



## 7 Conclusion

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This Report presents the first comprehensive, integrated assessment of the state of England's biodiversity, geodiversity and landscapes.

### England's natural environment is important

The Report clearly demonstrates the importance of England's natural environment for species and habitats, landscapes and geodiversity and for the benefits which we enjoy as individuals and as a society. England's natural environment is internationally important for its species and its habitats. For example, England has globally important populations of breeding seabirds and wintering waders and wildfowl, and 18% of the world's heathland. We have internationally important populations of bats and oceanic lichens, and more than half the European species of bryophytes including one moss not recorded anywhere else in the world. England is rich in veteran trees in ancient woodland and parklands. We have more chalk rivers than any other country in Europe and over half the European resource of chalk coasts. Nearly 20% of Europe's Atlantic and North Sea estuaries are in England.

The combination of habitats, geology and human influence helps create landscapes that are rarely found outside England, including ancient hedged landscapes and our hugely varied coastline. England's geology has very high international heritage status because of both its diversity and the history of geological research.

England's natural environment is important for its intrinsic value, but it is also vital for the ecosystem services it provides. These include not only easily valued services such as flood defence, clean water and carbon sequestration, but also the less tangible and equally important cultural, aesthetic, health and wellbeing benefits. The evidence for these non-valued services is accumulating and we have provided case studies in this report.

### Our natural environment is under pressure

Our natural environment is under pressure from a range of threats. Many of these threats have been evident for several decades: pressure from intensification of land and sea management and pressures arising from continuing economic development, such as land take, pollution and water abstraction.

### Historical declines

Over the last 50 years or so England's natural environment has suffered serious losses. Our farmland today is much less rich in wildlife. Although there is much grassland, now only 3% of it is rich in plant species, and traditionally managed meadows are very rare. Arable land is also now much poorer in wildlife. There has been a substantial decline in the distribution of arable flowering plants, with seven species going extinct. Farmland birds have declined by over a half since the 1970s. Many of the surviving wildlife-rich sites form a small, isolated and fragmented resource. Some species are now more or less confined to protected sites, for example early spider, late spider and burnt orchids.

There have been major declines in all three easily monitored invertebrate groups: moths, butterflies and bumblebees. Wetland species have suffered: England and Wales hold one quarter of the world population of southern damselfly, but it has declined by 30% since the 1960s. And all amphibian species have declined, the natterjack toad by three quarters of its former range.

At sea, whilst our understanding is still limited by the evidence available, the state of the marine environment is cause for particular concern. Overfishing has led to the decline of both fish populations and fragile habitats such as reefs.

There have been landscape gains through restoration of woodland areas, but damage to character through loss of features such as field boundaries and intrusive development. There have been major improvements to access through the creation of National Parks, National Trails, and Country Parks.

### Past decade

There has been a levelling off in the past decade in the long-term decline of a number of indicator species including farmland birds and butterflies. However, the trend for some groups is still downwards. For example, the flora, birds and butterflies most associated with our woodland are all continuing to decline. There has been a particular decline in specialist species – those species that have very specific habitat requirements – revealed in the monitoring of birds, bumblebees and butterflies. For example, the specialist grassland edge Duke of Burgundy butterfly has declined by 50% in the last ten years.

Wetland and freshwater habitats continue to give us particular concern. Our open waters are perhaps in the worst condition of all habitats, even where legally protected. Wetland species are suffering with, for example, eels declining by 90% since the mid-1980s and water voles the most rapidly declining mammal. There have been major declines in populations of breeding wading birds on unprotected lowland wetland grasslands, notably the snipe which is down by 90% in some regions. Coastal habitats such as saltmarshes are declining due to coastal squeeze and pollution.

However, some of the trends over the last ten years show that there has been real improvement. There have been major increases in heathland birds, for example nightjar, woodlark and Dartford warbler – and the last of these has increased its range by over 100% due to milder winters. Some wetland birds have shown massive increases (for example gadwall, whooper swan), the recovery of the otter has continued, and four bat species are increasing significantly.

For our landscapes, whilst some 20% are showing signs of neglect, existing character has been maintained in 51%, and enhanced in 10%.

The last ten years have seen a major increase in opportunities to enjoy the natural environment by giving a right of access to mountain, moor, heath, down and registered common land. There is a growing body of evidence relating to the benefits of access to and engagement with the natural environment – specifically in terms of individuals' health and wellbeing – and this is increasingly being recognised in public policy. However, there is a complex relationship between provision of opportunities for access and engagement with the natural environment and resulting behaviours.

Furthermore, the pressures on the environment sometimes present opportunities, for example through large scale habitat creation for flood management, and natural green space within new housing developments.

### **Conservation action can be successful**

Whilst the general picture of our natural environment reveals many problems, our analysis of the impact of actions taken to date shows that much can be achieved in tackling these problems. There is growing evidence that conservation action has been successful, particularly where it has been targeted.

For example, the Species Recovery Programme has led to the successful re-introduction to England of the red kite, large blue butterfly, pool frog and interrupted brome grass (the last being one of the arable plant species that went extinct). The Biodiversity Action Plan (BAP) process has had successes for other species, with recovery targets exceeded for a range of species such as lesser horseshoe bat, bittern, curlew, silver-spotted skipper and Deptford pink. Of the priority habitats targeted under the UK BAP 24% are now assessed as increasing, including lowland heathland, arable field margins, grazing marshes, reedbeds and a number of woodland types. However, other BAP habitats and species continue to decline, for example chalk rivers, fens and coastal sand dunes, and red squirrel, turtle dove and starfruit. Both the Species Recovery Programme and BAP show what can be achieved through partnerships and coordinated action involving not only central government agencies but also non-governmental organisations, local bodies and individuals.

Regulation can also be an effective tool, such as Limestone Pavement Orders protecting limestone pavement.

The designation of our best wildlife sites as Sites of Special Scientific Interest (SSSIs), combined with agreements for their management, has been an effective tool in delivering appropriate management for nature conservation. The overall condition of SSSIs is improving significantly and, is on target to meet the Government's 2010 target. This applies to all the broad habitat groups within SSSIs, with the exception of open waters. Where comparable evidence has been collected, it demonstrates better condition of habitats under SSSI designation compared to non-designated areas.

Landscape designations have also been effective. The majority of the landscapes within the National Parks and Areas of Outstanding Natural Beauty (AONBs) are in good condition and SSSI habitats are also in at least as good condition within these protected landscapes as outside.

Agri-environment schemes have been designed to ensure that conservation of biodiversity, landscapes and historic features are more integral to agricultural land management across the wider countryside. The available evidence suggests that the schemes have been partially successful in maintaining the condition of the natural environment where they have been applied. Whilst it will take some time before the full benefits from changes in management are seen, there is now emerging evidence of the positive effects that can be achieved, for example in arable field margins.

### **But more needs to be done**

So we see a natural environment much less rich than 50 years ago, but showing signs of some recovery from long-term wildlife declines in the last decade, and with more opportunities to enjoy it. It is clear that targeted conservation measures have benefited both biodiversity and landscapes – they can and do work. We are clearly making progress in achieving the Government's policy objectives of protecting landscapes, improving access and halting biodiversity loss. However, given that many of our habitats and species are well below their levels of 50 years ago, we are very concerned as to whether our biodiversity and landscapes are sufficiently resilient and robust, diverse and interconnected to survive the future pressures and risks from development and climate change. In particular, our natural environment must now adapt to a climate that is changing faster and further than at any time in the recent geological past.

We will need to work at a sufficiently large landscape scale and in a more integrated way in order to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations thereby contributing to sustainable development.

### **Priorities for improving the evidence base**

Above all this Report is about the evidence for the current state of our natural environment. The Report provides a baseline against which progress can be measured in the future. We have drawn from the extensive range of evidence we have in England about the state of our natural environment. However, the Report also highlights where there are gaps in the evidence base; areas where we believe we need more evidence on the condition of England's natural environment and the way in which it is changing, and on our understanding about the best mechanisms that we can adopt in addressing the challenges that we see.

Our current evidence base is variable across Natural England's remit, and in this Report we have had to rely heavily on data from SSSI monitoring. In the future we will develop our evidence base and better integrate the different strands in order to inform our responses in the wider environment and to monitor progress – particular priorities will be marine ecosystems and public benefits from the natural environment.

We have identified within this Report priorities for action in collating evidence. We will use this Report as a basis for discussing these needs, agreeing them with partners and seeking ways to fill the gaps. Indeed, the development of a better evidence base can only be achieved through partnership working with key stakeholders and we look forward to developing a forward programme of evidence gathering in collaboration with others.

### **Summary**

The natural environment in England is much less rich than 50 years ago, and remains under pressure from a significant range of threats; some long-standing, others such as climate change, more recent. However, there is also evidence of what can be achieved by targeted efforts to address these pressures. These have resulted in some stabilisation in the state of the environment and in places resulted in the reversal of some of the previous losses seen throughout much of the 20<sup>th</sup> century. This Report provides a baseline against which progress can be measured in the future and draws attention to areas that are in urgent need of action.

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# Quick Find

Bold numbers indicate the main entries

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Agriculture	<b>3.6, 5.5.1</b> 5.4.1.2, 5.4.1.3	Cultural landscapes	<b>2.5</b> 2.1, 2.2.2, 2.3 3.4, 3.5 4.5.1
Agri-environment Schemes	<b>6.2, 6.3.5, 6.5.4, 6.5.5, 6.5.6</b> 4.3.5	Deer	<b>6.5.2.3</b> 3.5.4, 3.13.1 5.5.2.2
AONBs	<b>2.3.1, 4.2.2, 4.4.2</b> 3.2.3.1 4.3.3 6.2, 6.3.1, 6.3.2, 6.3.5, 6.6.4	Development	<b>3.10, 5.4.2, 6.7, 6.8.4</b> 2.2.2.1, 2.3.3.1, 2.4.1.3, 2.4.3.3, 2.5.1 3.2.1, 3.2.4.2, 3.4.4.2, 3.5.4.2, 3.6.1, 3.6.4.2, 3.7.4.1, 3.7.4.2, 3.8.4.2, 3.9.4.2, 3.11.4.1, 3.11.4.2, 3.12.4.2, 3.13.4.3 5.1.2.1, 5.2.3.2, 5.4, 5.5.1.1, 5.5.2.2, 5.5.2.3, 5.7 6.2, 6.3.1, 6.4.1
Biodiversity (BAP)	<b>3.1, 6.2</b> 3.2.4.3, 3.13.4.2 6.4.2.2	Diseases	<b>5.3</b> 2.1 3.12.4, 3.13.4.3 5.1, 5.2.3.2, 5.5.1.3, 5.5.2.3, 5.6.3, 5.7
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Catchment management	<b>6.6.1</b> 6.6.2, 6.6.3	Energy generation	<b>5.4.1, 6.8.6</b>
Climate change	<b>5.2</b> 2.4.3.2 3.2.4.2, 3.3.4.2, 3.4.4.1, 3.4.4.2, 3.5, 3.5.4.2, 3.7.4, 3.9.4.2, 3.11, 3.11.4.2, 3.12.4, 3.13, 3.13.4.1, 5.1, 5.1.2.2, 5.1.2.3, 5.3, 5.3.3, 5.4.1.1, 5.4.2.2, 5.4.2.3, 5.4.3.2, 5.4.3.3, 5.5.1.2, 5.5.1.3, 5.5.2.3, 5.6.1.1, 5.6.2.1, 5.6.3, 5.7 6.5.6, 6.7.1	Environmental Impact Assessment Regulations	<b>6.5.1.2</b> 6.2, 6.8.6
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Coastal squeeze/managed realignment	<b>6.8.7</b> 3.10.4, 3.11.4, 3.11.4.1	Flood management and drainage	<b>6.6.3</b> 3.7.4, 3.8.4
Common land	<b>2.5.2</b>	Forestry and Woodland	<b>3.5, 5.5.2</b> 5.2.2.3, 5.2.2.6, 5.2.3.2, 5.4.1.1, 5.4.1.2, 5.4.3.2 6.2
		Geodiversity	<b>2.4, 3.9</b> 6.2, 6.3.2, 6.7.1

Subject	Sections	Subject	Sections
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Grasslands	<b>3.3</b> 5.2.2.2, 5.2.2.3, 5.2.3.2, 5.4.1.1, 5.5.1.1, 5.5.1.2, 5.5.1.3, 5.6.2.1	National Nature Reserves	<b>4.2, 6.2</b> 4.2.2.5, 4.4.4.1, 6.3.4, 6.3.5
Green space	<b>4.3.6, 6.7.2</b> 4.2, 4.5.2	National Parks	<b>2.3.1, 4.2.2, 4.4.2, 6.2, 6.3.1</b> 3.2.3.2 5.1.2.1 6.2, 6.3.1, 6.3.2, 6.3.5, 6.6.4
Habitats	<b>3.2</b> 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11	Open waters	<b>3.7, 6.6</b> 2.4.1 3.1, 3.2.4.2 4.3.2 5.4.3.2, 5.5.1.2 6.3.5
Heathland	<b>3.4</b> 5.2.3.2, 5.4.3.2, 5.5.1.2	Orchards	<b>3.6</b> 5.5.1.2
Hedgerows	<b>3.6, 6.5.1.1</b> 5.5.1.2 6.2, 6.5.6	Overgrazing	<b>6.5.2.1</b> 2.5.2.3, 3.3, 3.3.4, 3.3.4.2, 3.4.4, 3.4.4.2, 3.5.4.2, 3.8.4, 3.8.4.2, 3.9.4, 3.9.4.2 5.3.1 6.6.4
Heritage Coasts	<b>2.3.2, 4.4.2</b> 6.3.1	Pollution	<b>5.6, 6.6.1, 6.8.2</b> 2.3.1.1, 2.4.3.2, 2.4.3.3 3.2.4.2, 3.3.4.1, 3.4.4, 3.5.4.2, 3.7.1, 3.7.4, 3.8.4, 3.9.4.2, 3.11.4, 3.12.4, 3.13.4.3 5.1, 5.4.2.2, 5.5.1.2, 5.7 6.2, 6.3.1
Historic environment	<b>6.5.5.3</b>	Soils	<b>2.4.3</b> 5.4.1.2, 5.4.3.2, 5.5.1, 5.5.1.2, 5.6.1.1, 5.6.2.1
Historic parkland	<b>2.5.1</b> 3.5.2 6.5.5.3	Spatial planning	<b>6.7</b> 6.2
Indicators (wildlife)	3.5.4.1, 3.6.4.1, 3.10.4, 3.12.4.1, 3.13.4		
Landscape	<b>2, 3.2.1, 6.3</b> 3.1.1, 3.3, 3.4, 3.5.2, 3.6, 3.7.4, 3.9, 3.11, 3.12.2 6.2		
Licences	<b>6.4.1</b> 3.12.4 6.2, 6.8		
Limestone pavement	<b>3.9</b> 6.5.2.2		
Marine	<b>3.12, 5.5.3, 6.8</b> 2.3.2.1, 2.3.3.2 5.3.2.1, 5.4.1.2, 5.4.1.3, 5.4.2.2, 5.7 6.2, 6.3.1, 6.3.4, 6.4.2.2, 6.6.2		

Subject	Sections	Subject	Sections
Species	<b>3.13, 5.3, 6.4</b>	Species – Plants (higher)	3.1.1.1, 3.3.4.1, 3.5.4.1, 3.6.1.1, 3.6.4, 3.7.1.1, 3.8.1.1, 3.9.1.1, 3.10.1.1, 3.11.1.1, 3.13.2, 3.13.3, 3.13.4, 6.5.2.2, 6.5.5.1
Species – Invasive species	<b>5.3, 6.4.2.1</b> 3.2.4.2, 3.7.4.2, 3.12.4, 3.13.4.3 5.1, 5.7, 6.4	Species – Plants (lower)	3.3.1.1, 3.5.1.1, 3.6.1.1, 3.7.1.1, 3.8.1.1, 3.9.1.1, 3.13.2, 3.13.3, 3.13.4
Species – Amphibians/Reptiles	3.4.1.2, 3.7.1.1, 3.7.4.1, 3.12.1.1, 3.13.1, 3.13.2, 3.13.3, 3.13.4 6.4.1, 6.4.2.2	SSSIs	<b>6.2</b> 3.2.4.2, 4.4.4.2, 6.3.2
Species – Birds	3.4.1.2, 3.4.4.1, 3.5.1.1, 3.5.4.1, 3.6.1.1, 3.6.4, 3.8.1.1, 3.8.4, 3.10.1.1, 3.10.4.1, 3.11.1.1, 3.12.1.1, 3.12.4.1, 3.13.2, 3.13.3, 3.13.4 6.4.2.1, 6.4.2.2, 6.7.2	Urban	<b>3.10</b> 5.1.2.1, 5.4.2.1, 5.4.2.2, 5.5.1.1, 5.5.2.2
Species – Butterflies/Moths	3.3.1.1, 3.3.4.1, 3.4.1.2, 3.5.4.1, 3.6.1.1, 3.6.4, 3.8.1.1, 3.11.1.1, 3.11.4, 3.13.2, 3.13.3, 3.13.4 6.4.2.2	Water abstraction	<b>5.4.3, 6.6.2</b> 3.2.4.2, 3.7.4.2, 3.8.4.2, 3.13.4.3
Species – Mammals	3.5.1.1, 3.6.1.1, 3.7.4.1, 3.10.1.1, 3.12.1.1, 3.13.1, 3.13.2, 3.13.3, 3.13.4 6.4.1, 6.5.2.3	Wetlands	<b>3.8</b> 4.4.5 5.5.1.2 6.2, 6.3.1, 6.6.4
		Wind farms	<b>5.4.1</b> 5.4.1.3
		World Heritage sites	<b>2.4.2.1</b>

# Glossary of Terms

**Access provision:** Statutory rights, such as public rights of way or open access land which often exist over private land. These rights are permanent and cannot be readily removed. **Permissive access:** where access is granted by permission of the landowner, as part of an agreement, for example where access is purchased via agri-environment schemes. **De facto access:** where there is an absence of any legal right to be present on the land, but there is long-standing tolerance or implied consent of the owner to the recreational user's presence.

**Ancient Woodland:** A woodland which has existed since at least 1600 AD, and possibly much longer. Two broad types of ancient woodland can be identified; **Ancient Semi-Natural Woodland (ASNW)**, that is, composed of native tree and shrub species which have not obviously been planted, or **Plantation on Ancient Woodland Sites (PAWS)**, that which has been continuously wooded since 1600 AD but where the former tree cover has been replaced with planted trees (often conifers).

**Annex I habitat type(s):** A natural habitat listed in Annex I of the EC Habitats Directive.

**Area of Outstanding Natural Beauty (AONB):** Area of landscape outside a National Park that is of such outstanding natural beauty that it merits designation under the Countryside and Rights of Way Act 2000 to secure its conservation and enhancement.

**BAP:** See UK Biodiversity Action Plan.

**Benthic:** The benthic zone is the lowest level of a body of water, such as the seabed or a lake. It is inhabited by organisms that live in close relationship with (if not physically attached to) the ground, called benthos or benthic organisms.

**Biodiversity:** "The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems" (UN Convention on Biological Diversity 1992).

**Biosphere Reserve:** Areas of ecological and landscape interest designated under the Man and the Biosphere Programme of UNESCO.6

**Birds Directive:** In 1979, the European Community adopted Council Directive 79/409/EEC on the conservation of wild birds (EC Birds Directive), in response to the 1979 Bern Convention on the conservation of European habitats and species. The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe.

**Birds of Conservation Concern:** Assessment of the conservation status of UK birds. A total of 247 species have been assessed, and each placed onto one of three lists – red, amber or green. **Red list** species are those that are Globally Threatened and whose populations or range have declined rapidly in recent years. **Amber list** species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; are rare breeders and those with internationally important or localised populations.

**BSBI:** Botanical Society of the British Isles.

**Buffer zone:** In geography, a buffer zone is any zonal area that serves the purpose of keeping two or more other areas distant from one another, for whatever reason.

**Convention on Biological Diversity (CBD):** One of the key agreements at the 1992 Earth Summit in Rio de Janeiro. Its main goals are: the conservation of biological diversity; the sustainable use of its components; and the equitable sharing of the benefits from the use of genetic resources.

**CEH:** Centre for Ecology and Hydrology.

**Character Areas:** Areas defined at the national level which describe the geographical, ecological and historical variations in landscape character. They were formerly termed Joint Character Areas (JCAs).

**Common Land:** See registered common land.

**Community Forests:** The Community Forest Programme was established as an experimental programme to revitalise some 1,750 square miles of countryside and green space in and around major conurbations. Since 1989 the twelve Community Forests have transformed landscapes in and around major urban areas in England, creating well wooded landscapes close to where most people live and work.

**Countryside Quality Counts (CQC):** A project and a methodology for assessing the direction and magnitude of landscape character change, by using the Character Areas of England as a reporting framework.



**Countryside Stewardship:** Countryside Stewardship was introduced as a pilot scheme in England in 1991 providing payments to farmers and other land managers to enhance and conserve English landscapes, their wildlife and history and to help people to enjoy them. The scheme by now been replaced by **Environmental Stewardship** and is closed to new applicants.

**CRoW:** Countryside and Rights of Way Act, 2000.

**Defra:** Department for Environment, Food and Rural Affairs.

**Downland:** A downland is an area of open chalk hills. This term is especially used to describe the chalk countryside in southern England. Areas of downland are often referred to as Downs.

**EC:** European Community.

**Ecosystem:** An ecosystem is a natural unit consisting of all plants, animals and micro-organisms (biotic factors) in an area functioning together with all of the non-living physical (abiotic) factors of the environment.

**EA:** Environment Agency.

**Environmental Stewardship (ES):** Land management scheme providing funding to farmers and other land managers in England for delivering effective environmental management on their land. ES has three elements: Entry Level Stewardship (ELS) and Organic Entry Level Stewardship (OELS) are basic whole farm schemes. Higher Level Stewardship (HLS) encompasses more complex management.

**Environmentally Sensitive Areas (ESAs):** ESAs offered payments to encourage farmers to adopt agricultural practices to safeguard and enhance parts of the country of particularly high landscape, wildlife or historic value. The scheme has now been replaced by Environmental Stewardship and is closed to new applicants.

**European Landscape Convention (ELC):** Council of Europe Convention, signed by the UK Government, which sets out measures for the recognition, protection, management and planning of landscapes everywhere, through domestic policy and practice and European cooperation.

**Eutrophication:** The over-enrichment of an aquatic or terrestrial environment with nutrients, especially nitrates and phosphates, often anthropogenic (for example, sewage, ammonia from livestock, fertiliser run-off), which may result in excessive growth of algae or changes in plant communities, and can adversely affect species and ecosystems.

**Farm Environment Plan (FEP):** Part of the Higher Level Stewardship Scheme application process used to identify features of environmental value on the land.

**FC:** Forestry Commission.

**Geodiversity:** The natural range (diversity) of geological (rocks, minerals, fossils), geomorphological (land form, processes) and soil features. It includes their assemblages, relationships, properties, interpretations and systems.

**Geo-features:** A reporting unit for the condition of geological / geomorphological features, reflecting the complex spatial relationship between GCR sites and geological / geomorphological SSSIs.

**Geological Conservation Review (GCR) sites:** Sites identified through a systematic and rigorous process as being of national scientific importance for their geological and geomorphological features. Most GCR sites are eventually notified, individually, or in combination with other GCR sites or biological interests, as SSSIs.

**Geology:** Relates to the Earth, its origins, structure, composition and history (including the development of life), and the processes that have given rise to its present state.

**Geomorphology:** Relates to landforms and the processes, such as glaciation, coastal and fluvial erosion and gravity that form them.

**Geoparks:** An international network of series of geological sites (endorsed by UNESCO) of particular importance in terms of their scientific quality, rarity, aesthetic appeal or educational value. The majority of a Geopark must be part of the geological heritage, but there may also be archaeological, ecological, historical or cultural interest.

**Green space:** Any vegetated land or water within or adjoining an urban area. It includes: nature reserves, local parks, sports grounds, cemeteries, school grounds, allotments, commons, woodlands, greenway linkages in urban areas (roadside verges, canals, railway sidings) and countryside immediately adjoining a town which people can access from their homes.

**Habitats Directive:** In 1992 the European Community adopted Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive). The Directive requires Member States to introduce a range of measures including the protection of habitats and species listed in the Annexes.

**Heritage Coast:** Coastal landscape defined through agreement with local authorities to help conserve, protect and enhance the natural beauty of coasts, their marine flora and fauna, and their heritage features.

**Historic Landscape Characterisation:** A tool and method that is used by English Heritage to characterise the historic dimension of urban and rural landscapes.

**Intertidal:** The area of the shore between the highest and lowest tides.

**Invasive species:** Plants, animals and microbes not native to a region which, when introduced either accidentally or intentionally, are harmful to the environment by out-competing native species for available resources, reproducing prolifically, or dominating regions and ecosystems.

**Joint Character Area (JCA):** See Character Areas.

**JNCC:** Joint Nature Conservation Committee.

**Landscape Character Assessment:** A tool and method that is used to help understand and describe the character of the landscape. It is a transparent process that identifies, analyses and maps variations in landscape character.

**Local Nature Reserves (LNRs):** Declared by local authorities, in consultation with Natural England, under Section 21 of the National Parks and Access to the Countryside Act 1949. They are sites with wildlife or geological features that are of special interest locally, which give people opportunities to study, enjoy and have contact with nature.

**Managed retreat:** A form of coastal management where the shoreline is allowed to move inland in a controlled way. This may involve abandoning previously used hard sea defences.

**Marine Nature Reserve (MNR):** Created by statute (under the Wildlife and Countryside Act 1981) to conserve marine flora and fauna and geological or physiographical features of special interest, while providing opportunities for study of the systems involved.

**Marine Protected Area (MPA):** "Any area of intertidal or subtidal terrain, including geological and geomorphological features, together with its overlying water and associated flora, fauna, historical and cultural features, which have been reserved by law or other effective means to protect part or all of the enclosed environment" (IUCN definition, as modified by the Marine Protected Areas Group).

**Mineralogy:** Relates to minerals, including their formation, composition, properties and classification.

**Mycorrhizal:** Association between a fungus and the roots of a plant in which the fungus and plant exchange commodities required for their growth and survival.

**Natura 2000:** Network of Special Areas of Conservation and Special Protection Areas.

**National Nature Reserve (NNR):** Statutory designation under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981. NNRs contain examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them. This designation is for land areas; the equivalent marine designation is Marine Nature Reserve.

**National Park:** Extensive tract of countryside designated under the 1949 National Parks and Access to the Countryside Act for reasons of its natural beauty and for the opportunities it affords for open air recreation. Designation supports the conservation and enhancement of its landscapes, wildlife and cultural heritage, and the promotion of understanding and enjoyment of its special qualities.

**National Trails:** National Trails provide opportunities to walk, or in some places ride a horse or cycle, for short or long distances through some of the most outstanding scenery in England; they are some of the nation's favourite walks and rides - officially designated by Government and supported by Natural England.

**NERC:** Natural Environment and Rural Communities Act 2006.

**Open access land:** Under CROW, the term "access land" includes all mapped open country and registered common land (as defined above).

**Open country:** Areas mapped by the Countryside Agency as land that is wholly or predominantly mountain, moor, heath or down and open to public access under CROW.

**OSPAR Convention:** The 1992 OSPAR Convention is the current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. The work under the convention is managed by the OSPAR Commission, made up of representatives of the Governments of 15 Contracting Parties and the European Commission, representing the European Community.

**Pelagic:** The pelagic zone, also known as the *open-ocean zone*, is the part of a body of water which is located in the open water column, that is the part of the ocean that is not near the coast or continental shelf. The pelagic zone is further divided into sections creating a number of sub-zones based on their different ecological characteristics. These characteristics are roughly a function of depth.

**Phenology:** The study of the timing of natural events especially as affected by climate. These include dates of flowering, leafing and seed set in plants and the arrival of bird and insect migrants.

**Plantation on Ancient Woodland Sites (PAWS):** See Ancient Woodland.

**Protected landscapes:** Collective term for National Parks, Areas of Outstanding Natural Beauty (AONBs) and Heritage Coasts although the latter have no protection under law.

**PRoW:** Public rights of way.

**Public Service Agreements (PSA):** First introduced in 1998, to modernise and improve the government's performance on the issues that matter most to the public – including education, health, crime and the environment. This has involved setting ambitious and publicly accountable targets across the whole of government.

**Ramsar sites:** Internationally important wetland areas designated under the 1971 Ramsar Convention on 'Wetlands of International Importance Especially as Waterfowl Habitat'.

**RDPE:** Rural Development Programme for England.

**Red Data Book:** The IUCN (International Union for the Conservation of Nature and Natural Resources) maintains an international list, published as the Red Data Book. Red Data Book species are classified into different categories of perceived risk. Each Red Data Book usually deals with a specific group of animals or plants (for instance, reptiles, insects or mosses).

**Registered common land:** Land registered as common land under the Commons Registration Act 1965 and whose registration under that Act has become final.

**Regionally Important Geological/Geomorphological Sites (RIGS):** Non-statutory designations for the protection of regionally or locally important geological or geomorphological sites. RIGS are selected on a local or regional basis according to nationally agreed criteria.

**Section 16 under CRoW:** Section 16 of the Countryside and Rights of Way Act 2000 (CRoW) makes it possible for the owner of land of any kind voluntarily to dedicate it, permanently and irrevocably, for public access on foot under the Act.

**Section 35 NNRs:** Although most NNRs are managed by Natural England, a number (currently 88) are wholly or partly managed by other bodies approved by Council, under Section 35 of the Wildlife and Countryside Act 1981.

**Sites of Special Scientific Interest (SSSIs):** Nationally important sites forming a network of the best and most representative examples of our wildlife and geodiversity features. Selected and designated by Natural England and afforded protection under the Wildlife and Countryside Act 1981 (as amended).

**Special Areas of Conservation (SACs):** are designated under European Communities Directive 92/43/EEC known as the 'Habitats Directive'. This requires the conservation of important, rare or threatened habitats and species across Europe.

**Special Protection Areas (SPAs):** are designated under the European Communities Directive 79/409/EEC, known as the 'Birds Directive', to conserve the habitats of certain migratory or rare birds.

**UK Biodiversity Action Plan (UK BAP):** The UK Biodiversity Action Plan, published in 1994, was the UK government's response to signing the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit. It sets out a programme for the conservation of the UK's biodiversity.

**UNESCO:** United Nations Educational, Scientific and Cultural Organisation.

**Upland:** Land generally lying above 250 – 300 metres.

**World Heritage Site (WHS):** Designated by UNESCO, these sites are designated for their internationally important cultural or natural interest and require appropriate management and protection measures.

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