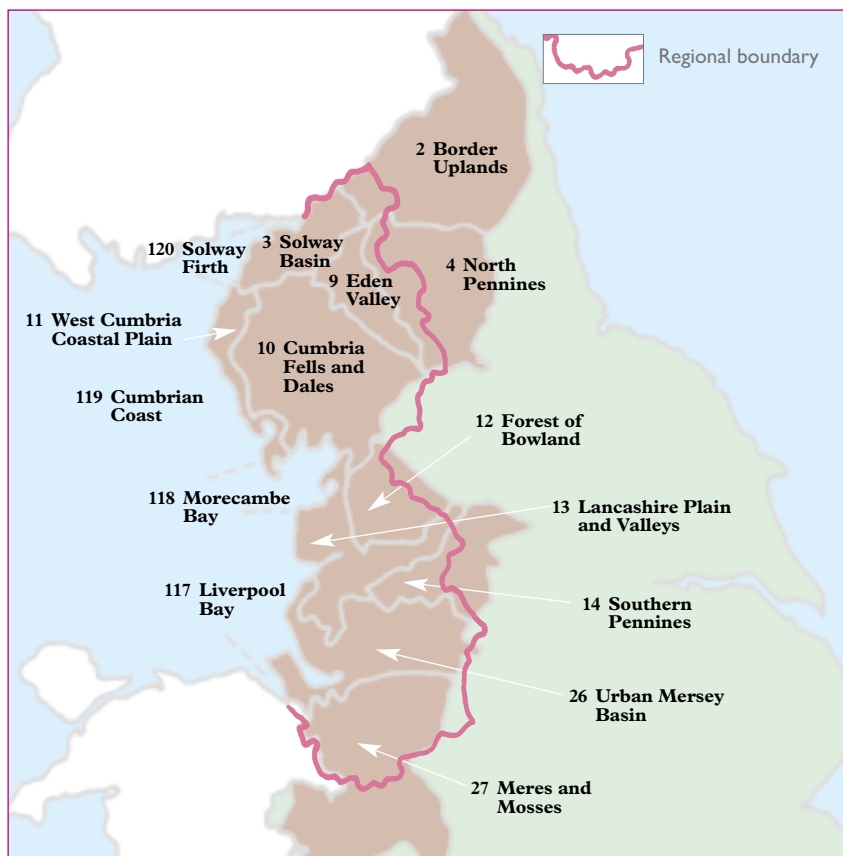
Department of the Environment, Transport and the Regions Policy Guidance: Policy appraisal and the environment (DETR, 1998).

## Objectives for sustainable development and nature conservation in the North West Region

The North West is a region of dramatic, and often sharp, contrasts and is associated with a strong sense of identity and community. Dense populations can be found in and around the major conurbations, particularly in the south of the Region. These are traditionally linked to the coal, engineering, wool and cotton industries, whilst coastal resorts such as Blackpool have an international reputation as tourist destinations.

Agriculture is the dominant land use throughout the North West and underpins the rural economy. The diverse landscapes, from the big skies of the arable farming which dominates the southern lowlands to the open, sandy northern coasts and rough grasslands of the uplands, support a characteristic combination of wildlife and geological heritage. The Region includes a number of dramatic landscapes, such as the Lake District and the Forest of Bowland, that have a distinct natural character and 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 Lake District National Park, provides the mainstay of a significant rural tourism industry.

The distribution of wildlife and the texture of the landscape are the product of complex interactions. The basic physical qualities of the



Natural Areas covered in the North West Region report

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.

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 North West 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 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 North West 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, apply 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; an increase the area of existing habitat and the re-establishment of the links between them; and the restoration of conditions in which the wildlife of cereal fields and pasture can also thrive.

Dee Estuary, Merseyside.  
Peter Wakely/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: maintenance of existing resource*

- **Maintain** existing Earth heritage sites of importance by:
  - ▶ **agreeing** the conservation of exposures on all sites of importance;
  - ▶ **clearing** scrub from exposures that have become obscured;
  - ▶ **avoiding** development or engineering projects that interfere with natural processes in rivers and the coastal zone.

*Issue: recreation and education*

- For vulnerable cave systems, **support** local caving groups in producing cave conservation plans.
- **Promote** responsible fossil and mineral collecting at vulnerable sites.
- **Promote** local Earth heritage by:
  - ▶ **strengthening** links between geology, mining heritage and industrial archaeology;
  - ▶ **encouraging** the use of Regionally Important Geological Sites for **education** and **interpretation**.

The north of the Region is dominated by the Lake District mountains of the Cumbria Fells and Dales, where the dome-like structure of layers of lower Palaeozoic (Ordovician and Silurian) rocks is surrounded by younger Carboniferous limestones. High, craggy mountains of Borrowdale volcanic rocks form the centre of the Lake District with smoother profiled hills to the north and south. To the east, the Eden Valley comprises sandstone which give rise to its rolling topography. To the west, the West Cumbria Coastal Plain is also underlain by sandstone, which gives rise to the only notable sea cliffs on the Cumbrian Coast, at St Bees

Head. Further south, the coast is dominated by the large embayment of Morecambe Bay, which is flanked by Carboniferous limestone hills and coastal promontories.

In the far north of the Region the Solway Basin is formed of soft red sandstones and clays, although extensive glacial deposits of clays, sands and peats obscure much of the bedrock. The coastline here is mostly low-lying, dominated by the extensive sandbanks and marshes of the Solway Firth.

Further inland, the Border Uplands has a diverse geology. The north is formed of Devonian lava flows



St Bees Head, Cumbria. Peter Wakely/English Nature



overlain by Carboniferous sandstone, siltstone, limestones and Dolomites, while the south is limestone with igneous intrusions. The North Pennines comprise Carboniferous limestone (which has extensive underground cave systems), grits and shale, and coal seams with igneous intrusions. In both Natural Areas, mineralisation created veins of lead and zinc in the limestone, which traditionally were an important economic resource, providing these areas with rich mining heritage.

In the south of the Region the Forest of Bowland, Southern Pennines and Lancashire Plain and Valleys are dominated by Carboniferous limestone, sandstone, grits and shales, with some coal seams. From Morecambe Bay to the Ribble Estuary the coastal plain is undulating and formed of drumlins. Further south Liverpool Bay comprises Triassic sandstones and mudstone, with the estuaries of the Dee and the Mersey forming prominent features. The low-lying Urban Mersey Basin is also formed of Triassic sandstones with siltstone, overlain by glacial clays, sands and gravels. Quaternary deposits, that is to say peat, are an

## Main Earth heritage features of key Natural Areas

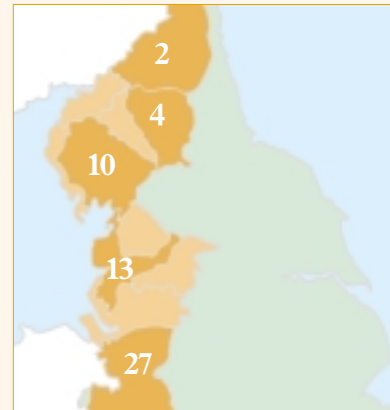
### 2. Border Uplands

- Carboniferous stratigraphy
- Exposures of the Whin Sill and other igneous rocks
- Mineralisation of the Carboniferous rocks

### 4. North Pennines

- Exposures of Carboniferous rocks
- Mineral veins in Carboniferous limestone and links with mining heritage
- The Whin Sill and its landscape value
- Extensive underground cave systems developed in limestones

integral part of this landscape. Further east, Carboniferous rocks form the Lancashire Coalfield while in the south, the Meres and Mosses are located on the Cheshire Plain of Triassic sandstones, silts and muds, with a cover of clays, sands and gravels. This area has extensive salt deposits.



### 10. Cumbria Fells and Dales

- Upland exposures of deformed and fossiliferous lower Palaeozoic sequences
- Exposures of igneous rocks such as Borrowdale Volcanics group
- Glacial erosion and depositional landforms and scenery
- Cave and karst features including limestone pavement

### 13. Lancashire Plain and Valleys

- Exposures of Carboniferous rocks and their stratigraphical relationship
- Sites of international importance for Carboniferous palaeontology
- Important fossil localities in Carboniferous limestone reef knolls
- Glacial deposits and glacial landforms

### 27. Meres and Mosses

- Triassic stratigraphy, palaeoenvironments and palaeontology (early reptiles)
- Pleistocene stratigraphy and palaeoenvironments
- Triassic mineralisation
- Present day fluvial geomorphology



Shap Pink Quarry, Cumbria. Peter Wakely/English Nature

# Freshwater

## Key issues and objectives

### *Issue: water quality*

- **Maintain** or **restore** water quality by:
  - ▶ **improving** sewage treatment where necessary;
  - ▶ **preventing** contamination from mine water;
  - ▶ **safeguarding** standing waters and rivers from agricultural and urban runoff.

### *Issue: water management/engineering*

- When **planning** and **undertaking** abstraction and engineering work, **avoid** damaging sites of wildlife interest.

### *Issue: lack of or inappropriate management*

- **Manage** waterside habitats appropriately by:
  - ▶ **re-establishing** and **increasing** the extent of natural waterside habitats;
  - ▶ **reducing** overgrazing of waterside margins;
  - ▶ **countering** the effects of drainage and over-shadowing by conifer plantations in upland areas.

### *Issue: recreation*

- **Avoid** detrimental impacts on habitats and species by **managing** the recreational use of tarns, lakes and canals appropriately.



Rostherne Mere, Cheshire. Chris Walker/English Nature

**N**orth West Region has a great diversity of freshwater habitats. In the Cumbria Fells and Dales the Derwent-Cocker river system is an outstanding example of an upland river, whilst the River Eden is a fine example of a large limestone and sandstone river, with one of the greatest diversities of aquatic plants of all rivers in England. These include several species of water-crowfoot and pondweed, which cover extensive areas in places, and uncommon species such as opposite-leaved pondweed and perfoliate pondweed.

The rivers of the Region support strong populations of a number of animal species of special interest, notably the freshwater pearl mussel and the white-clawed crayfish. There are good populations of fish such as lampreys and salmon, and otters are also present. All of the above are BAP species, and stretches of some rivers are candidate Special Areas of Conservation (SACs) for these species. Many of the fast-flowing rivers of the upland areas are valuable habitats for birds such as dippers, grey wagtails and common sandpipers.

Several of the canals that cross the Region, for example the Lancaster Canal, Leeds to Liverpool Canal and the Montgomery Canal, support important communities of plants and invertebrates. The clay lining of the canals provides more calcareous conditions in comparison to many of the more acidic rivers of the area, and result in plant communities more akin to those in lowland chalk rivers. Rarities include hairlike pondweed, long-stalked pondweed, whorled water-milfoil and floating-leaved water plantain.

The North West Region has an outstanding abundance and diversity of natural lakes. Major lakes dominate the landscape of the Cumbria Fells and Dales and these range in nutrient status from those poor in minerals (oligotrophic), such as West Water, to those moderately nutrient-rich (mesotrophic), such as Esthwaite Water and Bassenthwaite Lake. There are also two of the very few examples in England of lime-rich marl lakes, Hawes Water (near Morecambe Bay) and Sunbiggin Tarn. This habitat type is rare in Britain. The Meres and Mosses also

has many lakes, some of which cover extensive areas, and in contrast to those in Cumbria Fells and Dales, most are eutrophic (rich in nutrients). However, there are also a small number of nutrient-poor lakes and some dystrophic (nutrient-poor and acidic) pools associated with peat bogs. Together with their associated mosses, many of these meres are designated as a ‘Ramsar’ site for they form an internationally important wetland habitat.

In addition to the large natural lakes, there are a number of large water storage reservoirs in the North Pennines and the Southern Pennines, some of which are significant habitats for waterfowl.

Small ponds and tarns are numerous throughout the Region, occurring in both the uplands and lowlands. Many ponds are former marl, clay and gravel pits, while others are close to mills where they were created as industrial reservoirs, especially those within the

Lancashire Plain and Valleys, Urban Mersey Basin and in parts of Meres and Mosses.

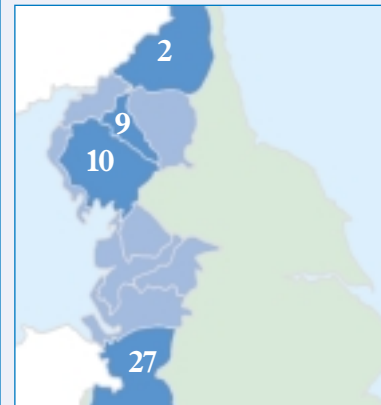
The lakes, tarns and ponds support a wealth of plant and animal species, including some that are rare or found nowhere else in England. The flora varies from lake to lake but can include scarce species such as elongated sedge, six-stamened waterwort, spring quillwort and pillwort. The fauna is rich and includes a large number of rare aquatic snails and beetles; some sites support the rare medicinal leech; the lesser silver water beetle is found in the Meres and Mosses; and great-crested newts are found throughout the Region. All of these are BAP species. Some of the lakes of Cumbria Fells and Dales are also notable for their fish populations. The two native populations of vendace are in Bassenthwaite Lake and in Derwent Water, while a few other lakes support the only populations of schelly (powan) in England.

### Candidate Special Areas of Conservation

- Asby Complex (Cumbria Fells and Dales)
- Clints Quarry (Cumbria Fells and Dales)
- Morecambe Bay Pavements (Cumbria Fells and Dales)
- Moor House - Upper Teesdale (North Pennines)
- Oak Mere (Meres and Mosses)
- River Derwent and Bassenthwaite Lake (Cumbria Fells and Dales; West Cumbria Coastal Plain)
- River Eden (Solway Basin; Eden Valley; Cumbria Fells and Dales)
- River Ehen (Cumbria Fells and Dales; West Cumbria Coastal Plain)
- West Water (Cumbria Fells and Dales)
- West Midlands Mosses (Meres and Mosses)

### Special Protection Areas

- Martin Mere (Lancashire Plain and Valleys)



## Characteristic habitats of key Natural Areas

### 2. Border Uplands

- Fast-flowing upland rivers and streams
- Some large reservoirs
- Small number of naturally-occurring *mesotrophic lakes*
- Numerous small lakes and ponds

### 9. Eden Valley

- Major limestone and sandstone river system (River Eden)
- Small number of lakes, ponds and tarns

### 10. Cumbria Fells and Dales

- Fast-flowing rivers, e.g. the Eden, Derwent and Cocker
- Canal habitats, e.g. Lancaster Canal
- Numerous large lakes including some lime-rich marl lakes, *mesotrophic lakes* and *eutrophic standing waters*
- Many small tarns and ponds

### 27. Meres and Mosses

- Canals
- Numerous lakes, mostly *eutrophic standing waters* but including oligotrophic and dystrophic examples
- Very large number of ponds, mostly former marl pits

*NB Priority BAP habitats in italics*

# Inland rock

## Key issues and objectives

### *Issue: rock removal*

- **Prevent** any rock removal or damage on limestone pavements.
- Where fragile plant and animal communities exist, **avoid** the removal of stone and scree for footpaths and walls.

### *Issue: recreation*

- **Protect** rock surfaces, rock habitats, their vegetation, and nesting birds where they occur, by:
  - ▶ **avoiding** disturbance from rock climbing;
  - ▶ **considering** the impact on inland rock habitats, especially scree, when designing and routing footpaths and new tracks.

### *Issue: grazing*

- Where **overgrazing** is causing erosion, or loss of rock/ledge plant communities, **reduce** stocking levels.
- Where **undergrazing** or **overgrazing** is a problem on limestone pavements, **maintain** appropriate grazing levels.

The Cumbria Fells and Dales supports around half of all limestone pavement in Britain. This is a rare and specialised habitat of international importance for plants and animals. The large limestone pavement at Orton Fells is at relatively high altitude and has a well-developed ‘open’ flora typical of upland pavements and sheep-grazed pastures. Plants include the rigid buckler-fern, which is restricted to limestone pavement habitats, and the uncommon green spleenwort, which has its main English stronghold in the North West Region. In contrast, the limestone pavements around Morecambe Bay range from low to moderate altitudes, and are largely wooded. These pavements support ferns such as limestone fern and are rich in flowering plants including the rare dark-red helleborine. Owing to their international importance, large areas of the limestone pavements within the Cumbria Fells and Dales are candidate Special Areas of Conservation (SAC).

Screes occur predominantly in the north of England and these habitats are important for their rich fern flora and a number of rare plants. The Cumbria Fells and Dales has large areas of scree formed of the acidic Borrowdale volcanic rocks, which have extensive development of parsley fern. There are also smaller areas of base-rich scree. The North Pennines also has screes formed of acidic shale and gritstone rocks with a characteristic flora, and more extensive screes of limestone that are richer in plants including scarce species such as the rigid buckler-fern and limestone fern.

Rocky areas with vegetation within crevices, cracks and fissures (‘chasmophytic’ vegetation) also occur over large areas of the Cumbria Fells and Dales. For example, at Helvellyn and Fairfield such vegetation occurs at high altitude on acidic and base-rich rocks and has a diverse flora including alpine lady’s mantle, purple saxifrage, mountain avens and roseroot. Wasdale also has



Wasdale Screes, Cumbria. Peter Wakely/English Nature



Green spleenwort on limestone pavement, Cumbria. Allan Drewitt/English Nature

extensive areas of this habitat but, as it is at lower altitude, the flora has both northern species such as forked spleenwort and species more typical of lowland areas such as wood bitter-vetch. Wasdale also has similar habitats on the calcareous rocks in the gullies, which support a richer, lime-loving crevice flora. Elsewhere in the Region rock crevice vegetation occurs within the North Pennines on the limestone escarpment and hill summits, where they are characterised by bryophytes and vascular plants including green spleenwort and brittle bladder-fern. Such upland rocky crags are

important nesting places for scarce birds such as peregrine, golden eagle and ring ouzel.

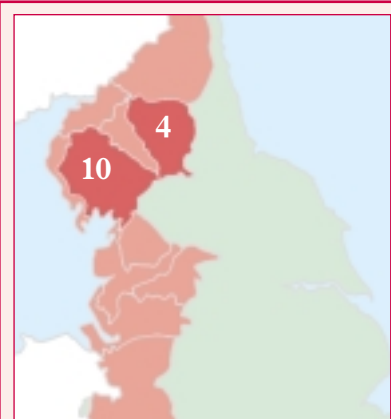
Disused quarries, open cast mines and associated spoil heaps provide additional rock and rock-spoil habitats. The spoil heaps from mining mineral deposits are often rich in heavy metals and support an uncommon and specialised flora which can tolerate such soils. A number of these heavy metal (or ‘calaminarian’) grasslands occur within the Region, mostly within Border Uplands and North Pennines.

#### Candidate Special Areas of Conservation

- Asby Complex (Cumbria Fells and Dales)
- Helvellyn and Fairfield (Cumbria Fells and Dales)
- Morecambe Bay Pavements (Cumbria Fells and Dales)
- Moor House - Upper Teesdale (North Pennines)
- Wasdale Screes (Cumbria Fells and Dales)

#### Special Protection Areas

None



### Characteristic habitats of key Natural Areas

#### 4. North Pennines

- Basic (limestone) scree
- Acidic scree
- Rock ledge and crevice vegetation on Pennine escarpment and hill summits (on limestone)
- *Limestone pavement* at Musgrave Scar and Middle Fell
- Heavy metal-rich spoil heaps and river alluvium supporting a specialised flora

#### 10. Cumbria Fells and Dales

- Extensive *limestone pavements* around Morecambe Bay and Orton Fells
- Extensive areas of scree at Helvellyn and Fairfield
- Rock ledge and crevice vegetation at both high and low altitude

*NB Priority BAP habitats in italics*

# Bog, fen and swamp

## Key issues and objectives

### Issue: water quantity and quality

- **Maintain** hydrological integrity of wetlands by:
  - ▶ **avoiding** policy and planning decisions that interfere with hydrology;
  - ▶ **restoring** water levels of damaged bogs to conditions that allow peat development.
- **Eliminate** harmful agricultural run-off or other sources of nutrient enrichment.
- **Re-create** reedbed and swamp by **increasing** water levels.

### Issue: inappropriate management

- **Manage** existing bog, fen and swamp by:
  - ▶ **modifying** stocking levels where overgrazing or undergrazing of bogs, fen and swamps is occurring;
  - ▶ **avoiding** burning on 'active' (i.e. still peat-forming) bogs;
  - ▶ **promoting** and **developing** appropriate agri-environment schemes.

### Issue: inappropriate development

- **Discourage** development of windfarms in sensitive upland habitats.
- **Discourage** forestry on areas of peatland and fen.



Wybunbury Moss, Cheshire.  
John Mason/English Nature

The North West Region has the largest concentration of lowland raised bogs in England, with extensive areas within Solway Basin, Cumbria Fells and Dales, Lancashire Plain and Valleys, Urban Mersey Basin and Meres and Mosses. Most raised bogs have been modified to some extent by peat cutting, drainage or burning, but large areas remain that are actively growing and are of a very high quality. The best examples, namely the Solway Mosses, Duddon Mosses, Roudsea Woods and Mosses, and Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses are candidate Special Areas of Conservation (SACs) for their active raised bog vegetation.

Extensive areas of blanket bog cloak the Border Uplands, North Pennines, Cumbria Fells and Dales, Forest of Bowland and Southern Pennines. Both the Border Mires, Kielder - Butterburn and Moor House and Upper Teesdale are candidate SACs for blanket bog. Elsewhere in North West England there are areas of mire vegetation that is transitional between the

alkaline fens and the acidic bogs. At Abbots Moss, Wybunbury Moss and Clarepool Moss in the Meres and Mosses there are unusual forms of this 'transition' mire, where floating rafts of *Sphagnum*-dominated vegetation have developed. These fine examples of transition mires and quaking bogs of the West Midlands Mosses are a candidate SAC.

The blanket bogs and lowland raised bogs support a number of uncommon plants, such as bog-rosemary whose main distribution in England is in the North West. These bogs are also rich in bryophytes, which include the Red List moss *Dicranum affine*, and the scarce bog-moss *Sphagnum pulchrum*.

A wide variety of invertebrates are associated with the bogs, particularly beetles, flies, moths. These include the grey scalloped bar moth, the large heath butterfly (both BAP species), and dragonflies such as the white-faced darter dragonfly, which in England is restricted to bogs in this Region.

The lowland raised bogs of the Solway Basin are breeding grounds for curlew and red grouse, while the extensive areas of blanket bog in the North Pennines, Forest of Bowland, Southern Pennines and, to a lesser extent, the Cumbria Fells and Dales, are of great importance for breeding waders such as golden plover, lapwing, curlew and redshank. Bogs that occur in close association with heathland are also important for raptors including hen harrier, merlin and peregrine.

In the North West Region fens occur in shallow valleys or in association with other bog vegetation, for example in areas that are flushed by water, or on the margins of mosses where nutrient levels are higher.

There is a particular concentration of fen meadows within the Meres and Mosses, North Pennines and Cumbria Fells and Dales.

Springs and flushes are a widespread habitat in the uplands of the Region. The North Pennines is one of the few areas in northern England that has an extensive series of hard-water springs that deposit calcium carbonate or 'tufa'. This network of springs is a candidate SAC. Important examples of base-rich springs and flushes also occur in the Cumbria Fells and Dales and Border Uplands. The Red List liverwort *Leiocolea rutheana* and the globally threatened slender green feather-moss both occur in springs and flushes in the Region.

Swamp and reedbed habitats are found throughout the Region either along the edges of rivers, lakes or mires, or close to the coast. Swamps and reedbeds can cover small areas or form large stands, for example at Leighton Moss within the Cumbria Fells and Dales, which is the most extensive reedbed in the Region. The reedbeds support rare breeding birds including bearded tit, marsh harrier and bittern. The bittern is a priority BAP species.

## Characteristic habitats of key Natural Areas

### 2. Border Uplands

- Extensive areas of *blanket bog*, some areas of *lowland raised bog*
- Wide range of bog vegetation communities
- Some areas of *purple moor grass and rush pastures*
- Base-rich springs and flushes

### 3. Solway Basin

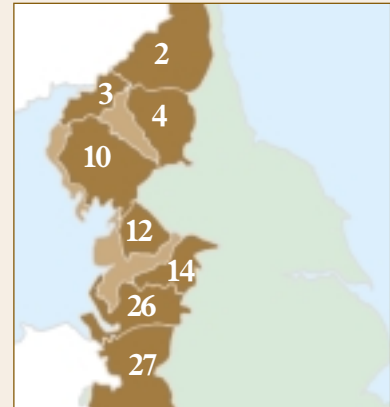
- Largest concentration in England of relatively intact *lowland raised bogs*
- Numerous small basin fens

### 4. North Pennines

- Extensive areas of *blanket bog* in uplands
- Wide range of bog vegetation communities
- Acidic and basic springs and flushes common in the uplands
- Limited areas of *fen* vegetation
- Some areas of *purple moor grass and rush pastures*

### 10. Cumbria Fells and Dales

- *Blanket bog* on level or gently sloping ground
- Numerous *lowland raised bogs*



- *Fen* vegetation in basins, in valleys, around lakes and riversides
- Largest *reedbed* in North West England at Leighton Moss
- Base-rich and base-poor springs and flushes

### 12. Forest of Bowland

- Extensive areas of *blanket bog* in Bowland Fells
- Small areas of *lowland raised bog*
- Occasional *fen* meadows
- *Purple moorgrass and rush pastures* on upland fringes

### 14. Southern Pennines

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

### 26. Urban Mersey Basin

- Large areas of *lowland raised bogs*
- Small areas of *fen* vegetation
- Some *reedbeds*

### 27. Meres and Mosses

- *Lowland raised bogs*
- Fine examples of transition mires and quaking bogs
- Numerous small areas of *fen* vegetation

NB Priority BAP habitats in italics

### Candidate Special Areas of Conservation

- Asby Complex (Cumbria Fells and Dales)
- Border Mires, Kielder - Butterburn (Border Uplands)
- Duddon Mosses (Cumbria Fells and Dales)
- Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses (Meres and Mosses)
- Moor House - Upper Teesdale (North Pennines)
- Roudsea Woods and Mosses (Cumbria Fells and Dales)
- Solway Mosses (Solway Basin)
- West Midlands Mosses (Meres and Mosses)

### Special Protection Areas

- Leighton Moss (Cumbria Fells and Dales)
- Moor House - Upper Teesdale (North Pennines)

# Woodland

## Key issues and objectives

### *Issue: development*

- When **planning** development, **avoid** the loss of ancient and semi-natural woodland.

### *Issue: loss of habitat*

- **Create** new broadleaved woodland:
  - ▶ around **existing** blocks of woodland;
  - ▶ where this will **link** fragments, e.g along river corridors.
- **Re-create** hedgerows, especially where this will **link** fragments.

### *Issue: management*

- **Encourage** agricultural policies and practice that **reduce** grazing:
  - ▶ to **allow** natural regeneration in upland woods;
  - ▶ to **allow** the spread of woodlands onto adjacent land.
- To **stimulate** management of existing woods, **encourage** the use of local woodland products.

### *Issue: conversion to plantation*

- **Improve** the conservation value of plantations, with consideration for important species (e.g red squirrel) by:
  - ▶ **restructuring** upland plantations through design plans;
  - ▶ **restoring** native broadleaved trees in woodland replanted with conifers.

**T**here are numerous ancient woods in the North West Region, some of which cover large areas. The most significant and extensive areas of ancient upland oak woods are in the Lake District within the Cumbria Fells and Dales, with other large areas in the North Pennines and the Forest of Bowland. Many of these ancient oak woods are of importance for their luxuriant growths of ferns, and for their rich communities of Atlantic mosses and liverworts owing to the high rainfall and humidity, and low levels of airborne pollutants. These woodlands are an important habitat for birds such as redstarts, pied flycatchers and wood warblers.

Upland mixed ash woodland is extensive on the limestones around Morecambe Bay in the Cumbria Fells and Dales, and in the river valleys of the North Pennines and the Forest of Bowland. These woods support a rich ground flora. Yew occurs in mixed ash woodland and forms dense groves in places. Of particular note are the stands of yew within Roudsea

Woods and Mosses and on the Morecambe Bay limestone pavement within the Cumbria Fells and Dales. Stands of juniper also occur on the Morecambe Bay limestones and in the Lake District hills. Some of these sites are candidate Special Areas of Conservation (SACs) for yew and juniper woodland. Small populations of the dormouse, a priority BAP species, occur in some of the ash woods in the Region, here at the northern limit of its range.

Small areas of wet woodland (predominantly alder) occur along riversides and lakesides across the Region, and there are small areas of alder, willow or birch woodland on the remnant peatlands of the Solway Basin and Meres and Mosses. Elsewhere in the Region ancient woods are limited in distribution and extent, and occur mainly in the valleys and on fell sides, for example in North Pennines, Eden Valley, Forest of Bowland and Urban Mersey Basin.

Large, regular blocks of coniferous plantation woodland are present



Roeburndale Woods, Lancashire. Peter Wakely/English Nature





Juniper near Mosedale, Cumbria. Peter Wakely/English Nature

throughout the Region, with significant areas in Border Uplands and at localities in the Cumbria Fells and Dales, Eden Valley and Forest of Bowland. Some of the large coniferous and mixed plantations hold populations of birds such as goshawks and crossbills, and the woods in the north of the Region and on the Sefton Coast (Liverpool Bay) are of particular importance for the red squirrel, a priority BAP species. Throughout England the red squirrel has been largely replaced by the introduced grey squirrel, which is still actively colonising the Region from the north and south.

There are a large number of rare or scarce species associated with woodland in the Region. Scarce

plants include creeping lady's-tresses, which occurs predominantly in the north of England, and downy currant, here at its southern limit in Britain. The woods are very rich in invertebrates with records of many uncommon butterflies, moths, beetles and flies. These include the netted carpet moth, which in England is confined to the Lake District; the high brown fritillary butterfly; the square-spotted clay moth; and the northern wood ant, all of which are BAP species.

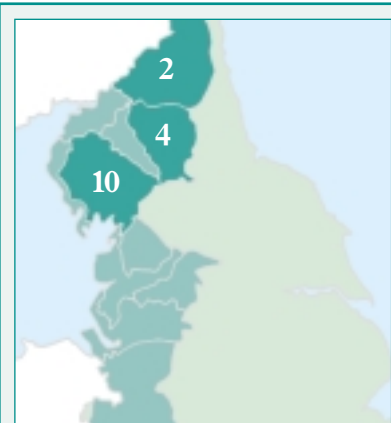
As fields in the upland areas are enclosed mostly by dry stone walls or fences, hedgerows feature only on the lower slopes of the hills and in the valleys. These hedgerows vary greatly in condition and extent across the Region, but are largely fragmented.

#### Candidate Special Areas of Conservation

- Borrowdale Woodland Complex (Cumbria Fells and Dales)
- Morecambe Bay Pavements (Cumbria Fells and Dales)
- Roudsea Woods and Mosses (Cumbria Fells and Dales)

#### Special Protection Areas

None



### Characteristic habitats of key Natural Areas

#### 2. Border Uplands

- Extensive conifer plantations
- Few broadleaved woods, mostly *upland oak woodland* and *upland mixed ash woodland* along river valleys
- *Wet woodland* along riversides

#### 4. North Pennines

- Mostly plantation woodland
- Some small, natural woods of *upland oak woodland* and *upland mixed ash woodland* along river valleys
- *Wet woodland* of alder along riversides

#### 10. Cumbria Fells and Dales

- Extensive *upland mixed ash woodland* and lowland mixed broadleaf woodland
- Large areas of *upland oak woodland*, rich in ferns, mosses, liverworts and lichens
- Yew woodland in Morecambe Bay limestone woods
- Juniper scrub on Morecambe Bay limestones and Lake District fells
- *Wet woodland* along lakesides, riversides and on edges of mosses
- Conifer plantations

*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 and in disused quarries, particularly where this links fragments.
- **Create** wet grasslands by **restoring** appropriate flooding regimes on floodplains.

### *Issue: lack of appropriate management*

- **Promote** appropriate management through:
  - extensive, low-intensity **grazing** on grasslands and heaths;
  - controlled **burning** on heaths;
  - scrub **control** on grasslands.

### *Issue: pressure for agricultural intensification*

- **Avoid** further agricultural intensification by:
  - **encouraging** traditional, low-intensity agriculture;
  - **promoting** agri-environment schemes, where changes in farming practice would benefit wildlife;
  - **creating** cereal field margins to halt the decline in arable plant species;
  - **reducing** the use of fertilisers and pesticides.

One of the most significant areas of lowland grassland in the North West Region is in the Cumbria Fells and Dales, where the limestone outcrops around Morecambe Bay support many species-rich calcareous grasslands. The vegetation here is dominated by a plant community type that is found only in northern England. Characterised by blue moor-grass, this species-rich vegetation community includes rare and scarce plants such as spring cinquefoil and hoary rock-rose. This grassland type is of international importance and the best areas are a candidate Special Area of Conservation (SAC). These lowland calcareous grasslands support a great diversity of butterflies including the northern brown argus, which is restricted to northern England, and the high brown



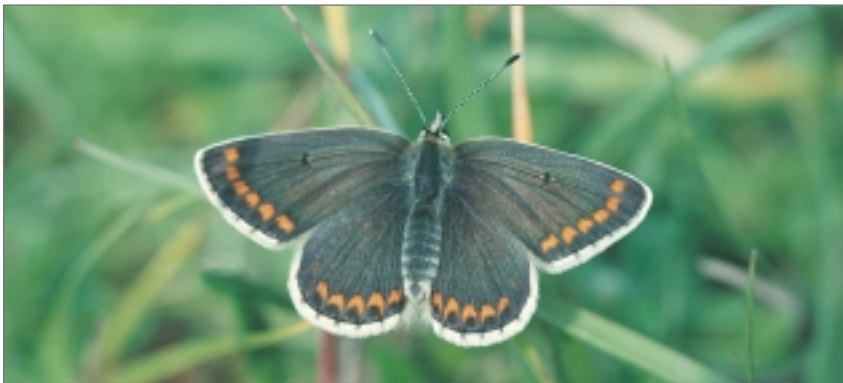
Arable wildflowers, Bolton, Lancashire.  
David Woodfall/NHPA

fritillary, which has one of its strongholds within the limestone grasslands and scrub around Morecambe Bay. Both of these butterflies are BAP species.

Elsewhere in the Region there are few extensive areas of high-quality lowland calcareous grasslands, although there are enclosed calcareous grasslands associated with the Whin Sill in the Border Uplands, on limestone outcrops around the north and north west of the Lake District, on the limestone knolls in Lancashire Plain and Valleys and on the fringe of the Forest of Bowland.

Unimproved, species-rich neutral lowland hay meadows are rare in the Region. These neutral grasslands are highly fragmented and remaining examples are often very small and isolated, but notable examples are present within the Meres and Mosses. Unimproved neutral pastures are also uncommon, occurring only as small areas along riversides or on steep banks. Examples are present within the Lancashire Plain and Valleys, and on the lowland fringes of the Forest of Bowland and the Southern Pennines. Pastures dominated by purple moor-grass are also rare in the Region and examples in Cumbria Fells and Dales, Solway Basin and Eden Valley are of great importance. Some of these grasslands and adjacent mires are notable for supporting the marsh fritillary butterfly, a BAP species.

However, there are areas of lowland wet grassland in the floodplains of major rivers and adjacent to estuaries in the Solway Basin, West Cumbria Coastal Plain, Eden Valley and Lancashire Plain and Valleys, many of which are used as pasture. Such wet grasslands and grazing marshes



Northern brown argus. Allan Drewitt/English Nature

are important breeding areas for birds such as lapwings, curlews and oystercatchers. The large area of wet grassland at Martin Mere in the Lancashire Plain and Valleys is of international importance for wintering and migrating wildfowl and waders.

Arable farming is generally confined to the richer soils of the lowland coastal plains and occurs over large areas in some localities, for example on the peat soils of west Lancashire and the Urban Mersey Basin. Although arable farming is not widespread across the Region, these areas are of interest for a number of BAP species. They include uncommon plants of cereal field margins, such as red hemp-nettle, and purple rampion-fumitory which occurs only in Britain and has a stronghold in the Lancashire Plain and Valleys. The brown hare, also a BAP species, occurs in lowland farmland in all the Natural Areas in North West England. Arable and

mixed farmland is very important for wintering waterfowl, including pink-footed geese, Bewick's and whooper swans and wigeon, and some areas are also important for breeding birds such as grey partridge, corn bunting, skylark and reed bunting.

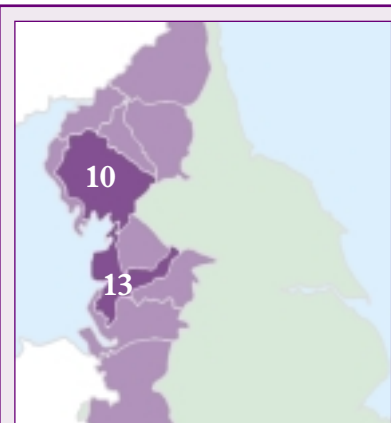
Lowland heathland occurs only as small, isolated fragments on the lowland plains, for example in the Urban Mersey Basin, and the Eden Valley. This heath vegetation is often associated with other habitats, such as on the margins of bogs, in disused quarries, or on the sandstone ridges and glacial sands in the Meres and Mosses. (Dune heaths are considered in the Maritime section.) The lowland heaths support a variety of invertebrates, notably uncommon beetles and moths such as the silver studded blue butterfly, a BAP species that is recorded on heathland within the Meres and Mosses. Nightjars are known to breed on the fragments of lowland heath in the Eden Valley.

#### Candidate Special Areas of Conservation

- Morecambe Bay Pavements (Cumbria Fells and Dales)

#### Special Protection Areas

- Martin Mere (Lancashire Plain and Valleys)



### Characteristic habitats of key Natural Areas

#### 10. Cumbria Fells and Dales

- *Lowland calcareous grasslands* associated with limestone around Morecambe Bay
- Small number of *lowland hay meadows*
- *Coastal and floodplain grazing marsh*
- Small areas of *lowland heathland*
- *Purple moor-grass and rush pastures*

#### 13. Lancashire Plain and Valleys

- Lowland wet grasslands including *coastal and floodplain grazing marsh*
- Isolated fragments of species-rich neutral grasslands, including *lowland hay meadows*
- Fragments of *lowland heathland*

NB Priority BAP habitats in italics

# Upland grassland and heath

## Key issues and objectives

*Issue: inappropriate management*

- Control **overgrazing** by **reducing** stocking levels.
- Where **burning** is a management tool, **encourage** sensitive burning regimes (follow the *Heather and Grass Burning Code*).
- **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.

*Issue: inappropriate development*

- **Discourage** development of wind farms in sensitive upland habitats.

**T**here are extensive areas of heather moorland on the upland fells of the North West Region, mostly within the North Pennines, Forest of Bowland and Southern Pennines, and in the Cumbria Fells and Dales. In some areas the heather moorland is suppressed by heavy grazing. Wet heath, characteristically with cross-leaved heath, occurs in waterlogged valleys and in the uplands, often in association with blanket bogs. Dry heath, dominated by heather with bilberry and bell heather, is more extensive and occurs on steep valley slopes or as mosaics with acid grassland. Although often rich in shrubs, heather moorland has a poor ground flora but nevertheless supports rich communities of invertebrates and birds such as red grouse, black grouse, hen harrier, merlin and peregrine as well as curlew, golden plover and twite.

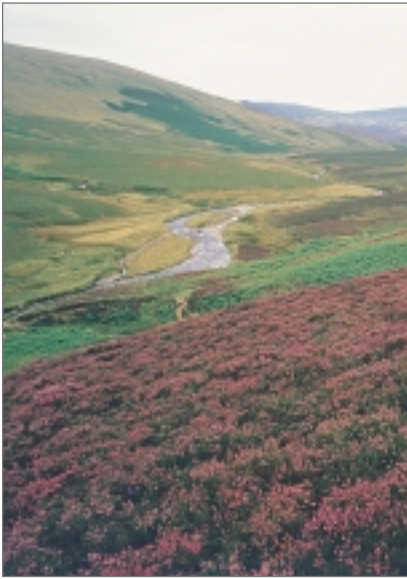
Unenclosed grasslands of the uplands are predominantly acidic grasslands and these are extensive in the Border Uplands, North

Pennines and Cumbria Fells and Dales. Important areas of upland calcareous grassland, which are more species-rich, occur on the limestone outcrops in North Pennines and the Orton Fells in Cumbria Fells and Dales, with smaller examples in the Forest of Bowland. Of particular note are the enclosed neutral grasslands which include a large proportion of the UK's upland hay meadows, a rare habitat linked with traditional low-intensity pastoral agriculture in upland areas. These small, fragmented meadows occur only in the north of England and form scattered fields or isolated small groups. Their rarity is recognised by the inclusion of a large proportion of these meadows in a candidate Special Area of Conservation (SAC).

In the Region montane habitats occur only on the highest summits of the Border Uplands, North Pennines and Cumbria Fells and Dales. The vegetation present is characterised by grasses, dwarf-shrubs, lichens and mosses, which form southern



Bowland Fells, Lancashire. Peter Wakely/English Nature



Skiddaw, Cumbria.  
Peter Wakely/English Nature

outliers of habitats that are more widespread in Scotland. Uncommon species characteristic of this habitat include the mosses *Kiaeria starkei* and *Ditrichum zuncatum*.

Upland grasslands and heaths also support rare and scarce invertebrates, including the northern dart moth, and the montane grassland of Cumbria Fells and Dales is the only English location for the mountain ringlet butterfly; both are BAP species.

## Characteristic habitats of key Natural Areas

### 2. Border Uplands

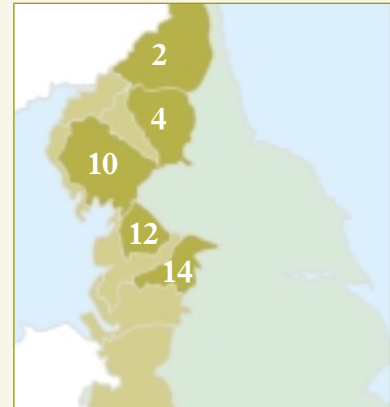
- Areas of *upland heathland* (heather moorland)
- Large areas of unenclosed acidic grassland
- Neutral grasslands including some *upland hay meadows*
- Some unenclosed *upland calcareous grasslands*
- Montane heath and fragments of moss heath on summits

### 4. North Pennines

- Large areas of dry *upland heathland*
- Extensive acid grasslands
- *Upland calcareous grasslands* on limestone outcrops
- Neutral grasslands including high-quality *upland hay meadows*
- Areas of montane heath, acid grasslands and fragments of moss-heath on summits

### 10. Cumbria Fells and Dales

- Extensive area of *upland heath* with a wide range of vegetation types



- Large areas of acid grassland, often associated with moorland or blanket bogs
- Some *upland calcareous grasslands* on limestone hills in the Orton Fells
- Neutral grassland including high quality *upland hay meadows*
- Wide range of montane vegetation that is scarce or absent elsewhere in England

### 12. Forest of Bowland

- Extensive areas of wet and dry *upland heathland*, often in association with bogs
- Fragments of neutral hay meadows in valleys
- Small areas of *upland calcareous grassland* on limestone outcrops

### 14. Southern Pennines

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

### Candidate Special Areas of Conservation

- Moor House - Upper Teesdale (North Pennines)
- Helvellyn and Fairfield (Cumbria Fells and Dales)
- North Pennines Dales Meadows (Border Uplands; North Pennines; Cumbria Fells and Dales; plus Yorkshire Dales in Yorkshire and the Humber Region)

### Special Protection Areas

- Bowland Fells (Forest of Bowland)
- North Pennine Moors (Border Uplands; plus South Pennines in Yorkshire and the Humber Region)

*NB Priority BAP habitats in italics*

# Maritime

## Key issues and objectives

*Issue: maintenance of coastal processes*

- **Maintain** natural, dynamic coastal processes by:
  - ▶ **promoting** the use of ‘soft’ engineering for sea defences, e.g. managed retreat;
  - ▶ **avoiding** dredging and sand extraction that would remove sediment from the system, e.g. by recycling dredge spoil for beach nourishment;
  - ▶ **ensuring** an integrated, holistic approach to coastal planning activities through Shoreline Management Plans.

*Issue: water quality*

- **Improve** water quality by:
  - ▶ **reducing** inputs of untreated sewage effluents;
  - ▶ **reducing** contamination from industrial discharges and agricultural run-off.

*Issue: recreation and tourism*

- **Avoid** detrimental impacts on key wildlife features by **ensuring** that recreation and tourism is consistent with maintaining wildlife features.

*Issue: fisheries*

- **Encourage** and **promote** fishing practices that:
  - ▶ **sustain** populations of the target species;
  - ▶ **avoid** detrimental impacts on wildlife such as sea bed communities and birds.



Morecambe Bay, Lancashire.  
Peter Wakely/English Nature

**T**he coast of the North West Region contains around one-third of all the sand dunes in England. The extensive dunes along Liverpool Bay and the Cumbrian Coast have a diverse vegetation including relatively large areas of mobile dunes with marram grass, dune grassland, dune slacks, and dune heath. Both the Sefton Coast and the Drigg Coast are candidate Special Areas of Conservation (SACs) for their dune vegetation. Sand dunes within the Region support populations of uncommon plants such as dune helleborine and a large number of scarce lower plants including petalwort, a priority BAP species, and bryophytes *Bryum* spp. The dunes and saltmarshes are a stronghold for the natterjack toad, and a small, isolated population of sand lizard survives on the Sefton Coast; both are priority BAP species.

In this Region shingle occurs predominantly as bare beaches, but there are areas of vegetated shingle at Grune Point on the Solway Firth and

at Walney Island in Morecambe Bay. The shingle barrier at Walney is of international importance and is very rich in plants including the BAP species Ray’s knotgrass, Portland spurge and Isle of Man cabbage. Several species of seabird, such as common tern, little tern, black-backed gull and herring gull, breed on shingle and the beaches at South Walney and Foulney are nationally important for their breeding populations of seabirds.

Saltmarshes are widespread throughout the Region and the most extensive areas are in the estuaries of the Dee, Mersey, Ribble, Morecambe Bay and the Solway Firth which are traditionally grazed. These saltmarshes, and those in the Solway in particular, are notable for their mid-upper saltmarsh vegetation, which elsewhere in England has been lost to land-claim, and also for the development of cliffs and terraces in the saltmarsh. Waders such as redshank, oystercatcher and lapwing breed within the saltmarshes.

There are only very small areas of intertidal rock in the Region, at Hilbre Island in the mouth of the Dee Estuary, and at St Bees Head on the Cumbrian Coast. At this latter site there are extensive reefs formed by the polychaete worm *Sabellaria alveolata*, a priority BAP habitat. Elsewhere the shores are dominated by sediments: Morecambe Bay has the largest continuous area of intertidal flats in Britain and there are extensive sandflats and mudflats within the Dee, Mersey, Ribble and Alt Estuaries and the Solway Firth. These sediments range from mobile, wave-exposed sands on the open coast to more stable, muddy sediments in the inner estuaries, that support abundant invertebrates. Of particular note within Morecambe Bay are the

extensive areas of cobbles, locally known as ‘scars’ or ‘skears’, which are important for their mussel beds.

The intertidal flats and adjacent saltmarshes form an internationally important network of feeding and roosting grounds for waterfowl such as pink-footed goose, shelduck, grey plover, knot, dunlin, bar-tailed godwit and redshank. These shores support hundreds of thousands of birds during winter and many more use this coastline during the course of their spring and autumn migrations. Accordingly, most of these estuaries have been designated as Special Protection Areas (SPAs). The Solway Firth is of particular note as it supports the entire wintering population of the Svalbard race of barnacle goose.

Dee Estuary, Merseyside.  
Peter Wakely/English Nature



#### Candidate Special Areas of Conservation

- Sefton Coast (Liverpool Bay)
- Morecambe Bay (Morecambe Bay; Cumbrian Coast)
- Drigg Coast (Cumbrian Coast)
- Solway Firth (Solway Firth)

#### Special Protection Areas

- Dee Estuary (Liverpool Bay)
- Mersey Estuary (Liverpool Bay)
- Ribble And Alt Estuaries (Liverpool Bay)

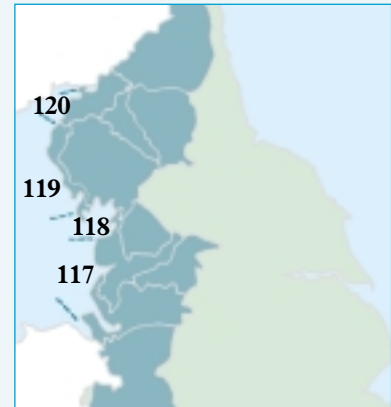
### Characteristic habitats of key Natural Areas

#### 117. Liverpool Bay

- Extensive areas of *sand dunes* along the Sefton Coast
- Large areas of *saltmarshes* in the Dee, Mersey and Ribble Estuaries
- Extensive intertidal flats in the Dee, Mersey, Ribble and Alt Estuaries
- Small area of intertidal rock around Hilbre Island

#### 118. Morecambe Bay

- Small stretch of limestone *cliff* at Humphrey Head and Jenny Browns Point
- Internationally important *vegetated shingle* at Walney Island and Foulney



- Large areas of intertidal sandflats and *mudflats*
- Extensive and varied *saltmarshes* in the sheltered estuaries of the embayment
- Extensive mussel beds on boulder and cobble ‘scars’
- *Reefs* of *Sabellaria alveolata*

#### 119. Cumbrian Coast

- Spectacular sandstone *cliffs* between St Bees Head and Maryport
- Extensive *sand dunes* along the Drigg coast
- Shingle beaches
- Extensive rocky shore at St Bees Head
- Extensive boulder and cobble ‘scars’
- *Reef* of *Sabellaria alveolata*

#### 120. Solway Firth

- Small area of *sand dunes* along the outer reaches of the Firth
- *Vegetated shingle* at Grune Point
- Extensive and varied *saltmarshes*
- Vast expanse of mobile sandflats

NB Priority BAP habitats in italics

# 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)



Roeburndale Woods, Lancashire. Peter Wakely/English Nature

## 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



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



Burgey Banks, St Helens.  
George Barker/English Nature

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?

### 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

- Brown, A.E., Burn, A.J., Hopkins, J.J. and Way, S.F. (Editors). 1997. The Habitats Directive: selection of Special Areas of Conservation in the UK. *Joint Nature Conservation Committee Report No. 270*. Joint Nature Conservation Committee, Peterborough.
- Drake, M., Clements, D., Eyre, M., Gibbs, D. and Kirby, P. 1998. Invertebrates and their habitats in Natural Areas. Volume 1: Midland and Northern Areas. *English Nature Research Report No. 298*. English Nature, Peterborough.
- Drake, M., Clements, D., Eyre, M., Gibbs, D. and Kirby, P. 1998. Invertebrates and their habitats in Natural Areas. Volume 2: Southern Areas. *English Nature Research Report No. 298*. English Nature, Peterborough.
- Drewitt, A.L., and Manley, V.J. 1997. The vegetation of the mountains and moorlands of England. *English Nature Research Report No. 218*. English Nature, Peterborough.
- English Nature 1997. *Wildlife and fresh water, an agenda for sustainable management*. English Nature, Peterborough.
- English Nature. In prep. *Overview of coastal habitats by Natural Area*. English Nature, Peterborough.
- Gardiner, A.J. 1996. Freshwater wetlands in England. A Natural Areas approach. *English Nature Research Report No. 204*. English Nature, Peterborough.
- Grice, P.V., Brown, A.F., Carter, I.C. and Rankine, C.A. 1994. Birds in England: a Natural Areas approach. *English Nature Research Report No. 114*. English Nature, Peterborough.
- Jefferson, R.G. 1997. Lowland grassland in Natural Areas. National assessment of significance. *English Nature Research Report No. 171*. English Nature, Peterborough.
- King, A., Glasser, N., Larwood, J., Littlewood, A., Moat, T. and Page, K. 1996. Earth heritage conservation in England: a Natural Areas perspective. *English Nature Research Report No. 158*. English Nature, Peterborough.
- Kirby, K. and Reid, C. 1997. Preliminary nature conservation objectives for Natural Areas. Woodland and forestry. *English Nature Research Report No. 239*. English Nature, Peterborough.
- Michael, N. 1996. Lowland heathland in England. A Natural Areas approach. *English Nature Research Report No. 170*. English Nature, Peterborough.
- Mitchell-Jones, A.J. and Gent, A.H. 1997. Priority Natural Areas for mammals, reptiles and amphibians. *English Nature Research Report No. 242*. English Nature, Peterborough.
- Porley, R. and McDonnell, A. 1997. Rare and scarce vascular plants and bryophytes in Natural Areas. *English Nature Research Report No. 267*. English Nature, Peterborough.
- Reid, C.M., Kirby, K.J. and Cooke, R.J. 1996. A preliminary assessment of woodland conservation in England by Natural Areas. *English Nature Research Report No. 186*. English Nature, Peterborough.
- Sanderson, N.A. 1998. A review of the extent, conservation interest and management of lowland acid grassland in England. Volume I: Overview. *English Nature Research Report No. 259*. English Nature, Peterborough.
- Sanderson, N.A. 1998. A review of the extent, conservation interest and management of lowland acid grassland in England. Volume II: County Descriptions. *English Nature Research Report No. 259*. English Nature, Peterborough.

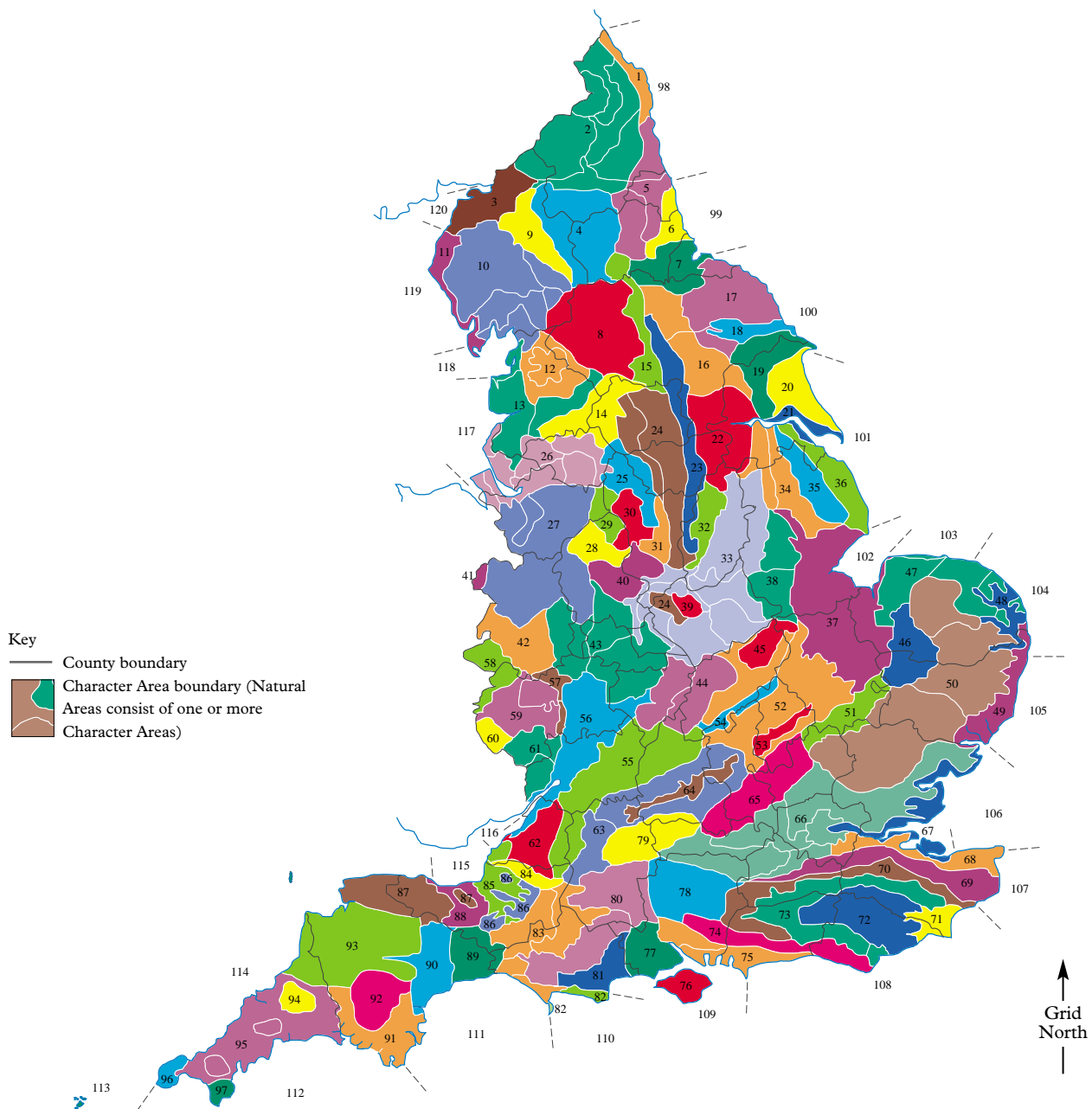
All available free from the Enquiry Service, English Nature, Northminster House, Peterborough PE1 1UA Tel. 01733 455101 fax. 01733 568834.

## 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](http://www.english-nature.org.uk).



Key

- County boundary
- - - Character Area boundary (Natural)
- ▭ Areas consist of one or more Character Areas

- |                                      |   |  |   |                                  |
|--------------------------------------|---|--|---|----------------------------------|
| 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                 |

## English Nature Local Teams in the North West Region and Natural Areas for which they lead

### North West Team

(Regional Lead Team)

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#### Natural Areas for which they lead:

- 12 Forest of Bowland
- 13 Lancashire Plain and Valleys
- 26 Urban Mersey Basin
- 117 Liverpool Bay

### Northumbria Team

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#### Natural Areas for which they lead:

- 2 Border Uplands
- 4 North Pennines

### Cumbria Team

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#### Natural Areas for which they lead:

- 3 Solway Basin
- 9 Eden Valley
- 10 Cumbria Fells and Dales
- 11 West Cumbria Coastal Plain
- 118 Morecambe Bay
- 119 Cumbrian Coast
- 120 Solway Firth

### Humber To Pennines Team

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#### Natural Areas for which they lead:

- 14 Southern Pennines

### West Midlands Team

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#### Natural Areas for which they lead:

- 27 Meres and Mosses



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