National Character Area profile:

135. Dorset Heaths

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Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper,[1] Biodiversity 2020[2] and the European Landscape Convention,[3] we are revising profiles for England's 159 National Character Areas (NCAs). These are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.

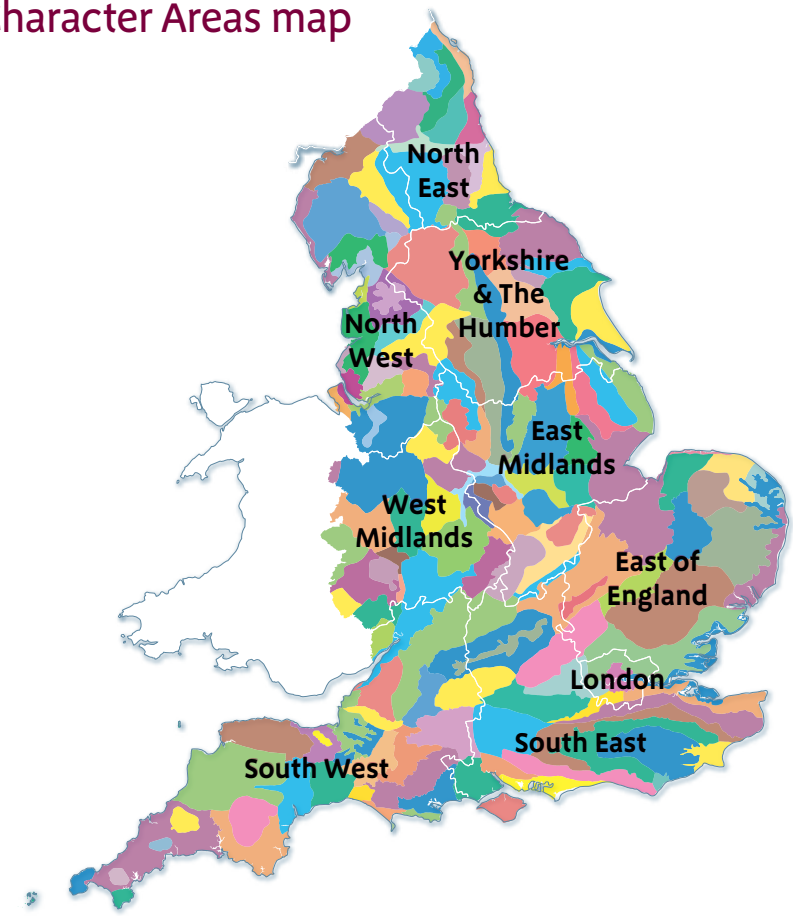
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

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

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

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

National Character Areas map



[1] The Natural Choice: Securing the Value of Nature, Defra (2011; URL: **www.official-documents.gov.uk/document/cm80/8082/8082.pdf**)
[2] Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, Defra (2011; URL: **www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf**)
[3] European Landscape Convention, Council of Europe (2000; **URL: http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm**)

Summary

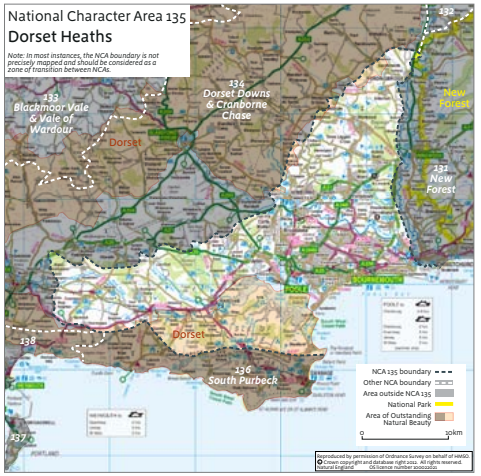
Dorset Heaths National Character Area contains part of the larger Dorset Area of Outstanding Natural Beauty as well as a major conurbation – the second largest in south- west England – consisting of the contiguous settlements of Poole, Bournemouth and Christchurch. Historically the area was dominated by extensive blocks of heathland (the Egdon Heath of Thomas Hardy's novels) separated by river valleys and also by the two natural harbours of Poole and Christchurch.

This landscape, which pollen evidence suggests was established by the Bronze Age, saw rapid evolution in the last three centuries. The conurbation grew out of very small settlements. Improved technologies allowed first agriculture then conifer forestry to become significant land uses, more recently joined by open cast mineral working and military training.

Today the area contains some of the best lowland heath left in England, much of it managed as nature reserves by a variety of organisations and designated as a Special Protection Area (SPA), Special Area of Conservation and Ramsar site. Specialised species include Dartford warbler, nightjar, woodlark, sand lizard, smooth snake, ladybird spider, Purbeck mason wasp, southern damselfly, marsh gentian and Dorset heath. The larger tracts, along with the often adjacent conifer plantations, can still provide a real sense of wilderness and tranquillity, despite the close proximity of a major conurbation. In recent decades substantial work has been undertaken to both improve the condition of the habitat on these sites and to extend some of them back onto former heathland sites that had temporarily seen other uses. This work continues with the objective of physically connecting some of the bigger heathland blocks.

The two harbours support large populations of wetland birds, and the larger harbour of Poole is designated as both an SPA and Ramsar site. Both little egret and Mediterranean gull effectively launched their colonisation of the UK from this location.

Tourism is a major industry, with visitors making good use of easy transport links to London. Visitors range from traditional 'bucket and spade' beach holidays to high-end marine tourism exploiting the sheltered waters of Poole Harbour and Poole Bay just outside the harbour entrance.



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Statements of Environmental Opportunities:

- **SEO 1:** Protect the internationally important heathlands to make the resource more resilient to recreational pressure, succession to scrub or woodland and the likely impacts of climate change. Enhance the integrity of the landscape and the effectiveness of biodiversity conservation measures by extending sites and re-establishing physical links where possible between once separate blocks of heathland and work to embed the current and future relevance of this resource into the local economy.

- **SEO 2:** Protect and enhance Poole Harbour and its catchment, taking timely action to reduce eutrophication and mitigate (or compensate for) the likely effects of sea level rise, thereby securing the future of local tourism and fishing businesses as well as the important wildlife of the harbour.

- **SEO 3:** Enhance opportunities for recreation in natural greenspace by securing a network of new and revitalised suitable alternative natural greenspace (SANGS) centred on the Christchurch–Bournemouth–Poole conurbation that provides a rich and varied countryside experience capable of supporting local health programmes and attracting and retaining local business while also deflecting some recreational pressure from the most sensitive environmental assets.

- **SEO 4:** Promote creative and effective solutions to environmental constraints so that enterprise can pursue sustainable development solutions to enhance local prosperity.

The challenge of managing special habitats can create unusual business opportunities.

Description

Physical and functional links to other National Character Areas

Lying centrally in the south of England and reaching the sea at and between Poole and Christchurch harbours, this area is framed by the heathland of the New Forest National Character Area (NCA) to the east, and to the south, west and north by the calcareous hills and downs of the South Purbeck NCA and the Dorset Downs and Cranborne Chase NCA.

The Dorset Heaths occur in a geological formation usually called the Poole Basin, a western part of the larger Hampshire Basin from which it is separated by the River Avon. Chalk forms the edge and bottom of the basin; Palaeogene (Tertiary) sands and clays lie within it and provide the substrate on which the various habitats in the Dorset heathlands have developed.

The most extensive deposit of these Palaeogene sands and clays are those of the Poole Formation. Around the edge of this area, between the heaths and the Chalk, is a belt, where Reading Beds and London Clays come to the surface. Here soils are still acid but are richer; heathland was never so dominant here. Overlying the sands of the Poole Formation are deposits of plateau and valley gravels.

The four principal rivers – the Avon, Stour, Piddle and Frome – flow first through the richer and more intensively used agricultural areas of the Dorset Downs and Cranborne Chase NCA and the Salisbury Plain and West Wiltshire Downs NCA before crossing and dividing the Poole Basin and eventually reaching the sea at Christchurch and Poole harbours. Much of the headwater and tributary flow derives from the chalk aquifer lying to the north and continuing at depth under much of the heathland. The water quality, particularly of the Frome and Piddle, has a direct impact on the quality of habitats within Poole Harbour.

Views across the area from the Purbeck Ridge – particularly near Ulwell, from Creech Barrow and from Whiteway Hill are spectacular. The landscape of the western heaths and the downs beyond is fully revealed. The rising Chalk geology largely surrounds and forms the backdrop to this NCA while also obstructing views to the Jurassic Coast. Seaward views can be gained, notably to the Isle of Wight from most of the open coast.

Across the valley of the River Avon, visible from St Catherine's Hill, is another extensive area of heath in the New Forest.

A rich mosaic of semi-natural habitats and a coastal location make this an important landfall for species moving north from continental Europe, both on routine migration and as species distributions shift.

The main road and rail links run north-east–south-west from Southampton to the conurbation and then turn west (as the A35) towards Dorchester. The South West Coast Path National Trail terminates at the southern end of the Sandbanks ferry at the mouth of Poole Harbour, after running along Studland Beach.

Distinct areas

- Poole–Bournemouth–Christchurch conurbation.

Key characteristics

- The landscape is predominantly of low relief. In places erosion has left incised but shallow valleys, now dry or holding small watercourses, sometimes with associated mires.
- There are large tracts of gently undulating, less-fertile marginal land dominated by conifer plantations or by heathlands of international importance (Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar site) for populations of nightjar, woodlark, Dartford warbler, sand lizard, smooth snake and Dorset heath, as well as a rich assemblage of heathland and mire invertebrates and lower plants.
- Soils are predominantly sandy, susceptible to erosion and relatively unproductive. Agriculture is generally pasture, with fields bounded by hedgerows or fences. There is some arable cropping, especially maize.
- The soils of the London and Reading Beds that fringe the NCA and of the river valleys are naturally more fertile, and in the Frome Valley salad vegetables are grown.
- The principal rivers arrive from the west or north to two important natural micro-tidal estuaries at Poole and Christchurch harbours. The tops of the low cliffs of the coast that connect the harbours are mostly developed. Either side of Poole Harbour entrance are wide sandy beaches, though on the north (Poole) side these are more engineered with defences.
- Poole Harbour (SPA and Ramsar site) is internationally important for wildfowl, hosting impressive displays of species such as black-tailed godwit, avocet and shelduck.
- There are small areas of wet woodland and ancient semi-natural woodland, including in a band right around the heaths on the London and Reading Beds. Some of these have had the broadleaved trees replaced with conifer, but important examples remain at Bloxworth, Oakers Wood, near Edmonsham, at Holt Forest as wood pasture and at Creech where the veteran trees support an important lichen population. Around half of the present tree cover is conifer plantation.
- A major conurbation (Poole–Bournemouth–Christchurch) has developed between and partially around the two harbours. Despite the setting of the surrounding countryside, access to greenspace for residents without their own transport can be limited.
- Settlement is mostly sparse, with historic settlements generally associated with the rivers or harbourside. The conurbation dominates as a population centre, and the adjacent villages and towns have expanded and merged under its influence.
- The main road and rail links run north-east–south-west from Southampton to the conurbation and then turn west (as the A35) towards Dorchester.
- The older buildings in the villages and hamlets tend to be of cob construction under thatch (or originally turf) roofs.
- The area hosts two significant military training areas.
- The underlying mineral resources have been, and are still being, extensively exploited, leaving a post-industrial landscape in places.
- The heathlands can provide a real sense of remoteness combined with bleakness or tranquillity, depending on the weather.

Dorset Heaths today

The Dorset Heaths NCA lies to the south of the Dorset Downs. To the centre of the area is Poole Harbour and to the south the prominent Chalk ridge of the Isle of Purbeck. To the east the area is bounded by the valley of the River Avon with the New Forest beyond. Much of the area takes the form of a shallow basin drained in the west by the rivers Piddle and Frome into Poole Harbour, and in the centre and east by the Stour and Avon into Christchurch Harbour.

The broad river valleys with fertile flood plains cut through the heathlands on their way to Poole and Christchurch harbours. Over winter and during the spring and autumn migration, these harbours are home to sometimes spectacular concentrations of wildfowl and wading birds. During the summer their sheltered nature makes them attractive venues for numerous watersports activities. Poole Harbour, especially on its south shore, and its smaller islands can feel remote, with the extensive mudflat, salt marsh and reedbed preventing ready physical access and so maintaining this sense of wildness.

Brownsea Island is owned by the National Trust and is a noted tourist destination, with visitors arriving by small ferry from both Poole and Sandbanks. Brownsea and the adjacent Furzey Island are home to one of only two surviving populations of red squirrel in southern England.

Pasture fields and flood meadows, with some arable use away from the riverside, occupy the valleys along with a scattering of small copses, riverside trees and occasional hedgerows. Extensive blocks of conifer plantation, mainly Corsican and Scots pine, on former heathland date from the early and mid-20th century, most notably at Wareham Forest in the west and Ringwood Forest in the north of the area. They remain dominant elements in the landscape, their dark, uniform character a stark contrast with the open, intricate and diverse areas of heath where gorse scrub and heather produce often bright colours and give texture to the heathland landscape and context to the summer birdsong and buzz of insects.

In the south-eastern part of the area is the heavily developed conurbation of Bournemouth, Christchurch and Poole, both a noted retirement location and, in the summer, a popular tourist destination. Tourist businesses are able to use the easy transport links with London, the kilometres of sandy beaches and one of the more benign UK microclimates. There are numerous hotels and guest houses. Despite the proximity to the rural parts of the area, access to high-quality greenspace can still be limited for residents of the conurbation, especially those without access to personal transport.

To the immediate north of the main conurbation a series of 'dormitory' towns (Upton, Broadstone, Corfe Mullen, Ferndown, Verwood and Three Legged Cross) of recent origin in their present form are scarcely distinguishable from towns of similar function elsewhere and contrast with the older cores of towns such as Wimborne Minster and Wareham.

Enclosure and reclamation of the heathlands for agriculture was still continuing in a piecemeal fashion until 1980. Boundaries variously include ditches, hedges and fences, and generally fail to provide a strong sense of pattern.

In the more rural areas, land-based commercial uses have sometimes struggled to remain competitive given the very poor nature of many of the soils. In the last two decades several dairy farms, for instance, have ceased milk production. In the same period, though, and as a direct result of conservation action, livestock grazing (beef cattle and ponies) has returned to many thousands of hectares of heathland, mostly ungrazed since about the 1930s. The continuation of this

programme is providing a working example of landscape-scale conservation where adjacent, once discrete 'sites' are effectively extended and linked.

While livestock farming is the dominant agricultural use there are some areas of arable, often producing fodder crops such as maize, and more recently salad vegetable production.

Particularly to the north of the main conurbation some farmland is now used as pasture for ponies and horses that are kept for recreational use. In these areas livery is a growing business use, and modern field boundaries and small agricultural buildings are increasing in number and extent, often extending the feeling of urbanisation into open countryside.

Commercial forestry activity peaked in around the third quarter of the 20th century and is now declining as a combination of poor returns, pest and disease pressure, changed policy priorities and alternative (heathland conservation) uses for the very poor acid soils achieve more traction. In some areas this is substantially diversifying the views both from a distance and for those pursuing leisure and recreation activities within the old plantations. Large deciduous woodlands are scarce but where they do occur, primarily around the NCA's margins, they tend to be oak dominated, with a hazel and/or holly understory and a ground flora characteristic of acid soils.

Without fertilisers agricultural grassland on the poor heathland soils can soon revert to a wildlife-rich habitat which supports businesses providing conservation grazing, as well as recreational opportunities.

Locally to Povington, Bovington and West Moors, military uses predominate. These areas are almost always closed to the public. Similarly there are extensive tracts of both active and worked-out quarry (sands, gravels and clays, notably ball clay) from which the public are generally excluded. Oil field infrastructure is concentrated around the south shore of Poole Harbour.

Outside the military ranges many of the larger blocks of heathland are now nature reserves (including six National Nature Reserves (NNRs)) or country parks and these, along with the Forestry Commission land, provide extensive opportunities for public access and engagement. These locations can be experienced in relative solitude on less busy days, enabling the visitor to gain a sense of the wilderness described so evocatively ('Egdon') by Thomas Hardy. The South West Coast Path has its eastern end at the entrance to Poole Harbour, and National Cycle Route 25 runs along the promenade at the foot of the continuous line of low cliffs from Christchurch to Poole.

Planning policy has tightly constrained development in and around many of the smaller villages, where a variety of vernacular styles still persist, presenting the visitor with an architecturally interesting selection of views. Research has demonstrated links between residential development and adverse impacts on adjacent heaths, which is now reflected in adopted planning policy.

The landscape through time

The Dorset Heaths NCA is underlain by gravels, sands, silts and subordinate clays deposited during the Palaeocene and Eocene Epochs (approximately 60–40 million years ago). The lowest Reading Formation (Palaeocene) forms a sandy, partly cemented gravel, which rests on the Upper Cretaceous Chalk, for example at Studland Bay. The relatively steep northerly dips of the rocks around Studland Bay decrease a short distance to the north, a result of the deformation that also formed the adjacent Purbeck Ridge and which took place during the period of the Alpine Orogeny. The Reading Formation is succeeded by the Eocene London Clay Formation (predominantly silt in this area). This in turn is overlain by the Bagshot Formation, which consists predominantly of sands but also contains lenses of clay containing important fossil flora. The youngest beds out-crop along the coast and belong to the Bournemouth Formation (Eocene). They consist predominantly of non-marine sediments, but a few marine horizons also occur. The outlier of younger beds on Creech Barrow Hill includes soft limestones and clays now assigned to the late Eocene.

The area is partly underlain by the Wytch Farm oil field, the largest onshore oil field in the UK, producing oil from Triassic and Lower Jurassic reservoirs deep below. The effects of the Quaternary 'ice ages' on the area over the last 2 million years have been to cover the Palaeocene and Eocene sediments with wide spreads and terraces of river gravels deposited by ancient river systems such as the Solent River. This river, now drowned by Southampton Water, once rose near Dartmoor and flowed eastward across the area before discharging into the English Channel.

Although poor in nutrients, the generally light soils of the area were easily cultivated with primitive tools and that, combined with a possibly sparser woodland cover and favourable southerly climate, probably led to this being one of the early locations for settled agriculture. Certainly pollen records suggest that by the Bronze Age much of the earlier tree cover had been heavily reduced and the landscape was essentially open and already heather dominated by around 4,000 BP.

Collections of bronze-age barrows, often on local high points in this already open landscape, attest to this early settlement. At Hengistbury Head, certainly by the Iron Age, a significant settlement was defended on the landward side by substantial earthworks or dykes. Evidence now suggests that for a period this and the adjacent Christchurch Harbour (giving access to the larger rivers of the Dorset Stour and Hampshire Avon) was a regionally important port through which trade with continental Europe was conducted.

The larger harbour of Poole also hosted an iron-age port, with quays on Green Island and the closely adjacent south shore of the harbour. Poole only superseded Christchurch in importance as a trading centre after the Roman invasion, at which point the port was at Hamworthy before moving to Wareham in Saxon times and only subsequently to its present location.

Roman transport infrastructure is still evident in places. An intensive Roman pottery industry was based, at least in part, on the Swineham peninsula east of Wareham. Black-burnished ware from here was traded across much of England and parts of the near continent. Pottery was to be a recurrent industrial theme, with production centred on Verwood from the medieval period and expanding to locations such as Brownsea Island, Poole and Sandford in Victorian times.

The Romano-British population in this corner of Dorset is thought to have withstood the Saxon advance for longer than most. Battery Banks to the west of Wareham, blocking the route along the high ground between the rivers Frome and Piddle, may have been a late line of defence, although its origins were probably earlier as a land demarcation. Eventually Wareham fell, and the Saxons subsequently reinforced the town with high earthbanks to the west, north and east which are still largely extant and are a notable feature of the local landscape.

While there are small settlements of some antiquity on the heaths, for example at Arne and Mannington, these are smaller and less interspersed with individual farmsteads than might be expected. This is probably a reflection of the poor productivity to be gleaned from the soils of the area, and those few settlements that did arise focused on pockets of better or more moisture-retentive soils. That occasional, now extinct, farmsteads did exist is in little doubt, as the remains of the banks that would have defined the extent of their in-bye land can still be traced in places. Often, though, the original dwellings have left less trace, probably because they were built of wood, cob and turf and have now completely returned to the land that originally yielded their construction materials. Towns and larger villages tended to be on the rivers at convenient crossing points, for example at Wimborne Minster, Wareham and Wool.

The basic pattern of both settlement and land use appears to have been well established before and little changed by the Norman Conquest. Subsequently some large landed estates became established, for example by the Drax and Bankes families centred on Charborough and Kingston Lacy respectively, the latter having fallen into the care of the National Trust in the 1980s.

The Dorset heathlands were the subject of a classic study by Norman Moore in the late 1950s, which documented their subsequent loss and fragmentation. He demonstrated that in the 17th century, heathland still stretched from the River Avon in the east to Dorchester in the west, broken only by the valleys of the rivers Stour, Piddle and Frome. This heathland landscape, the Egdon Heath of Thomas Hardy's novels, was progressively reduced and fragmented by agricultural reclamation and more recently in the late 19th and 20th centuries by urbanisation, afforestation and large-scale mineral winning. Additionally, as commercial uses of the heathlands (such as grazing and turf cutting) declined, their tendency to succeed to scrub and woodland increased.

Village vernacular architecture, here from Wool.

Surveys through the late 1900s recorded the continuing decline and fragmentation of the Dorset Heaths. These, combined with Moore's cartographic studies, mean that the loss and fragmentation of the Dorset heathlands is one of the best documented, as well as one of the most dramatic examples of habitat decline in the UK.

The area was gradually connected to the rapidly developing railway network between 1847 and 1893, further assisting the process of urban expansion. Lieutenant-General Robert Baden-Powell held the first Boy Scout camp on Brownsea Island in 1907.

The World Wars saw the firm establishment of two major military ranges at Povington and Bovington, the home of the Royal Armoured Corps and a major cordite manufacturing facility at Holton Heath, part of which is now an NNR. Studland and Godlingston Heath (now an NNR) was used as a rehearsal site for the D-Day landings, including trials for duplex drive tanks, several of which still lie offshore as wrecks.

By the late 20th century, additional pressures included landfill (in many of the worked-out sand, gravel and clay pits); large-scale open cast extraction of both ball clay and aggregates; and industrial developments, including the construction of Dorset's experimental nuclear power station on Winfrith Heath (now decommissioned) and the UK's largest onshore oil field at Wytch Farm on the south shore of Poole Harbour.

In recent years, however, the decline of the heaths has largely halted and even started to reverse. Many of the remaining major blocks of heath have come into either public ownership or the care of conservation organisations and so most are now managed as nature reserves. A combination of changed ownership, changing public policy and associated changes in grant aid are leading to some significant areas being reverted from (mainly conifer) woodland or low-productivity pasture to heathland.

As recently as the 1980's heathland was often viewed as 'wasteland' just awaiting a development opportunity. Here housing has spread from North Poole onto Canford Heath. Reconciling the access needs of residents with the needs of the special wildlife is still an issue here.

Ecosystem services

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

Provisioning services (food, fibre and water supply)

- **Food provision**: Cattle farming is the dominant agricultural activity, often with associated forage crops such as maize grown on the flatter ground. In recent decades many smaller dairies have closed and switched to beef. Since the 1990s, extensive grazing of beef cattle (and ponies) has again become a feature of many of the larger heathland blocks. Even more recently, salad vegetable production has emerged as a significant land use in the middle Frome catchment. Poole Harbour supports a regionally important shellfish industry as well as a small inshore fleet. The harbour is also an important nursery area for commercial fish stocks. A sika deer population, which is often excessively high bearing in mind the welfare of the habitats in which it lives, supplies a local venison market.

- **Timber provision:** The bulk of commercial timber comes from plantations, mainly of Corsican and Scots pine, established by the Forestry Commission, the Ministry of Defence and some private estates in the first half of the 20th century. Corsican pine is presently subject to significant disease challenge by red band needle blight and is no longer considered commercially viable for restocking.

- **Biomass energy:** In addition to the 'lop and top' from the commercial plantations, locally significant amounts of biomass are generated as a result of heathland management activities. It remains a challenge to find a way of making this material commercially useful.

- **Water availability:** The Dorset Heaths are underlain by a chalk aquifer contiguous with the adjacent NCAs from which much of the public water supply is drawn.

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

- **Climate regulation:** Salt marsh is a very effective carbon store, and both of the harbours will be important in this respect. Heathland retains much carbon in both its above-ground dwarf shrub community and in the undisturbed humus that forms in the soil below. In wetter areas the heathland vegetation has accumulated and formed peat, creating widely distributed mires, which will be a locally significant carbon store – as will areas of permanent grassland on the deeper alluvial soils.

- **Regulating soil erosion:** Soil erosion is evident from arable areas on the light sandy soils during high rainfall events. This problem is largely avoided under the permanent cover of semi-natural vegetation.

- **Regulating soil quality:** Soil quality is likely to be stable under the permanent vegetation cover that predominates in this NCA.

- **Regulating water quality:** Water quality is adversely affected by nutrients from sewage treatment works, unsewered properties and some agricultural practices. While action has been started to address these issues, there is a time lag of decades before changes in agriculture feed through to groundwater quality.

- **Regulating water flow:** Flooding of non-agricultural land is only an occasional problem in this NCA and is confined to a relatively small number of properties. Particular issues occur when high river flows coincide with high tides and the lower reaches of several of the rivers become tidally locked. The semi-natural vegetation of the heathland, and in particular its wetter areas and bogs, is an important water-retaining and regulating system for the area. Where this has been removed or compromised it has sometimes been necessary to invest in flood prevention measures, for example on the Moors River below Verwood. The Bourne stream collects surface water flows from a large area of developed and impermeable land and tends to flood in its lower reaches during high rainfall events.

- **Regulating coastal flooding and erosion:** The dune system at Studland is naturally mobile and changed dramatically during historical times but has now protected Poole Harbour for centuries. This mobility is part of the geomorphological interest of the NNR. The northern and much of the western parts of Poole Harbour are 'defended' by traditional hard-engineered solutions. In most locations these defences are fronted by narrow beaches or salt marshes that help to protect the defences against erosion. The coastline, mainly cliffs, from Poole to Hengistbury Head, is heavily defended in places and this has greatly slowed the natural rate of erosion, reducing significantly the supply of sediment from the coastal system in the process.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** The most famous figure associated with this NCA is the author Thomas Hardy, who was born and lived until his death in the western end of the area and wrote evocatively about both its landscape and its people. Other literary and creative figures including J.M.W. Turner, Alfred Russel Wallace and T.E. Lawrence have been drawn to the area.

- **Sense of history:** A landscape that human intervention started to forge many millennia ago now demonstrates how different waves of economic pressure and societal demand can wash over it, sometimes resulting in temporary change, sometimes permanently transforming it. There are rich historical associations and remains from the Bronze and Iron Ages, through the Roman and Saxon occupations to the rise of the British Empire and Britain's emergence as a trading nation and world military power.

- **Tranquillity:** Pockets of tranquillity exist within the larger heathland and forest blocks and, especially when intrusive uses are absent, within Poole Harbour. However, this NCA does contain a major conurbation and a military live firing range and is a honeypot for tourism.

- **Recreation:** The easternmost 7 km of the 1,000-kilometre South West Coast Path are within this NCA, extending along Studland Beach. The principal recreational opportunities are on the beaches at Studland, Sandbanks and Bournemouth, within the harbours at Poole and Christchurch and on the gravel tracks in the commercial forests (increasingly a venue for mountain biking). The location of the heathlands near to the centre of population also provides valuable recreation opportunities and the potential to engage visitors to develop an understanding of this precious resource. However,

some recreational uses of the heathland are acknowledged to be damaging to its special interest. There are three country parks, at Upton, Moors Valley and Avon Heath. The conurbation has a range of parks and other greenspaces of varying formality.

- **Biodiversity:** The Dorset Heaths have several international conservation designations and, outside of the New Forest, are arguably some of the best examples of this habitat in the world. Representative species include Dartford warbler, nightjar, woodlark, sand lizard, smooth snake, ladybird spider, Purbeck mason wasp, southern damselfly, marsh gentian and Dorset heath. Poole Harbour is also a wetland of international importance and hosts an internationally important assemblage of winter wildfowl, including spectacular flocks of avocet and black-tailed godwit. The NCA has been an early host to several continental species as they spread northwards, notably little egret and Mediterranean gull.

- **Geodiversity:** The surface geology for this NCA is relatively recent, predominantly Palaeogene sands. The cliffs at Studland show evidence of the Cretaceous/Palaeogene unconformity, as well as good exposures of Palaeocene and Lower Eocene deposits. Limited cliff exposures within Poole Harbour, for example at Ham Common, demonstrate early Eocene deposits, with mid-Eocene exposed at Poole Bay Cliffs and even more recent strata further east at Hengistbury Head. Slightly inland, late Eocene exposures are visible in now disused pits at St Catherine's Hill. Creech Barrow, on the southern edge of the area, is the highest Palaeogene hill in England, with a unique early Eocene limestone capping featuring fossil plants found nowhere else.

Dolines – large craters caused by sub-surface solution of the underlying Chalk by acidic water from above – are visible at Cull-peppers Dish and Rinsmoor Pond. The more familiar geology is both much older (Jurassic) and much deeper (750 to 1,600 m) where the oil for the UK's largest onshore oil field is trapped.

Coastal geomorphology and the geomorphological processes within Poole Harbour, including Studland dunes just west of Poole Harbour entrance, are of note. This is an accumulating dune system showing the relationship between geomorphological processes and ecological succession.

Little egret - the first UK breeding colony of this species established on Brownsea Island in Poole Harbour.

Statements of Environmental Opportunity

SEO 1: Protect the internationally important heathlands to make the resource more resilient to recreational pressure, succession to scrub or woodland and the likely impacts of climate change. Enhance the integrity of the landscape and the effectiveness of biodiversity conservation measures by extending sites and re-establishing physical links where possible between once separate blocks of heathland and work to embed the current and future relevance of this resource into the local economy.

For example, by:

- Extending existing best practice management (usually involving livestock grazing on the larger blocks) to as much of the heathland as possible, making functional links with adjacent commercial farmland.
- Researching and trialling further advances in best practice, especially around the productive use of biomass removed from the heaths for management purposes.
- Extending the amount of heathland and heath-related habitats on the Forestry Commission and Ministry of Defence estates by further removal of conifer woodland.
- Utilising measures such as agri-environment schemes, the Forestry Commission Open Habitats Policy and advocacy to extend and physically link adjacent blocks of heath.
- Providing for non-damaging recreational access and use by both the local population and tourists.
- Improve public understanding of heathland using both on- and off-site educational approaches.

Conifer plantations are just one of the industrial uses to have washed over this landscape in the last 2,000 years. The original vegetation often survives on the edges making reversion to heathland relatively easy.

SEO 2: Protect and enhance Poole Harbour and its catchment, taking timely action to reduce eutrophication and mitigate (or compensate for) the effects of sea level rise, thereby securing the future of local tourism and fishing businesses as well as the important wildlife of the harbour.

For example, by:

- Facilitating the managed realignment of old sea defences to allow for the inland retreat of transitional habitats (such as salt marsh) as the sea level rises, leading to a more natural functioning of the harbour ecosystem.
- Reducing the amount of nutrients entering Poole Harbour from agricultural sources by continuing with catchment initiatives that engage and challenge farmers to reduce nutrient leaching and soil erosion.
- Reducing the amount of nutrients entering Poole Harbour from domestic and industrial sources by engaging with the planning process for new developments on the basis of avoiding and then mitigating any residual impact and by seeking cost-effective improvements to existing sewage disposal and treatment arrangements with the water companies and owners of unsewered properties.
- Seeking appropriate levels of commercial use of the harbour (for example through tourism and fisheries) so that commercial use does not degrade the natural environment.
- Encouraging further reduction in the sika deer population and management to sustain a lower population level once the environmental damage caused by their overgrazing has ceased.
- Encouraging the establishment of new riparian woodlands and their associated ecosystems, especially where this could help to improve the quality of water reaching the rivers.

SEO 3: Enhance opportunities for recreation in natural greenspace by securing a network of new and revitalised suitable alternative natural greenspace (SANGS) centred on the Christchurch–Bournemouth–Poole conurbation that provides a rich and varied countryside experience capable of supporting local health programmes and attracting and retaining local business while also deflecting some recreational pressure from the most sensitive environmental assets.

For example, by:

- Supporting local authorities to implement their SANGS programmes.
- Negotiating a major new SANGS for the conurbation, for example in the Stour Valley.
- Supporting developers in the scoping and design of new SANGS appropriate to their proposed developments.
- Encouraging the establishment of new urban and peri-urban woodlands where this does not conflict with other objectives.
- Supporting education and outreach programmes that raise awareness and creative use of the natural environment, increase understanding of the fragile nature of the heathland habitat and develop a sense of ownership and responsibility towards its care.
- Supporting the extension of the South West Coast Path to Christchurch.

SEO 4: Promote creative and effective solutions to environmental constraints so that enterprise can pursue sustainable development solutions to enhance local prosperity.

For example, by:

- Working with the Local Enterprise Partnership, Local Nature Partnership, local planning authorities and individual businesses to take a strategic view of commercial opportunities that can be delivered in a way that supports the natural environment.
- Engaging early when requested in the scoping of new developments to ensure that they maximise their contribution to sustainable development.

Poole Harbour entrance looking across Brownsea Island to the port of Poole. As well as an internationally important biodiversity haven the harbour is a popular recreational site and a local centre of commerce and inshore fishery.

Additional opportunities

1. Support agriculture, forestry and fisheries to improve both the sustainability and the gross value added of their respective industries.

For example, by:

- Providing effective advice on environmental management and grants available to support improved management.
- Supporting local branding and marketing where this is clearly linked to enhanced environmental delivery.
- Supporting initiatives to encourage sympathetic commercial uses of under-managed woodlands where this does not conflict with other objectives.
- Exploring new routes to market for products, such as venison, where a thriving commercial demand will support conservation management.

2. Seek to facilitate and encourage both the natural change in range of species whose range is expanding and the re-introduction of lost fauna and flora where the International Union for Conservation of Nature (IUCN) criteria for re-introduction have been satisfied. Continue work to remove and limit the spread of invasive non-native species whose presence has the potential to upset the local ecology.

For example, by:

- Creating missing habitat components (such as nesting platforms for osprey) to make the area attractive for species that might naturally settle there.
- Participating in the IUCN criteria analysis and any subsequent licence applications and delivery action for well thought through species re-introduction proposals.
- Continuing with actions designed to eradicate invasive non-native species such as Japanese knotweed, *Gaultheria* and rhododendron, which are damaging to the natural environment.

3. Work with mineral operators, regulators and local communities to ensure that end-of-life mineral workings have an after-use that supports and enhances local landscape, geodiversity, biodiversity and recreation.

For example, by:

- Offering early engagement when new mineral proposals are being scoped to condition appropriate end use.
- Providing support to operators in the design of high-quality end-use proposals.

Supporting document 1: Key facts and data

Dorset Heaths National Character Area (NCA): 61,662 ha

1. Landscape and nature conservation designations

The Dorset Heaths NCA contains 34 ha of the New Forest National Park; 10,189 ha of the Dorset Area of Outstanding Natural Beauty (AONB); 1,197 ha of the Cranborne Chase and West Wiltshire Downs AONB and 5,388 ha of the Purbeck Heritage Coast. Management plans for the protected landscapes can be found at:

- www.newforestnpa.gov.uk/
- www.ccwwdaonb.org.uk/
- www.dorsetaonb.org.uk/

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Designated site(s)	Area (ha)	% of NCA
International	Ramsar	Dorset Heathlands; Poole Harbour; Avon Valley	7,609	12
European	Special Protection Area (SPA)	Dorset Heathlands SPA; Poole Harbour SPA; Avon Valley SPA	9,016	15
	Special Area of Conservation (SAC)	Dorset Heaths SAC; Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC; Isle of Portland to Studland Cliffs SAC; River Avon SAC	7,723	12
National	National Nature Reserve (NNR)	Studland And Godlingston Heath NNR; Holt Heath NNR; Hartland Moor NNR; Stoborough Heath NNR; Holton Heath NNR; Morden Bog NNR; Arne Reedbeds NNR	1,805	3
National	Site of Special Scientific Interest (SSSI)	A total of 58 sites wholly or partly within the NCA	10,426	17

Source: Natural England (2011)

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

There are 347 local sites in the Dorset Heathlands covering 3,680 ha which is 6 per cent of the NCA.

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at: http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm
- Details of Local Nature Reserves (LNR) can be searched at: http://www.lnr.naturalengland.org.uk/Special/lnr/lnr_search.asp
- Maps showing locations of Statutory sites can be found at: http://magic.defra.gov.uk/website/magic/ – select 'Rural Designations Statutory'

1.1.1 Condition of designated sites

Condition category	Area (ha)	% of SSSI land in category condition
Unfavourable declining	709	7
Favourable	2,674	26
Unfavourable no change	1,803	18
Unfavourable recovering	5,142	50

Source: Natural England (March 2011)

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

2. Landform, geology and soils

2.1 Elevation

Elevation with the Dorset Heaths NCA varies from 0.2 m to a maximum of 174 m. The mean elevation within the Dorset Heaths NCA is 32 m.

Source: Natural England 2010

2.2 Landform and process

The eroded dip slope margins of the Chalk which surrounds the Dorset Heaths are overlain by the clays, gravels and sands of the Reading Beds and London Clay, producing a rolling and hummocky landscape along the margins. The river valleys have flat, uniform floors with extensive terrace flats. Upstream the rivers cut through the bedrock to form narrower, more incised valleys.

Source: Dorset Heaths Countryside Character Area description, Dorset Heaths Natural Area Profile

2.3 Bedrock geology

The Poole Basin, in which the Dorset Heaths lie, is part of the larger Hampshire Basin which was formed when the underlying Chalk and deeper rocks were folded and faulted by the Alpine Orogeny (mountain-building episode). The base and the edges of the basin are formed by these Chalk rocks. The Chalk is separated by the Reading Beds and London Clay from the generally quite acidic fluvially-deposited Tertiary sands, gravels and clays of the Poole Formation and Branksome Sand which occupy the middle of the Poole Basin. The London Clays were laid down under marine conditions and the Reading Beds were deposited on marshy mud and sand flats. Creech Barrow is the highest Tertiary hill in England – its Eocene limestone capping has protected it from erosion.

Source: Dorset Heaths Countryside Character Area description, Dorset Heaths Natural Area Profile, British Geological Survey maps

2.4 Superficial deposits

The Quaternary superficial geology consists largely of flat river terrace deposits with some beach and blown sands and soil and scree that formed in valleys and on valley slopes as a result of the continual freezing and thawing of ground under cold, tundra-like climatic conditions.

Source: Dorset Heaths Countryside Character Area description, Dorset Heaths Natural Area Profile, British Geological Survey maps

2.5 Designated geological sites

Designation	Number
Geological Site of Special Scientific Interest (SSSI)	0
Mixed interest SSSI	7

There are 10 Local Geological Sites within the NCA.

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

2.6 Soils and Agricultural Land Classification

Sandy infertile soils were once covered almost entirely by heathland. South of Poole Harbour thick clay units within the Poole Formation give rise to the locally important 'wet' heaths. More recent and fertile alluvial soils are present in the river valleys, covering the underlying rock to produce a flat, uniform valley floor. The rivers are commonly bordered by river terrace deposits forming extensive terrace flats.

Source: Dorset Heaths Countryside Character Area description, Dorset Heaths Natural Area Profile, British Geological Survey maps

The main grades of agricultural land in the NCA are broken down as follows (as a proportion of total land area):

Agricultural Land Classification	Area (ha)	% of NCA
Grade 1	0	0
Grade 2	1,443	2
Grade 3	16,549	27
Grade 4	16,169	26
Grade 5	7,683	12
Non-agricultural	11,143	18
Urban	8,097	13

Source: Natural England (2010)

- Maps showing locations of statutory sites can be found at: http://magic.defra.gov.uk/website/magic/ - Select 'Landscape' (shows ALC classification and 27 types of soils)

Christchurch Harbour from Hengistbury Head looking towards Christchurch Priory and St Catherine's Hill.

3. Key water bodies and catchments

3.1 Major rivers/canals

The following major rivers/canals (by length) have been identified in this NCA.

Name	Length in NCA (km)
River Frome	26
River Stour	26
Moors River	23
River Piddle or Trent	15
River Sherford	12
River Allen	7
Corfe River	4
River Avon	<1

Source: Natural England (2010)

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

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 30,670 ha or 50 per cent of the NCA. The rivers Avon, Stour, Piddle and Frome are the largest in the NCA. By the time they reach the heathland area these rivers are slow moving and follow a meandering course through well defined flood plains. Locally these rivers cut into the surrounding sands to form low sandy cliffs.

Source: Natural England (2010)

3.3 Water Framework Directive

Maps are available from the Environment Agency showing current and projected future status of water bodies at: http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

4. Trees and woodlands

4.1 Total woodland cover

The NCA contains 14,455 ha of woodland (23 per cent of the total area), of which 1,463 ha is ancient woodland. Extensive conifer plantations cover approximately 6,000 ha, approximately the same area as the remaining heathland.

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

4.2 Distribution and size of woodland and trees in the landscape

Blocks of conifers form locally prominent landmarks. Extensive areas of conifer woodland within the heathland started to be planted from the 1920s. Within the larger conifer blocks patches of more varied habitat do exist either where planting was always difficult or more recently by design. These forests are bold features which screen some of the large-scale developments in the south-east of the area. There are also smaller clumps of trees, particularly oak and birch, as well as isolated pines, many of which are wind-shaped and stunted, forming dramatic silhouettes.

Source: Dorset Heaths Countryside Character Area Description

4.3 Woodland types

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

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

Woodland type	Area (ha)	% of NCA
Broadleaved	5,901	10
Coniferous	6,370	10
Mixed	882	1
Other	1,302	2

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

Area and proportion of Ancient Woodland and Planted Ancient Woodland within the NCA:

Type	Area (ha)	% of NCA
Ancient semi-natural woodland	1,462	1
Ancient re-planted woodland (PAWS)	624	1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

The Dorset Heaths are a very open landscape. The estimated boundary length for the NCA is about 3,114 km.

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

5.2 Field patterns

Field patterns are typically small and irregular, for example those found at the foot of the chalk scarp at the southern edge of the area, where small farms have encroached on to the heathland, gradually creating small enclosures around each holding. These blocks of fields form a fragmentary pattern, often interspersed with unenclosed areas or small blocks of woodland. More regular field patterns are typical of some of the river valleys or sometimes reflect latter, more organised but small-scale phases of enclosure. At the other end of the spectrum are relatively large regular fields representing 18th or more often 19th century reclamation attempts, often instigated by estates. Around the edges of some settlements, such as Wool and Lytchett Matravers, rectilinear fields with slightly curving boundaries may represent former strips, possibly of once open common fields, the distribution of which would have been limited by the quality of the soils away from the valleys.

Source Dorset Heaths Countryside Character Area description; Countryside Quality Counts (2003)

6. Agriculture

The following data has been taken from the Agricultural Census linked to this NCA.

6.1 Farm type

The dominance of lowland grazing livestock farming in the NCA is shown by the figures; 109 farms of this type but only 41 horticultural units and 27 cereal farms. There were 138 farms listed as being of "other" type. Overall, there were 31 fewer farms in 2009 than there were in 2000. The greatest drop was in grazing livestock farms – there had been 127 in 2000 so the 2009 figure represents a drop of 14 per cent.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

There are 77 units of more than 100 hectares in the NCA, and 69 units of 5 hectares or less.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

2009: Total farm area = 27,297 ha; owned land = 12,332 ha
2000: Total farm area = 22,945 ha; owned land = 12,953 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

Between 2000 and 2009 there was a slight drop (3 per cent) in the overall numbers of livestock. There was a slight increase in the area of land used for oilseeds and stock feed.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

There was an increase between 2000 and 2009 in the number of cattle (+600) and sheep (+5,000) but a decrease in the number of pigs (-7,000).

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

Salaried farm managers and full-time workers have decreased in number by one-third and a half respectively while the number of part-time workers has increased by 50 per cent. There was a reduction of slightly more than a quarter in the numbers of casual/gang workers, from 131 to 95.

Source: Agricultural Census, Defra (2010)

Please note: (i) Some of the Census data is estimated by Defra so will not be accurate for every holding (ii) Data refers to Commercial Holdings only (iii) Data includes land outside of the NCA belonging to holdings whose centre point is within the NCA listed.

7. Key habitats and species

7.1 Habitat distribution/coverage

Although lowland heathland is distributed throughout the NCA – hence its name – coastal and flood plain grazing marsh follow the major watercourses, and other habitats are mainly clustered to the south-east of the NCA.
In addition the NCA contains important arable habitats. These support nationally important assemblages of arable birds.

Source: Dorset Heaths Natural Area Profile

7.2 Priority habitats

The Government's new strategy for biodiversity in England, Biodiversity 2020, replaces the previous Biodiversity Action Plan (BAP) led approach. Priority habitats and species are identified in Biodiversity 2020, but references to BAP priority habitats and species, and previous national targets have been removed. Biodiversity Action Plans remain a useful source of guidance and information. More information about Biodiversity 2020 can be found at; **http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/englandsbiodiversitystrategy2011.aspx**

The NCA contains the following areas of mapped priority habitats (as mapped by National Inventories). Footnotes denote local/expert interpretation. This will be used to inform future national inventory updates.

Priority habitat	Area (ha)	% of NCA
Broadleaved mixed and yew woodland (broad habitat)	4,657	7
Lowland heathland	3,952	6
Coastal and flood plain grazing marsh	2,700	4
Lowland dry acid grassland	224	<1
Reedbeds	189	<1
Coastal sand dunes	165	<1
Purple moor grass and rush pasture	144	<1
Lowland meadows	118	<1
Maritime cliff and slope	93	<1
Mudflats	44	<1
Fens	4	<1
Lowland calcareous grassland	2	<1
Saline lagoons	1	<1

Source: Natural England (2011)

Maps showing locations of priority habitats are available at

- **http://magic.defra.gov.uk/website/magic/** select 'Habitat Inventories'

7.3 Key species and assemblages of species

- Maps showing locations of priority habitats are available at: **http://magic.defra.gov.uk/website/magic/**
- Maps showing locations of S41 species are available at: **http://data.nbn.org.uk/**

8. Settlement and development patterns

8.1 Settlement pattern

The dominant settlement of the NCA is the Poole-Bournemouth-Christchurch conurbation. Although some of the adjacent towns, Wareham, Wimborne Minster and Fordingbridge, are much older they are functionally largely satellites for the main settlement which is a regionally significant tourist destination. Some of the smaller villages such as Wool and Three Legged Cross are also historic although most are now much expanded from their original, agriculturally orientated, footprint.

Source: Dorset Heaths National Area Profile, South Purbeck Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

The largest settlement within the NCA is the Poole-Bournemouth-Christchurch conurbation. Wareham, Fordingbridge and Wimborne Minster are the largest/most significant of the smaller towns. The total estimated population for this NCA (derived from ONS 2001 census data) is: 446,296.

Source: Dorset Heaths National Area Profile, South Purbeck Countryside Character Area description; Countryside Quality Counts (2003)

8.3 Local vernacular and building materials

Wareham and Wimborne Minster have fine cores, mainly of brick buildings. Wool is an attractive historical settlement built of a variety of stones including the dark brown 'pudding stone' that locally occurs on the heaths. There are a few examples of timber-framing – a small number of timber-framed buildings are to be found in Wimborne Minster, but mostly behind later brick facades. Brick is the dominant walling material and plain clay tile the most common roofing material.

Source: Dorset Heaths National Area Profile, South Purbeck Countryside Character Area description; Countryside Quality Counts (2003)

Beach huts at Mudeford Spit, Christchurch.

9. Key historic sites and features

9.1 Origin of historic features

Poole harbour was an important landing stage in the Iron Age and Roman periods – providing a large natural harbour for the Roman fleet which had a base at Hamworthy. An important pottery industry developed in the Poole area in the Iron Age producing Black Burnished Ware. Production continued during the Roman period. The harbour also provided a location for the production of salt making from the prehistoric to medieval periods. It is possible that Purbeck was one of the last areas to resist the Saxon advance into Dorset. After the retreat from Bokerley Dyke and Combs Ditch in north Dorset, the construction of an earthwork called Battery Banks near Wareham may represent the final line of defence for the remnants of the Romano-British population in the mid 7th century. The Dorset Heaths are the archetypal landscapes of Thomas Hardy's novels.

Source: Draft Historic Profile, Dorset Heaths Countryside Character Area description

9.2 Designated historic assets

This NCA has the following historic designations:

- 8 Registered Park and Garden covering 158 ha
- No Registered Battlefields
- 279 Scheduled Monuments
- 1,633 Listed Buildings

Source: Natural England (2010)

- More information is available at the following address: www.english-heritage.org.uk/caring/heritage-at-risk/
- www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/

10. Recreation and access

10.1 Public access

- Fourteen per cent of the NCA, 8,197 ha, is classified as being publically accessible.
- There are 723 km of public rights of way at a density of 1.2 km per km2.
- There are no National Trails within the Dorset Heaths NCA.

Source: Natural England (2010)

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

Access designation	Area (ha)	% of NCA
National Trust (Accessible all year)	721	1
Common land	1,008	2
Country parks	21	1
CROW Access Land (Section 4 and 16)	7,391	12
CROW Section 15	916	1
Village greens	28	<1
Doorstep greens	2	<1
Forestry Commission Walkers Welcome Grants	22	<1
Local Nature Reserves (LNR)	559	<1
Millennium greens	0	0
Accessible National Nature Reserves (NNR)	1,796	3
Agri-environment Scheme Access	6	<1
Woods for People	3,003	5

Sources: Natural England (2011)

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

11. Experiential qualities

11.1 Tranquillity

Based on the CPRE map of tranquillity (2006) this area is most tranquil along the coast (away from urban areas) and is increasingly tranquil towards its western and northern extents.

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

Category of tranquillity	Score
Highest	45
Lowest	-94
Mean	-8

Sources: CPRE (2006)

More information is available at the following address: **www.cpre.org.uk/what-we-do/countryside/tranquil-places/in-depth/item/1688-how-we-mapped-tranquillity**

11.2 Intrusion

The 2007 Intrusion Map (CPRE) shows the extent to which rural landscapes are 'intruded on' from urban development, noise (primarily traffic noise), and other sources of visual and auditory intrusion. This shows that only a small area of the NCA, mainly to the east and south-east of Bournemouth, and very small areas along the edge of the NCA to the north, are now undisturbed. A breakdown of intrusion values for this NCA is detailed in the table below.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	24	42	55	30
Undisturbed	60	42	26	-34
Urban	14	14	19	5

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are a major reduction in undisturbed area and a corresponding increase in disturbance.

- More information is available at the following address: **www.cpre.org.uk/resources/countryside/tranquil-places**

Dorset AONB

12. Data sources

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

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

Supporting document 2: Landscape change

Recent changes and trends

Trees and woodlands

- There has been an overall reduction in the area of monoculture conifer as some of these areas continue to be reverted to heathland.
- Some small-scale provision of new woodland planting has been encouraged by grant schemes.
- General neglect of many small woodlands, as economic uses remain elusive, has often resulted in deterioration in the quality of these assets.
- Some small-scale removal of rhododendron in woodland has been encouraged by grant schemes.

Boundary features

- Traditional management of hedgerows is not now a common feature of this area.
- New fence lines have often been needed to delineate new conservation grazing schemes.
- The proliferation of paddock grazing and subsequent erection of fencing associated with keeping horses for recreational use in some parts of the urban fringe has seen erosion in the generally open-field character of the area.

Agriculture

- There has been a decline in dairying with some compensatory increase in beef cattle, some of which is linked to conservation grazing schemes on the heaths.
- There has been an overall increase in the area grazed as many of the heathlands are brought back into productive management.
- Increases in the growing of both maize and salad vegetables have occurred.
- The operation of two 'branding' schemes – Purbeck Products and Direct from Dorset – are aimed at helping producers generate more business from the locality from which they operate.

Settlement and development

- Rapid post Second World War urbanisation led to the expansion and amalgamation of adjacent settlements to form the present conurbation, significant parts of which were constructed on heathland, for example at Canford Heath.
- The influence of Poundbury (in the adjacent Dorset Downs and Cranborne Chase NCA) on architectural styles appears to be growing in some new developments such as Wool and Stoborough.
- New developments are, however, highly constrained by multiple designations and local planning policy.

- In some small pockets (such as Poole and Sandbanks), very high property value is leading to the rebuilding of some houses as large bespoke residences before the end of their useful material and economic life.

- Wytch Farm, on the south shore of Poole Harbour, has developed as the largest on-shore oil field in the UK since the 1980s.

Semi-natural habitat

- Work to increase both the extent and quality of heathland and acid grassland is now visibly bearing fruit with many of the SSSI now clearly looking like heathland and some areas of low-yielding conifer woodland and agricultural land in the process of being reverted.

- The mudflats and salt marshes of Poole Harbour are threatened by an increasing occurrence of macro-algal mats – a result of eutrophication.

- Eutrophication is also depressing biological diversity in the rivers.

Historic features

- Work is well-advanced to bring the Swanage railway branch line (axed as part of the Beeching cuts) back into commercial passenger use; reforming the rail link between Wareham and Swanage.

- The Purbeck Mineral and Mining Museum, presenting the history and operation of the Ball Clay industry has now opened at Norden.

- The National Tank Museum at Bovington has recently been refurbished.

- There are numerous Scheduled Monuments on the 'At Risk' register maintained by English Heritage. The main causes of damage are burrowing animals, scrub encroachment, ploughing and cultivation. A number of Conservation Areas are also considered at risk, mainly around Poole and Bournemouth and mainly as a result of inappropriate development.

Coast and rivers

- Reduced investment in river dredging and weed cutting may be changing the siltation patterns in some lengths of river.

- Much of the coast is highly susceptible to erosion. Only beach recharge and the maintenance of sea defences from Poole to Hengistbury Head maintains status quo.

- Sea level rise, although measurable, is not yet thought to be impacting significantly on the coast. It is, however, resulting in the implementation of additional resilience measures in new coastal developments and plans to enable the coast to adapt to the expected new pressures.

- Several invasive non-native species associated with freshwater such as Australian swamp stonecrop and Himalayan balsam have become more common in recent years.

Minerals

- The presumption that quarry after-use would be for landfill is changing and some sites are now finding a conservation after-use.

- Opencast winning of sand, gravel and ball clay is still a significant land use although extraction rates have slowed in some cases as a result of economic recession.

Drivers of change

Climate change

- Rising sea levels and an anticipated increase in storminess, potentially combined with a change in wind direction during some storm events, is increasingly challenging some coastal defences. This could threaten the Brownsea lagoon (if the sea wall there fails) threatening the principal high tide roost of the Poole Harbour SPA. The neck of Hengistbury Head is also susceptible to a breach threatening existing access to a major visitor attraction and the iron-age monument of the double dykes. Potential work, now in its early stages, to realign some of the mid-20th-century earth flood defence banks within Poole Harbour has the potential to deliver substantial habitat change and a more naturally functioning coast.

- Any increase in prolonged dry periods brings a clear risk to both heaths and conifer forests as both can be highly flammable habitats. The 'climate envelope' within which lowland heathland exists may no longer coincide with this geography in the future.

- Changes in aquatic ecology for both fresh and salt water habitats are likely as temperature regimes change.

- Human responses to the accepted cause of climate change are starting to develop new uses for the countryside as a location for wind turbines, solar arrays and hydropower. There is a clear potential for this trend to continue and be joined by biomass production.

- Some species of wildlife with a southern distribution have made effective landfall in this NCA as the climate has warmed, most spectacularly little egret. Other species favoured by a changing climate may have a less benign effect on existing ecosystems, for example holm oak. Changing climate also has the potential to favour new pests and diseases which could alter the competitive advantage of wild species (for example, *Chalara fraxinea* on ash) or the commercial viability of some farming or forestry systems (for example, red band needle blight on Corsican pine).

Avocet and black tailed godwit - two species that frequent Poole Harbour in large numbers over winter contributing to its international importance.

Other key drivers

- Well-organised conservation initiatives are seeing an increase in the area and improvements in the management of areas of high nature value habitat. Much of this is either on publically owned land or supported by funding from agri-environment schemes.

- Recreational use of the heaths and forests has increased in recent decades and this is related at least in part to the development of the wider area as a tourist destination trading on the proximity of the South West Coast Path and the Jurassic Coast World Heritage Site.

- The improvements in condition and increases in extent of high nature value habitat in recent decades have been funded by both private landowners and by grant schemes, most of which have been co-financed by the European Union. In 2013 these schemes were under review with the clear potential to significantly change this programme of work.

- Development pressure in this NCA is high but development is also highly constrained by multiple designations including green belt, Area of Outstanding Natural Beauty and international conservation designations. There is some evidence of developers now seeking to make their proposals acceptable by making them multi-functional – seeking to both deliver a development and simultaneously enhance the local environment.

- Pressure for new transport infrastructure has abated in recent years, probably in response to the 2008 recession. Proposals to further expand Hurn Airport would be likely to further decrease tranquillity in north Bournemouth and the Avon Valley and add to eutrophication problems for the nearby heathland SSSI/SAC.

Sundew is one of the carniverous plants that survives on the nutrient-poor heathland soils by catching and digesting insects.

Supporting document 3: Analysis supporting Statements of Environmental Opportunity

The following analysis section focuses on a selection of the key provisioning, regulating and cultural ecosystem goods and services for this NCA. These are underpinned by supporting services such as photosynthesis, nutrient cycling, soil formation and evapo-transpiration. Supporting services perform an essential role in ensuring the availability of all ecosystem services.

Biodiversity and geodiversity are crucial in supporting the full range of ecosystem services provided by this landscape. Wildlife and geologically-rich landscapes are also of cultural value and are included in this section of the analysis. This analysis shows the projected impact of Statements of Environmental Opportunity on the value of nominated ecosystem services within this landscape.

Studland sand dunes, Dorset AONB.

Statement of Environmental Opportunity	Ecosystem Service																		
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/ Inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Protect the internationally important heathlands to make the resource more resilient to recreational pressure, succession to scrub or woodland and the likely impacts of climate change. Enhance the integrity of the landscape and the effectiveness of biodiversity conservation measures by extending sites and re-establishing physical links where possible between once separate blocks of heathland and work to embed the current and future relevance of this resource into the local economy.	↘ *	↓ ***	↔ **	↗ ***	↗ *	o	↗ ***	↗ **	↗ ***	↑ ***	↔ *	↗ **	↔ ***	↗ *	↗ *	↔ ***	↔ *	↑ ***	↔ ***
SEO 2: Protect and enhance Poole Harbour and its catchment, taking timely action to reduce eutrophication and mitigate (or compensate for) the likely effects of sea level rise, thereby securing the future of local tourism and fishing businesses as well as the important wildlife of the harbour.	↘ ***	↔ ***	↔ ***	↘ *	↔ ***	↗ ***	↗ *	↔ ***	↔ ***	↔ **	↔ *	↔ **	↑ ***	↗ *	↔ **	↔ **	↗ *	↔ *	↔ ***
SEO 3: Enhance opportunities for recreation in natural greenspace by securing a network of new and revitalised suitable alternative natural greenspace (SANGS) centred on the Poole–Bournemouth–Christchurch conurbation that provides a rich and varied countryside experience capable of supporting local health programmes and attracting and retaining local business while also deflecting some recreational pressure from the most sensitive environmental assets.	↔ *	↔ **	↔ ***	↗ **	↔ **	↗ ***	↗ ***	↗ ***	↗ **	↗ **	↗ **	↗ **	↔ ***	↗ ***	↔ *	↑ **	↑ ***	↑ ***	↔ ***
SEO 4: Promote creative and effective solutions to environmental constraints so that local enterprise can pursue sustainable development solutions to enhance local prosperity.	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↔ **	↗ **	↗ *	↔ ***	↔ ***	↔ ***	↔ ***	↔ ***	↗ *	↔ **	↔ *	↗ *	↗ *	↔ ***

Note: Arrows shown in the table above indicate anticipated impact on service delivery: ↑ = Increase ↗ = Slight Increase ↔ = No change ↘ = Slight Decrease ↓ = Decrease. Asterisks denote confidence in projection (*low **medium***high) ° symbol denotes where insufficient information on the likely impact is available.

National Importance; Regional Importance; Local Importance

Landscape attributes

Landscape attribute	Justification for selection
Extensive tracts of semi-natural lowland heathland supporting a suite of characteristic species.	■ Characteristic species include Dartford warbler, nightjar, woodlark, sand lizard, smooth snake, ladybird spider and Dorset heath. ■ Swathes of gorse and heather creating bright colour contrasts and textures. ■ Patches of scrub and woodland providing both important habitat variety and visual relief. ■ Wide open spaces, with long uninterrupted views, a strong sense of wilderness and history, and a lack of modern development and disturbance creating tranquillity.
Micro-tidal harbours supporting important wildlife assemblages.	■ Poole Harbour is the second largest natural harbour in the world. ■ Distinctive collection of islands, the largest being Brownsea Island, around the harbour and a complex shoreline creating an intimate network of channels, inlets, views and habitats. ■ Mudflats, reedbeds and salt marshes around the fringes of the harbour and particularly the southern and western edges add variety and a complex range of habitats that attract a wealth of fauna. ■ River channels extending into and forming the edges of, the harbours. ■ Sometimes spectacular flocks of waders and wildfowl in the autumn, winter and spring.
Extensive conifer plantations.	■ Conifer plantation became a common land use in the first half of the 20th-century for example Ringwood, Wareham, Rempstone and Puddletown forests. ■ The plantations can create extensive areas of tranquillity. ■ The dark, monotonous blocks of plantation contrast strongly with the intricate, complex areas of heathland, the pastoral river valleys and the fringe habitats of Poole Harbour, most notably between Rempstone Forest and the water of Poole Harbour.
Wild remote-feeling heathland landscape providing opportunities for informal recreation and 'escape'.	■ Proximity of large undeveloped areas of heathland to Poole–Bournemouth–Christchurch conurbation. ■ Expansive open views seemingly unaffected by modern human activity and with a strong connection to a great cultural landscape once widespread across northern Europe. ■ The bright flora and diverse fauna of the heaths and associated habitats provide visual and scientific interest and simple pleasure to visitors.

Landscape attribute	Justification for selection
Small villages and hamlets where sense of a strong vernacular architecture has been maintained.	■ For example Moreton where typically cob under thatch but also brick under tile or slate are common, with the use of limestone, common in the adjacent South Purbeck NCA, and ironstone making occasional appearances. ■ Many settlements now dominated by 20th-century design with the influence of Poundbury now extending to some newer developments for example in Stoborough and Wool.
Large conurbation with extensive sea and beach frontage.	■ The now contiguous settlements of Poole, Bournemouth and Christchurch connect and partially surround the harbours of Poole and Christchurch with extensive beach and promenade frontages between backed in places by low cliffs. ■ Early settlement pattern now overlain and obscured by 19th- and 20th-century development. ■ Some 'seaside' architecture.
Occasional prehistoric earthworks and other heritage assets.	■ Long-term existence of undisturbed heath has allowed survival of many barrows (mainly Bronze Age) and other later archaeological features for example the Double Dykes ('protecting' Hengistbury Head), Woolsbarrow hill fort in Wareham Forest, Hardy's Rainbarrow at the western end of the NCA and the Roman Roads at Puddletown and Upton.
Pastoral river valleys.	■ Flood meadows and pastoral land use in the river valleys. ■ Riverside trees and occasional hedgerows create the appearance of a lightly-timbered landscape. ■ Occasional arable outside of the flood plain. ■ Scattered farmsteads, villages and hamlets.

Landscape opportunities

- Further improve the sustainability of the management of lowland heath and substantially increase its extent through restoration and recreation to enhance the open character of the area and improve priority habitats, the range and number of species present, and habitat connectivity.
- Make the management of the lowest productivity grassland on the edges of the heaths more extensive to create a new buffering habitat of heather-grassland-scrub.
- Adjust the position and function of the flood defences in the upper Wareham Channel and at Lytchett Bay to create a more naturally functioning shoreline to Poole Harbour that is more resilient to sea level rise.
- Allow a more natural function of the rivers and their associated flood plains where this does not conflict with the protection of the built environment.
- Provide new and redesigned greenspace (SANGS) within and adjacent to the conurbation and principal towns to enhance setting, recreation opportunities and to provide residents with wildlife on their doorsteps.
- Protect and manage the Dorset Area of Outstanding Natural Beauty so as to retain the sense of remoteness and tranquillity and balance the needs of habitat management for biodiversity and protection of the designated sites with public access and recreation.
- Plan for significant new green infrastructure provision in association with areas of new urban development to protect and reinforce the local landscape character and expand the existing ecological networks.
- Protect the landscape setting of historic towns, villages and farmsteads, manage heritage assets which contribute to the landscape character of the area and plan new development, and the change of use of historic buildings, that respects local character and distinctiveness.
- Manage the small woods throughout the NCA to maintain and enhance biodiversity value and plan continued new native broadleaved planting in appropriate locations particularly where opportunities exist to expand or link existing woodland areas.
- Manage the existing access network of rights of ways and cycle routes and plan new links, particularly within urban areas and between the urban areas and the wider countryside.

Ecosystem service analysis

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Livestock production Arable production Some watercress beds west of Wareham Shell and inshore fishery Bee keeping	Livestock production remains the mainstay of agricultural activity across the area with a trend in recent years away from dairy towards beef. Some arable production, particularly of maize, tends to be associated with cattle enterprises. Recently a small but significant area of the Frome catchment has been devoted to field scale horticulture. Near to the conurbation many fields previously used for traditional agriculture have been split into paddocks for recreational horse ownership and use by riding stables. Poole harbour supports a regionally important shellfish industry as well as a small inshore fleet. The Harbour is also an important nursery area for commercial fish stocks. Bee keeping is common on the heathlands.	Regional	The extent of grazed habitat has almost certainly increased since the 1990s as large areas of heathland have been brought back into active management. However these are very extensively grazed and are not significant producers of food. Extensive grazing is now a main component of some biodiversity conservation programmes. In the same period several dairies have closed with the farms often refocusing on beef production. Cattle production is now often supported with maize fodder crops, which result in substantial challenges to the maintenance of soil structure and prevention of soil loss. Other arable production is small-scale although the production of field-scale salad vegetables in the Frome valley is a recently expanding opportunity. Watercress production is focused on the chalk-fed streams and rivers to the west of Wareham and is in part dependent on maintaining high water quality. Elements of the shellfish industry are poorly regulated and its impact on the environment consequently difficult to determine or monitor.	There are substantial opportunities for extensive high nature value farming across much of the area, particularly of beef production. On more intensively managed land there are opportunities both to reduce the external impacts of farm management practices and also to improve opportunities for on-farm biodiversity, in part supported by environmental land management schemes or similar initiatives. Encourage the application of best practice cultivation techniques and the sympathetic location of fodder crops to enhance and maintain soil quality and minimise the risks of soil erosion and subsequent diffuse pollution.	**Food provision** **Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Regulating water flow** **Sense of place / inspiration** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Woodland Around half of this is conifer plantation	The area is well wooded (23 per cent woodland coverage). Several moderately sized conifer plantations were established on the heathlands in the mid-20th century being one of the few viable commercial uses for the very poor soils at the time. In many cases the coups (sections of woodland) have now been through one complete forest rotation and in a few cases two. Economic returns are often marginal and experience has demonstrated that heathland can quickly re-establish once the conifers are removed.	Regional	The dominant commercial species is Corsican pine which is no longer being replanted due to disease pressure from red band needle blight. The commercial returns from forestry have often been tenuous but in recent decades the forests have become valued recreational assets. In the last twenty years some areas have not been replanted after felling in order to increase the area of heathland, which regenerates easily once the trees are removed.	There are very substantial opportunities to further increase the area of internationally important heathland following the harvesting of timber, and not replanting conifer plantation. There are limited, but available, opportunities for creating new woodland without prejudicing the biodiversity resource, especially in some of the river valleys where there is the potential to simultaneously improve water quality. Realising these opportunities may reduce food production. The forests also have the potential to be further developed as recreation destinations.	**Timber provision** **Regulating water quality** **Sense of place / inspiration** **Tranquillity** **Recreation** **Biodiversity**
Water availability	Chalk aquifer in the north and west of the area Rivers	Most of the public water supply in this NCA originates 'upstream' in the chalk downs that overlook this landscape. The north of the NCA and the far west are underlain by Chalk which is a good groundwater aquifer exploited for public water supply. However, where the Chalk is covered by a significant thickness of Palaeogene clay downstream around Wareham and along the lower Stour, the aquifer is poor being isolated from river water and rainfall infiltration.[4] In a dry year both arable and grass production can be limited by water availability on the mostly free draining soils. All groundwater sources within the NCA are classified as having 'no water available' as are all the rivers other than the Frome.	Local	Currently cultivation techniques generally do not encourage infiltration and water tends to run off quickly to rivers, carrying away sediment and nutrients. Chalk spring flows contribute to a significant portion of river flows, particularly in the summer months. The depletion of these springs due to abstractions for public water supply is a concern. Reduced water levels in ecologically sensitive watercourses, particularly chalk streams and rivers, can result in increased water temperatures and decreased amounts of available dissolved oxygen. While most of the water for public supply comes from outside of the area, increases in the area of developed land invariably increases demand for water, some from local supplies, and decreases the area of permeable land allowing local aquifer recharge.	Encourage changes in cultivation practice including techniques such as winter cover crops, contour cultivation and leaving rough cultivated surfaces to reduce run-off rates and increase infiltration. Action to reduce demand would ease pressure on supplies that, in some case, are already fully exploited in dry years. Encourage the incorporation of sustainable urban drainage systems (SUDS) into all new developments. Identify opportunities for ensuring that sufficient water levels are maintained in ecologically sensitive and important streams and rivers.	**Water availability** **Regulating water flow** **Regulating water quality** **Regulating soil erosion** **Biodiversity**

[4] Dorset Stour Catchment Abstraction Management Strategy, Environment Agency (2004) (accessed October 2013; URL: http://publications.environment-agency.gov.uk/pdf/GESW0104BHCD-E-E.pdf)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Genetic diversity	Native livestock breeds include the Dorset horn and poll Dorset sheep Extensive areas of semi-natural habitat	The use of traditional breed livestock has increased in recent decades and, subject to the interplay between conservation policy and market demands, may continue to increase. The areas of semi-natural habitat contain populations of plants such as bog myrtle that has medicinal properties. The main botanical components of the foremost habitats are now either stable or increasing.	National	The developing understanding of good management is creating an opportunity for the use of traditional livestock breeds such as Devon red and British white cattle and Exmoor ponies which thrive more readily in the lower productivity environments. The main semi-natural habitats are well-protected and mostly now well-managed.	Further develop the use of rare breeds of livestock including potentially seeking premium markets for the final produce.	**Genetic diversity** **Food provision** **Biodiversity**
Biomass energy	Woodland Some arable crops, such as maize	Woodland cover of 23 cent woodland. Repeated attempts over more than a decade to make more commercial use of low-value timber and arisings have largely failed to find a commercially viable solution. One exception is the Holme Estate who have successfully designed and installed a small district heating scheme fed by local timber. Some farmers are in the early stages of experimenting with biomass digesters fuelled with, for example, maize. There may be scope to co-fire these facilities with amenity grass cuttings resulting from the longer cutting intervals needed to improve the wildlife outputs from amenity grass.	Local	The necessary capital investment, logistics expertise and apparent inability of most available burners to cope with highly varied source material have been significant barriers. These difficulties combined with uncertainty about costs, prices and raw material availability makes it difficult to establish a trusting (and functioning) supply chain. Maize is a challenging crop to grow in an environmentally benign manner especially on the highly erodible soils typical of the NCA. An expansion of maize cultivation unless accompanied by the highest standards of soil husbandry are likely to be a potential source of silt and phosphorus (especially) in the river systems.	There is scope to better use low-value timber and forestry arisings both from the commercial forest and from activities necessary for the management of open habitats like heathland. This presents an opportunity to use material which is presently regarded as waste and often presents disposal problems. Encourage the development of new uses and markets that would result in a return to active management of some presently neglected woods.	**Biomass energy** **Biodiversity** **Sense of place / inspiration**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Soils Woodland Reedbeds, salt marsh, mudflats and sand dunes Heathland Permanent and flood plain pasture	In the east of the NCA there are areas with high carbon content in the surface soil layers (20–50 per cent). They are regionally significant, reflecting areas of existing or past heathland. These further reflect areas of the naturally wet very acid sandy and loamy soils (38 per cent of the area), the freely draining very acid sandy and loamy soils (15 per cent) and the loamy and sandy soils with naturally high groundwater and a peaty surface (5 per cent) which typically have or include organic or peaty topsoils and are important for carbon storage. Many of the loamy/sandy soils with a peaty surface comprise thin remnants of former peat coverings which have oxidised away as a result of drainage and cultivation, although some pockets of deeper peats remain. Some of the loamy and clayey flood plain soils with naturally high groundwater (6 per cent) are also peaty at depth or include small areas of peaty soils, providing a further store of carbon. The majority of the wider NCA is nevertheless classed as having a soil carbon content of 0–5 per cent. Around a third of the area's soils are mineral soils that can be low in organic matter where under continuous arable cultivation. Salt marsh is recognised as being an important carbon store.	Regional	Many of the important assets are presently in fair condition but care is needed. The heathland bogs and mires could be susceptible to drying if rainfall patterns change substantially. The salt marshes and other coastal fringe habitats are vulnerable to sea level rise and, especially in Poole Harbour, to trampling damage by high populations of sika deer. Many of the assets that are good at storing carbon in this landscape are relatively intact. The way in which carbon is stored in land presently used for commercial conifer forest will change, from predominantly above ground to predominantly below ground, if the land cover changes to heathland. However it is unclear that there will be significant permanent detriment to the carbon storage ability of the landscape.	In locations with peat-based soils priority should be given to securing and maintaining groundwater levels that keep the peat wet and prevent it drying out and oxidising. Some landowners are co-operating to bring down the deer numbers and this work is beginning to have a positive impact in some parts of Poole Harbour. Work, led by the Environment Agency, is already underway to implement a mitigation strategy to ensure no net loss of salt marsh in Poole Harbour in the face of expected sea level rise. Carbon sequestration can be increased in mineral soils by increasing organic matter inputs and by reducing the frequency/area of cultivation.	**Climate regulation** **Regulating soil quality** **Timber provision** **Food provision** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Semi-natural habitats Rivers Permeable soils	Poole Harbour is eutrophic as are the principal rivers draining into it and into Christchurch Harbour. While much of the nutrient causing this pollution is generated upstream of this NCA there are some pockets of eroding agricultural soil and also some sewage treatment works and untreated waste water sources within the NCA that contribute to the problem. Arable cultivation, especially for 'challenging' crops like maize and salad vegetables on light erodible soils can lead to soil loss and result in excessive silt and phosphorus in the receiving waters. Outside of the conurbation and the immediate urban fringe most of the NCA is in a Nitrate Vulnerable Zone (NVZ) and the Frome, Piddle and Stour are Defra priority catchments. Several industrial estates exist in close proximity to watercourses.	Regional	Work has been progressing for many years in response to a variety of policy drivers and using funding from the water company periodic review (of assets) process to reduce the amount of point source nutrient entering local watercourses both by improving the performance of sewage treatment works and by moving untreated waste water from properties onto the public sewerage network. Similarly advice and grant packages have been in use to encourage greater awareness of the importance and impact of diffuse and point source water pollution among farmers and to encourage techniques to avoid this risk. While there has clearly been progress there is a multi-decadal lag in the environmental response to some initiatives. Some work to improve water quality awareness in industrial estate operators has taken place.	Increase the amount of farmland in and upstream of this NCA managed under principles established by the Catchment Sensitive Farming initiative or its water company equivalent. Work with water companies to investigate and implement innovative solutions to point source pollution and untreated waste water. Identify locations where buffering watercourses with semi-natural vegetation could help intercept diffuse pollution and silt from cross-groundwater flows. Continue and increase public and industry awareness of the danger of allowing contaminated material into surface water drains.	**Regulating water quality** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Rivers approaching their estuaries Permeable soils Rough ground and semi-natural vegetation	Some built properties (especially at Iford, Longham and around Wareham) and much pasture is threatened by flooding at times of high river flow. This effect is exacerbated when the rivers become tidally locked and this problem is expected to get worse as sea levels rise. The Bourne Stream, with its very developed catchment, is especially prone to flash flooding. Low flows can lead to increased concentrations of pollutants and low levels of dissolved oxygen in drought years with detrimental effects for river ecology.	Local	There has been relatively little flood plain development meaning that the NCA as a whole is resilient in the face of fluvial flooding. This situation may change if river flood flows become increasingly locked by rising sea levels threatening increasing numbers of properties around, especially Wareham and Christchurch.	The relatively undeveloped nature of the flood plains provides opportunities to experiment with reducing the frequency of river management interventions and returning to more naturally functioning rivers and flood plains. Small scale work to this end has been happening for some years already. There are opportunities to reduce flooding by increasing storage on the flood plain upstream of Bournemouth and Christchurch; investigate ways to encourage the flood plain to retain more water; investigate the potential benefits that creating wetlands could bring; ensure the flood plain remains free from inappropriate development; and promote land use management initiatives, which reduce the rapid run-off of rainfall in the middle Stour catchment. Explore and where appropriate implement water retention measures to help maintain water levels in rivers during periods of drought. Where relevant all new development should incorporate SUDS.	**Regulating water flow** **Regulating water quality** **Biodiversity** **Sense of place / inspiration** **Recreation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	There are 9 main soilscape types in this NCA: ■ Naturally wet very acid sandy and loamy soils, covering 38 per cent; ■ Freely draining slightly acid loamy soils (18 per cent); ■ Freely draining very acid sandy and loamy soils (15 per cent); ■ Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (9 per cent); ■ Loamy and clayey flood plain soils with naturally high groundwater (6 per cent); ■ Loamy and sandy soils with naturally high groundwater and a peaty surface (5 per cent); ■ Slightly acid loamy and clayey soils with impeded drainage (4 per cent); ■ Loamy soils with naturally high groundwater (2 per cent); ■ Freely draining slightly acid but base-rich soils (1 per cent).	The naturally wet very acid sandy and loamy soils (38 per cent) can have a weak structure but are easily worked; topsoil compaction can occur as well as cultivation pans. The freely draining slightly acid loamy soils may be valuable for aquifer recharge, requiring the maintenance of good structural conditions to aid water infiltration and requiring the matching of nutrients to needs to prevent pollution of the underlying aquifer. These soils have potential for increased organic matter levels through management interventions. The freely draining very acid sandy and loamy soils are generally easily worked though they are inherently infertile and some soils are susceptible to poaching. Much of the soil within the NCA is in reasonably stable equilibrium, under permanent vegetation, or permanently sealed under development.	Local	Over much of the NCA soil quality is reasonably well protected under permanent or near permanent vegetation. Where cultivation occurs it has the clear potential to lead to the rapid oxidation of organic matter leaving the resulting soil friable and susceptible to erosion. Pasture soils can also be vulnerable if very heavily grazed and poached or left without their protective layer of vegetation. Where cultivation is practiced the soils are vulnerable and a range of techniques are needed if they are to be protected. Various initiatives (for example Catchment Sensitive Farming and Soils for Profit) in recent years have helped to highlight the potential of such techniques as organic matter additions and winter cover crops in protecting and building soil quality	Continue to apply the principles and best practices employed through initiatives such as Catchment Sensitive Farming and Soils for Profit. Identify areas where soils are most at risk of damage from cultivation and work with landowners and farmers to adopt sensitive soil management practices. Work with landowners and farmers to identify areas at risk from poaching by livestock and calculate and adopt appropriate stocking rates in response.	**Regulating soil quality** **Regulating water quality** **Water availability** **Climate regulation** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Soils Permanent vegetation Semi-natural habitats	The majority of soils covering the NCA (81 per cent) are at some risk of erosion. Wind erosion affects the naturally wet very acid sandy and loamy soils (38 per cent), some of which are also easily eroded if heavily trafficked or after heavy rain. Similarly affected are the loamy and sandy soils with naturally high groundwater and a peaty surface (5 per cent), which are also at risk from peat erosion and carbon loss through peat wastage. The freely draining very acid sandy and loamy soils (15 per cent) can erode easily where vegetation is removed, and steep slopes can increase erosion risk on light-textured soils where there will be rapid run-off during storm events. The freely draining slightly acid loamy soils (18 per cent) also have enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, exacerbated where organic matter levels are low following continuous arable cultivation or where soils are compacted. There is also the potential for wind erosion on some coarse textured cultivated variants. Many of the slightly acid loamy and clayey soils with impeded drainage (4 per cent) are prone to capping and slaking, leading to increased risk of erosion. These soils are easily compacted by machinery or livestock if accessed when wet, increasing the risks of soil erosion by surface water run-off, especially on steeper slopes. The slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (9 per cent) and the loamy and clayey flood plain soils with naturally high groundwater (6 per cent) have a low erosion risk; the loamy soils with naturally high groundwater (2 per cent) are also generally at low risk of soil erosion except where coarser textured variants occur on sloping or uneven ground. The NCA to the west of Poole falls within a priority catchment covering the catchments of the rivers Frome and Piddle. Similarly the Dorset Stour north of Wimborne Minster is also a priority catchment.	Regional	While much of the area is covered in permanent vegetation that reduces the risk of soil erosion, the existence of pockets of arable cultivation, especially for maize and vegetables, can leave the affected soils vulnerable to erosion as can very high stocking densities. The rivers within the identified catchment sensitive areas are suffering from high levels of sedimentation as a result of soil erosion resulting from intensive cultivation, including maize production, on moderate to high risk soils on steeper slopes in an area of high rainfall and with cross-land flows following preferential pathways including roads and tracks that provide ideal routes for run-off to enter the watercourses.	Continue to apply and extend the reach of tried and tested techniques for reducing soil erosion that are being promoted among the farming community by projects such as Catchment Sensitive Farming. Work with farmers and landowners to identify and adopt appropriate stocking levels in areas where soils are prone to poaching. Introduce or restore areas of semi-natural habitat and reinstate boundary features across slopes and along preferential pathways to help reduce the velocity of cross-land water flow or deflect water flow away from areas of soils prone to erosion.	**Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Biodiversity** **Food provision**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Semi-natural habitat Populations of natural (wild) pollinators	Extensive areas of semi-natural habitat which support a small honey bee industry. Oilseed rape is an occasional crop in this NCA which requires pollination but there is little commercially grown fruit and vegetable production for which pollination is an essential service.	Local	The extent to which many of the heathland blocks are used by commercial bee keepers suggests that the area is unlikely to be short of pollinators.	Any diversification into crops that require insect pollination is unlikely to find lack of pollinators a problem in this landscape, however, further opportunities to increase the connectivity of suitable habitats and increase the network of corridor habitats should be realised.	**Pollination** **Food provision**
Pest regulation	Areas of semi-natural habitat Hedgerows Grass margins	The habitats in the area support a variety of species, such as beetles and hoverflies, which can be effective in the regulation of populations of pests such as aphids.	Local	Interstitial habitats provide important over-wintering habitats for beneficial predatory invertebrates (for example ground and rove beetles) that feed on pests. Careful management of agrochemicals (through Integrated pest management approaches) may in some cases remove the requirement for chemical intervention. Financial support for farmers channelled through agri-environment schemes can sometimes fund these habitats in arable areas.	Wild populations of pest predators are likely to be healthy given the extent of semi-natural habitats. The biggest opportunity is likely to be to bring these populations closer to crop pests by extending semi-natural refuges (such as beetle banks) into fields that are regularly cropped.	**Pest regulation** **Food provision** **Biodiversity** **Regulating soil erosion**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating coastal erosion and flooding	Shallow sheltered micro-tidal harbours sometimes fringed with salt marsh Open coast of historically highly mobile sandy beaches	Within the harbours much of the foreshore is composed of sheltered natural beaches or salt marsh. Both of these provide some protection from the eroding effects of wave action. In some locations (for example at Poole) the harbour is delineated by 'hard' engineered defences. On the open coast, mobile sandy beaches predominate. At Studland these still function more naturally (being only 'protected', in part, by the off shore 'training bank)' but to the east of Poole Harbour entrance management interventions are significant with a combination of beach recharge, groynes to limit longshore drift and hard defences backing the beaches, for example along Bournemouth seafront. This combination has largely halted erosion of the cliffs behind the beach which would, historically, have been a source of new sediment for natural beach recharge.	Regional	The Poole and Christchurch Bays Shoreline Management Plan[5] is designed to equip the area to cope with both expected sea level rise and potential increases in storminess. It envisages a variety of responses from 'hold the line' on the more heavily developed and defended parts of the coast to 'managed realignment' where the protected assets are mainly agricultural and nature conservation. Depending on the level of investment in each scheme there is the potential to return parts of the coast to a much more naturally functioning state, potentially improving existing nature conservation assets Where the existing line is to be defended there is the potential, if sea levels rise, to see the extent of beach and salt marsh habitat (and the protection it offers to the engineered defences) squeezed. It is intended that future realignments will mitigate for these losses by creating new estuarine habitat.	Managed realignment of failing historic defences around the undeveloped margins of Poole Harbour provides a significant opportunity to both extend the area of salt marsh and mudflat and to return these parts of the harbour to a more naturally functioning state.	**Regulating coastal erosion and flooding** **Biodiversity**

[5] www.twobays.net/

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place/ inspiration	Expansive areas of semi-natural habitat Harbours Large conurbation with adjacent beaches	The outstanding scenic qualities and natural beauty of parts of the area are recognised in designation as the Dorset Area of Outstanding Natural Beauty. There are expansive areas of semi-natural habitat evocatively captured as Thomas Hardy's Egdon Heath. The Dorset Heaths have a strong character defined by their underlying geology. The poor soils have always rendered primary production from the land a challenge over most of the area but this has to an extent 'protected' sizeable parts of this landscape from the more intensive management interventions that tend to dominate elsewhere. The two prominent micro-tidal harbours have an extensive wilderness feel in their more remote parts and important wildlife populations. Despite being adjacent to the fourteenth largest conurbation in England there are still sections of this landscape that can provide a real sense of remoteness and wilderness. The urban conurbation with adjacent beaches which are popular tourist attractions in the summer.	Regional	Development, particularly for new housing has transformed some areas since the Second World War although the pace of this change is now reduced. Elsewhere concerted action is recreating the traditional heathland land cover in such a way as to reconnect previously separated patches. These are now large enough in some places to form micro-wilderness which is rare in much of lowland England. During a few weeks in the summer the influx of tourists, while hugely significant in economic terms, can seem to overwhelm elements of this landscape with packed beaches and long traffic queues.	The programmes of the last several decades that have started to improve, restore and reconnect previously degraded and neglected habitats have the potential, if continued, to produce further improvements – restoring elements of the landscape and the inspiration it provided to Thomas Hardy only a little more than a century ago. Work in partnership to deliver the aims and objectives of the Dorset AONB Management Plan. Work to increase the extent of heathland, mainly from conifer plantation, should release potentially stunning but presently barred or restricted views, such as from the ridge above Briantspuddle to Purbeck and from Colehill to Cranborne Chase.	**Sense of place / inspiration** **Sense of history** **Tranquillity** **Recreation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Semi-natural habitat preserving prehistoric and historic features in the landscape Historic settlement patterns still present to the west of Wareham	Dominant semi-natural vegetation type is of prehistoric origin in its present form. While there are extant historic monuments that do retain some of their context (Hengistbury Head, Woolsbarrow Hill Fort, Wareham Walls) much of the easily identified visible history has been lost under more recent land uses. More recent events are perhaps better represented with, for example, part of a heritage railway (running from Norden to Swanage), the recently opened mineral mining museum and the National Tank Museum at Bovington reflecting the strong military links with the area.	Regional	Some historic assets are also tourist attractions. Their sympathetic preservation, presentation and use have clear potential to enhance the visitor experience. While a number of Scheduled Monuments are considered to be at risk in the area, principally by damage from burrowing animals, inappropriate cultivation and scrub encroachment, many on the heathlands are still preserved in what would have been their original historic context. A number of historic settlements have now been subsumed into the larger conurbation and designated as Conservation Areas. They are considered at risk of losing their identity and historical context.	The protection of heritage assets should be a priority given their relative scarcity. Incorporate buried and earthwork heritage assets into habitat management and creation plans to ensure compatibly outcomes. Opportunities should be sought to enhance the setting, interpretation and legibility of the remaining assets. The restoration and conversion of vernacular buildings should be sympathetic to local distinctiveness and use local materials where possible.	**Sense of history** **Sense of place / inspiration** **Recreation** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Heathlands and other semi-natural habitats Forestry Woodlands The coast Pastoral river valleys Urban greenspaces	The tranquillity of this area varies both spatially and temporally with much greater tranquillity away from the conurbation. The areas of heathland offer both a sense of tranquillity and remoteness, with long, uninterrupted views and a sometimes total lack of visible human activity. When the army ranges are in operation there is some reduction in tranquillity in the more remote parts of the area. The areas of forestry and woodland extend over 23 per cent of the NCA offering substantial amounts of tranquil and undisturbed landscape. Small sections of the coast, mainly at Studland Bay and around the fringes of Pool Harbour, can offer high levels of tranquillity, particularly outside of the tourist season. The pastoral valleys of the rivers Frome and Piddle, away from the villages and hamlets can offer some tranquillity, particularly where the waterside can be accessed. Urban greenspaces are valued by many people living and working within the large conurbation, providing a quick 'escape' from the noise and bustle of the urban environment.	Regional	The extensive tracts of both heathland and commercial forest plantations often retain a sense of tranquillity and even wilderness as can parts of Poole Harbour outside of the tourist season. However, increasing levels of tourist interest, some intrusive recreational activities and an increasing local population may challenge and reduce the extent of undisturbed places. Work to increase the extent of heathland, mainly from conifer plantation may increase the area of perceived 'wilderness', but reduce the visual screening from some recreational and commercial activities. Many of the notable species associated with the heathlands, semi-natural woodlands and coastal fringe habitats are susceptible to disturbance and maintaining levels of tranquillity should be a priority for at least some areas.	Present work to enhance and reconnect adjacent areas of heathland (landscape scale conservation) has the potential to maintain pockets of tranquillity in what will otherwise probably be quite a 'lively' area. Work to identify areas most at risk from seasonal disturbance and put in place measures to help alleviate or disburse people thereby reducing levels of intrusion. Ensure suitable high-quality greenspace provision is incorporated into all new development, particularly around the fringes of the conurbation.	**Tranquillity** **Sense of place / inspiration** **Sense of history** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation	Two shallow sheltered harbours South West Coast Path Extensive tracts of public forest estate Heathlands Public open space and open access Local trails Three country parks Extensive sandy beaches Public rights of way network	While the most popular venues can become crowded at the height of the visitor season this is seldom to the extent that they are full to capacity. The harbours are popular with watersports enthusiasts, but also provide opportunities for quiet leisure and recreation, such as birdwatching and painting. The forests and woodlands are crossed by numerous tracks and rides and where part of the public forest estate, they provide access for walkers, horse riders and cyclists. Many of the heathlands are designated as open access land, in public ownership or owned by the National Trust and provide a large recreational resource for activities such as walking, running, bird- and wildlife-watching, painting and photography. There are 724 km of public right of way providing access to much of the rural areas. There are a number of local trails, for example the Castlemain trailway, linking Poole with the New Forest along a disused railway line, and the Stour Valley Way, and other accessible spaces including three country parks and numerous green spaces in and around the conurbation.	National	Determined action by the public sector and many voluntary sector organisations who own land in the area have substantially improved access opportunities over a period of several decades. Increasing interest and increasing access can lead to inappropriate recreational activities and undue pressure on 'honey-pot' sites. Balancing recreational demands with suitability and capacity of sites present a problem for future management.	Support research that further clarifies the relationship between recreational use, habitat quality and population health of rare and vulnerable species. Substantial further opportunities to improve access and recreation provision still exist, for example in the flood plain of the River Stour where it passes across the north of the conurbation; at Upton Country Park which surrounds and lies adjacent to a local authority farm from which the public are excluded and on other privately owned land if they choose to improve recreation opportunities. New developments should also increase and/or improve local greenspace and the recreational opportunities it provides. Realise the opportunities for education and awareness-raising with visitors and residents.	**Recreation** **Sense of place / inspiration** **Biodiversity**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	Internationally important habitats and species assemblages associated with heathland habitats and also with Poole Harbour Native broadleaved woodland on acid soils	Along with the New Forest this area holds some of the best resource of Atlantic lowland heath in Europe and nationally significant populations of some of the component species for this habitat such as nightjar, sand lizard, ladybird spider and Dorset heath. Poole Harbour holds nationally significant populations of wintering avocet and black-tailed godwit as well as breeding Mediterranean gull. Some of the Poole Harbour Islands are home to one of the last extant populations of red squirrel in southern England.	International	The quality and extent of the biodiversity resource associated with the internationally important habitats has tended to improve in recent years. There has been a period of particularly intense activity especially focused on heathland to increase its extent, reduce fragmentation and improve the quality of management. This improvement in the state of the internationally important habitats has not always been reflected in the wider countryside beyond where, for example, the populations of many farmland bird species have followed the national downward trend and the understory of many woods have been browsed out by years of high sika deer populations. Recently some greater control of the local deer population has been exerted but there is some way to go before the population is reduced to a level where damage to both habitats and crops ceases. While many farmers have been enthusiastic adopters of the opportunities made available by agri-environment schemes it is less clear where the changes in farm management practice that seem necessary to revive the fortunes of, for example, farmland birds will come from.	There are further opportunities to improve the management of heathland and extend and rejoin fragments of heath. Realising these opportunities are the subject of ongoing programmes and projects involving the collaboration of multiple partners (Wild Purbeck Nature Improvement Area, Urban WildLink). Other work is now established to safeguard the future of the intertidal habitats of Poole Harbour in the face of likely sea level rise. Continue work to control and reduce the population of sika deer in the area and particularly around the most sensitive habitats. Work to find mechanisms that are attractive to farmers and landowners that serve to improve conditions for on-farm wildlife, particularly farmland birds.	**Biodiversity** **Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Regulating water flow** **Climate regulation**

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Mineral deposits of sand, gravel and ball clay Rock exposures at the coast Oil deposits in shale Coast, estuarine and fluvial geomorphology	Seven SSSI have a geological component to their special interest and there are ten local geological sites. Rock exposures are rare in this area although Poole Bay Cliffs SSSI and Hengistbury Head have nationally important Eocene sedimentary deposits that are rich in fossils. The geological deposits have been extensively exploited commercially. This is particularly true of ball clay which was mined historically but is now quarried and also of the sands and gravels which are extensively quarried. More recently the area has hosted one of the largest onshore oil and gas fields in the UK. The geological exposures of Poole Bay cliffs have been subject to concerted management effort by Natural England and local authorities in recent decades to try and maintain their special interest as visible features. The geomorphological processes at the coast, along the rivers and around Poole Harbour are of note.	Regional	In previous decades worked out quarries were routinely used as, for example, landfill sites. More recently it has proved possible to use these new manifestations of the local geology for more imaginative purposes to the benefit of both wildlife and people. Coastal geomorphological processes may be unduly affected by demands for hard, engineered defences in the face of predicted rising sea levels.	Future planning permissions to exploit geological resources should normally only be granted with a clear requirement for after-use that provides for geodiversity and biodiversity conservation and public use. Subject to protecting essential elements of the built environment, seek to restore or maintain geomorphological processes at the coast and along rivers.	**Geodiversity** **Biodiversity** **Regulating coastal erosion and flooding** **Regulating water flow** **Regulating soil quality**

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