



## Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper<sup>1</sup>, Biodiversity 2020<sup>2</sup> and the European Landscape Convention<sup>3</sup>, 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.

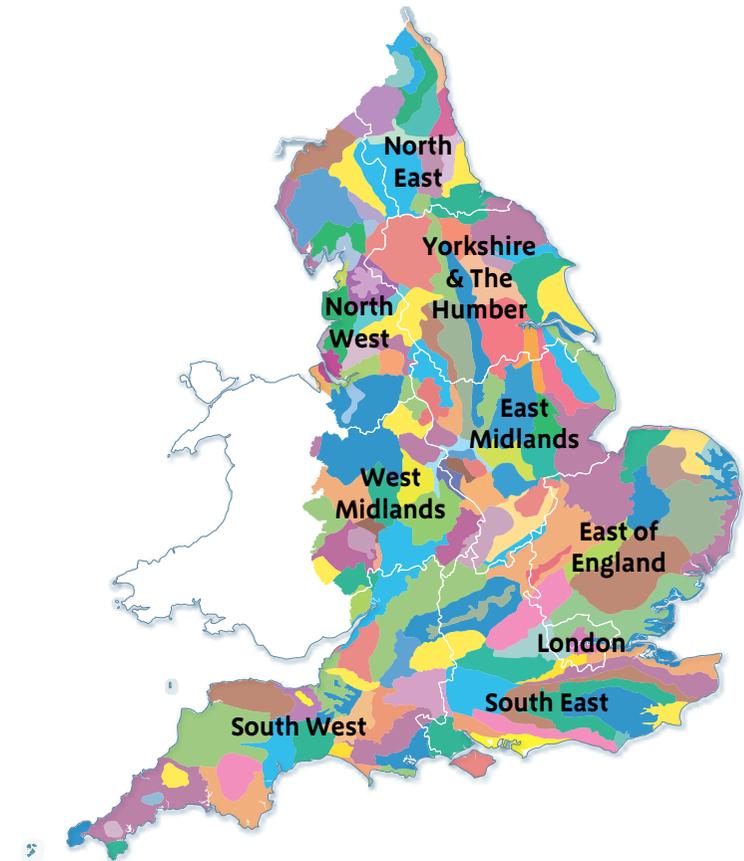
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and 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](mailto:ncaprofiles@naturalengland.org.uk)

## National Character Areas map



<sup>1</sup> The Natural Choice: Securing the Value of Nature, Defra (2011; URL: [www.official-documents.gov.uk/document/cm80/8082/8082.pdf](http://www.official-documents.gov.uk/document/cm80/8082/8082.pdf))

<sup>2</sup> 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](http://www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf))

<sup>3</sup> European Landscape Convention, Council of Europe (2000; URL: <http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm>)

## Summary

The Thames Basin Heaths National Character Area (NCA) stretches westwards from Weybridge in Surrey to the countryside around Newbury in Berkshire. The London greenbelt incorporates countryside around Chobham and the rivers Wey and Mole. West of the greenbelt, 20th-century development has given rise to large conurbations including Camberley and the 'new town' of Bracknell. Among these conurbations, gardens amount to a significant area of greenspace, with rhododendron being a particular feature, and a major road network incorporates the M25 and M3. This densely settled area can be a significant source of pollution and rapid run-off.

Further from London, in the west, the settlement pattern is a mix of dispersed hamlets, farmsteads and houses interspersed with villages, many of medieval origin. Vestiges of the historic royal hunting forests of Bagshot, Eversley, Pamber and Windsor comprise parkland, ancient woodland, and small to medium-sized fields of semi-natural grassland. Features include ancient hedgerows and veteran trees, and there are parklands at The Vyne and Highclere Castle.

Woodland accounts for a quarter of this NCA, reflecting the predominance of low-grade agricultural land. Only 20 per cent of this woodland is on ancient woodland sites, with the majority of it having grown up or been planted on former heathland – much of which is or was common land. Conifers and rhododendron are particularly distinctive in the east of the NCA. In this heavily wooded landscape, there are significant timber and biomass opportunities.

Common land is found across the NCA, with the largest commons found on raised plateaux of Tertiary sands and gravels. On these deposits, farming is largely limited to rough pasture and there are large estates. Non-agricultural land uses are widespread, and include large plantations and military bases

(including Aldershot). Formal and informal greenspace is concentrated in the east of the NCA, and includes country parks, woodlands and golf courses (such as Wentworth). The Kennet and Blackwater valleys are a focus for sand and gravel extraction.

Semi-natural habitat is extensive on the plateaux, and includes mosaics of wet and dry heathland, woodland and acid grassland. These habitats (and bird populations of nightjar, Dartford warbler and woodlark) are of international importance; they are protected by the Thursley, Ash, Pirbright and Chobham Special Area of Conservation (SAC) and the Thames Basin Heaths Special Protection Area (SPA), as well as being nationally designated as Sites of Special Scientific Interest (SSSI). In the east, the close proximity of semi-natural habitats to settlements gives rise to recreation and education opportunities, as well as to problems such as fly-tipping, arson and disturbance.

To the west, international sites include the three wetland SAC of the Kennet and Lambourn Flood Plain, the Kennet Valley Alderwoods and the River Lambourn. The Kennet and Loddon catchments drain the plateaux and intervening clay valleys. Agriculture in the valleys is mixed, and there are fragments of historic meadows and reedbeds.

In the far west, the chalk scenery of the Hampshire Downs escarpment and the countryside around the River Pang are both designated as part of the North Wessex Downs Area of Outstanding Natural Beauty (AONB), which makes up 17 per cent of the NCA.

Click map to enlarge; click again to reduce.



Volunteers constructing a boardwalk in Bowdown Woods illustrate how people can engage with the landscape sustainably.

## Statements of Environmental Opportunity

- **SEO 1:** At a catchment scale, manage and create woodlands, highway verges, field margins, reedbeds and other features in urban and rural settings to intercept run-off and to filter pollutants. In the heavily developed flood plains of the Blackwater and Thames, adapt the urban environment to manage floodwaters, and restore or enhance modified watercourses.
- **SEO 2:** Maximise the variety of ecosystem services delivered by wooded features – from wet woodlands in the Kennet Valley to the large conifer plantations around Camberley and new woodlands. Conserve soils, water, biodiversity and the sense of place and history; enhance timber and biomass production; and provide for recreation and tranquillity as appropriate.
- **SEO 3:** Enhance the sense of history and biodiversity by conserving, restoring and building the resilience of long-established habitats such as heathland, ancient woodland and meadows, and of archaeology such as hill forts. Work at a landscape scale to conserve and restore key attributes of the historic hunting forests (such as Eversley) and historic common land. Engage the public in enjoying this heritage.
- **SEO 4:** With a focus on the Blackwater Valley, Newbury and nearby major settlements such as Reading, provide good-quality green infrastructure (incorporating commons, woodlands and restored gravel pits) to facilitate people's sustainable engagement with the local landscape. In doing so, also seek benefits for wildlife, water quality, flood amelioration and climate regulation.

## Description

### Physical and functional links to other National Character Areas

The Thames Basin Heaths National Character Area (NCA) lies in the London Basin, one of several NCAs lying within this syncline. The axis of the fold runs east-west – passing through this NCA – from the Berkshire and Marlborough Downs NCA to the Essex coast. The high rim of the London Basin is found to the west and south, where vantage points in the North Downs NCA and Hampshire Downs NCA, for example, offer views of the lower-lying Thames Basin Heaths NCA. The Chalk landscapes in the west extend from this NCA into the Berkshire and Marlborough Downs NCA and Hampshire Downs NCA, and this wider Chalk landscape is designated as the North Wessex Downs Area of Outstanding Natural Beauty (AONB).

The Thames river system drains this basin, with major tributaries flowing through the Thames Basin Heaths NCA from the Berkshire and Marlborough Downs NCA in the west, and from the Hampshire Downs NCA, Thames Basin Lowlands NCA and other NCAs to the south. Engineered surface and groundwater supply links also exist with surrounding NCAs: the chalk aquifers in the neighbouring North Downs NCA, Hampshire Down NCA and Berkshire and Marlborough Downs NCA are notable sources of water. The Basingstoke, Wey Navigation, and Kennet and Avon canals provide a corridor for transport, recreation and wildlife – including otter, water vole, fish, and non-native species such as Himalayan balsam and American signal crayfish.

Birds make use of complexes of sites straddling the NCA boundaries. Large numbers of waterfowl (such as gadwall) flock around the South West London Waterbodies Special Protection Area (SPA) and Ramsar site to roost and feed

in the winter. Breeding Dartford warbler, nightjar and woodlark use habitat mosaics across the Thames Basin Heaths SPA.

Transport links within this NCA include the M3, M4 and M25 motorways, as well as numerous A roads and railways linking to the wider South East and London. These all make the green spaces of the Thames Basin Heaths NCA accessible to people from numerous major settlements in nearby NCAs – including Basingstoke, Reading, Staines, Guildford and west London. Virginia Water and Chobham Common are large green spaces near to west London and just off the M3.

### Distinct area

- Blackwater Valley



Breeding populations of woodlark (shown here), Dartford warbler and nightjar in the Thames Basin Heaths Special Protection Area are important at a European level.

## Key characteristics

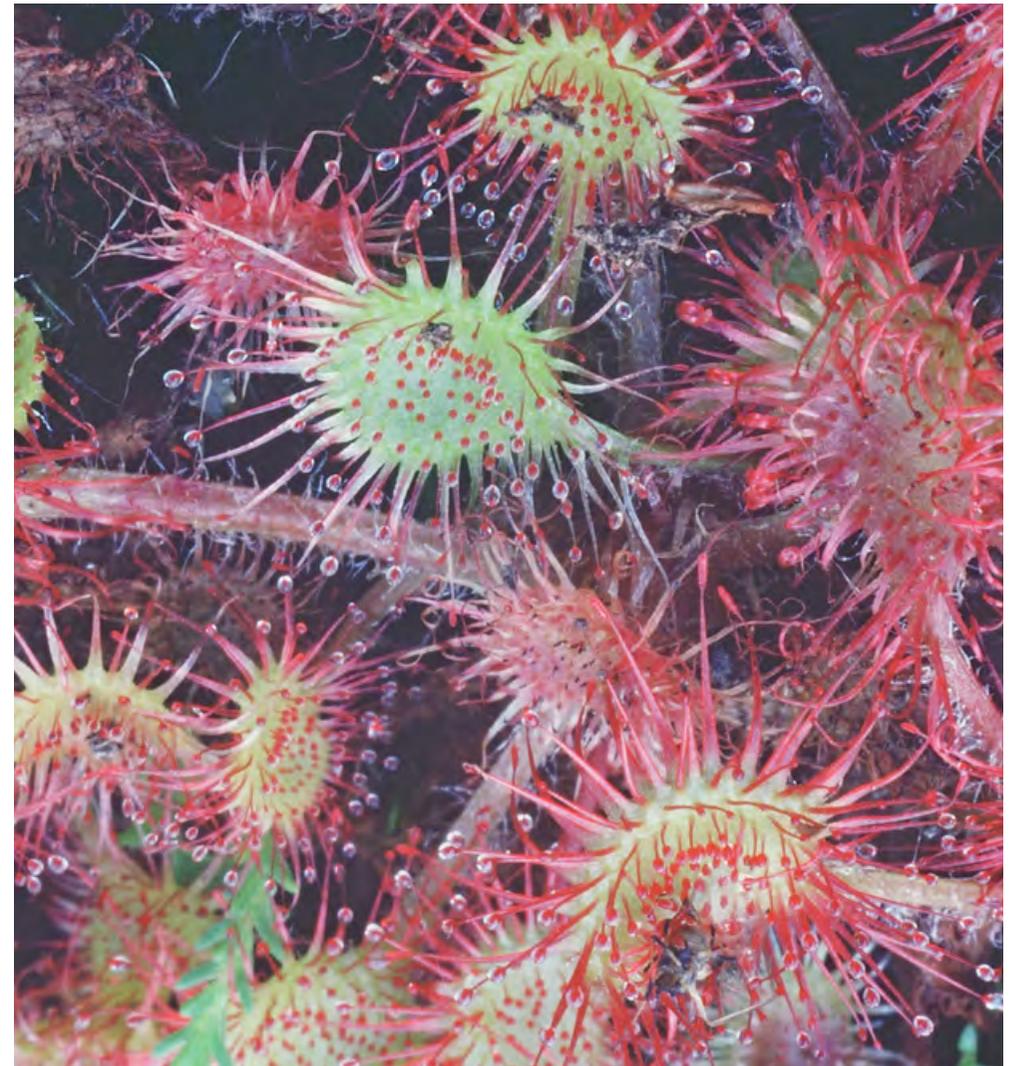
- Plateaux of Tertiary sands and gravels in the London Basin, with intervening river valleys floored by London Clay. In the far west, Chalk forms the Hampshire Downs escarpment and the river beds of the Kennet and Pang.
- High woodland cover, offering an array of colour in the autumn. Conifers and large plantations on former heathland are dominant features in the east, while the west is scattered with small, semi-natural woodlands on ancient sites.
- Acid, leached soils mean that farming on the plateaux is limited to rough pasture, and that alternative land uses (such as forestry, golf courses and horse paddocks) have emerged. Heather, gorse, oak and birch all thrive here. Arable land and improved pasture are found in the valleys, on alluvium.
- Beyond the large areas of heathland and woodland, there is a patchwork of small to medium-sized fields with woods. The legacy of historic hunting forests includes veteran trees, ancient woods, ancient hedgerows and parklands. Historic meadows remain as fragments along watercourses.
- Prehistoric earthworks such as barrows and hill forts mark promontories on the plateaux. Archaeology is well preserved on historic heathland. Mosaics of open heathland and grassland with scrub, secondary woodland and plantation. Valley bogs, ponds and streams enhance diversity. Large, continuous mosaics are found in the east: they include Thursley, Ash, Pirbright and Chobham Special Area of Conservation (SAC), and Chobham Common National Nature Reserve (NNR).
- Historic commons offer tranquillity and unenclosed views, while other rights of access are enjoyed across farmland, canals and downland. Ministry of Defence ownership restricts (but does not entirely prevent) public enjoyment.
- 'Churring' nightjars, dragonflies and purple heather are all readily identified with heathland. The Thames Basin Heaths SPA protects internationally important populations of woodlark, nightjar and Dartford warbler.
- Valley floors are wet with ditches, numerous watercourses, ponds, water-filled gravel pits, reedbeds and carr. Historic features include mills, relict water meadows, and canals such as the River Wey Navigations.
- 20th-century conurbations, including Camberley, sprawl along the Blackwater Valley, with associated roads (including the M3) dissecting heathland and woodland into blocks. Elsewhere, there are winding lanes and historic dispersed villages and farmsteads of traditional, locally-made brick and tile.

## Thames Basin Heaths today

The Thames Basin Heaths NCA drops in altitude eastwards, into the London Basin. The Thames flood plain at Weybridge lies at below 40 m above ordnance datum (AOD) in the far east, just inside the M25 in west London. The Thames is met by the rivers Wey and Mole flowing from the south, while a network of small streams drains the low, relatively rural area around Chobham, within the London greenbelt. The Wey Navigation and Basingstoke canals provide key recreation corridors, incorporating flood plain habitats and historic features (including mills).

Heading west, the ground rises onto one of several plateaux found across this NCA. Historic monuments – including numerous prehistoric barrows and hill forts, such as the barrow cemetery and Caesar's Camp near Aldershot – are found on plateau vantage points. The plateaux comprise Tertiary sands and gravels, which give rise to acid, freely draining and light soils favoured by heather, gorse, bracken, oak and birch. Open heathland has decreased significantly over the last century as a result of scrub and secondary woodland encroachment, and conifer plantations. There is a variety of colour in autumn: the heathers flower in purple, while the broadleaved trees and bracken turn yellow, red and brown. Plantations of evergreens provide year-round colour and shelter. Further diversity is provided by acid grassland and wet conditions, giving rise to bog, wet heathland, streams and ponds. Dragonflies, such as the rare brilliant emerald and the ruddy darter, hunt around the heaths and woods. Farmland is minimal, as soils are poor for any use other than rough pasture. Across the NCA, Grade 1 and 2 soils account for only 6,600 ha; Grade 3 soils make up 40 per cent of the area (47,700 ha).

Major river valleys cut down to the London Clay to define a large eastern plateau and several smaller plateaux in the west. Into these main valleys, minor streams drain off the plateau slopes – often in steep 'gulleys' which, in places such as



Wet and dry habitats are found across the area. Valley bogs support plants such as the carnivorous round-leaved sundew.

Greenham Common, support wet alder woodland and county rarities. The Loddon – and its tributaries the Blackwater, Whitewater and Hart – drains the central area, while the Kennet and its tributaries (including the Enborne) flow in the east. The wide clay flood plains support mixed agriculture, while the localised fertile soils based on alluvium are cultivated or provide lush pasture. A few neutral grassland meadows remain, such as Briff Lane Meadows Site of Special Scientific Interest (SSSI), and Stanford End Mill and River Loddon SSSI. Historic mills survive in places along the rivers. Ecologically rich wet woodland, reedbed, marsh and ditches are found in the NCA; these are most extensive in the Kennet Valley, where Thatcham Reedbeds SSSI is the largest inland reedbed complex in southern England. Several sites supporting Desmoulin's whorl snail are conserved as part of the Kennet and Lambourn Flood Plain SAC. The Blackwater, coursing over alluvial and Tertiary deposits, is surrounded by urban development for much of its length; associated with this, much of its channel is engineered and high phosphate levels have been recorded<sup>4</sup>. However, a narrow corridor incorporates a string of wet alder woodlands, marsh and wet acid grasslands in the Blackwater Valley SSSI. Wet acid habitats are also found in the Hart catchment.

Aggregate extraction takes place along both the Kennet and Blackwater and is distributed across England. Old workings have been restored to include open water and reedbed, with some lakes managed for angling and watersports.

In the far west, the upper reaches of the Kennet (and also the Lambourn and Pang) cut down to the Chalk of the Berkshire and Marlborough Downs dip slope. The chalk of the Hampshire Downs in the south gives rise to springs at the foot of a north-facing escarpment rising up to 297 m at Walbury Hill. Along this escarpment, there are species-rich chalk grasslands, hanging woodlands, parklands, historic monuments and springline villages such as Kingsclere. These downland areas are designated as nationally significant landscapes as part of the North Wessex Downs AONB.

Farmsteads and villages are densely scattered across the western plateaux and valleys, and major settlement is restricted to Newbury and Thatcham – from which major A roads radiate. Winding lanes traverse an enclosed countryside of small-scale patchworks of hedged fields, often with oak trees and woodlands. Typically, the woods are small, with semi-natural oak and birch on ancient sites: Pamber Forest is the largest example, but there is also a rich concentration in the Pang Valley. There are relatively large conifer plantations on former heathland and common on the plateau around Mortimer. There are public rights of way across farmland and numerous commons near to settlements, including large heathlands and woods at Greenham, Snelsmore and Newtown. Commoners rarely practise their rights, and so management falls to landowners and conservation organisations.

In contrast to the west, the east comprises considerable modern development juxtaposed with undulating expanses of heathland, woodland and plantations. Non-native trees and rhododendron are distinctive in this area. Three large heathland and woodland SSSI – averaging nearly 1,500 ha each – dominate the countryside. This core of semi-natural habitat is significant, considering the area's proximity to London, and the density of settlement and predominance of agriculture in south-east England. Internationally important populations of woodlark, nightjar and Dartford warbler breed in the area. Their habitat is protected by the Thames Basin Heaths SPA, which covers 13 sites.

Public access to large areas of heathland and plantation around Camberley is permissive, and is subject to Ministry of Defence requirements. In contrast, in places such as Bracknell Forest and on smaller historic commons, visitors are encouraged by car parks, signage and education. Chobham Common covers 513 ha, and is the largest NNR in the south-east. Such areas offer experiences of far-reaching views, nature and tranquillity.

<sup>4</sup> *Water for life and livelihoods: River Basin Management Plan, Thames River Basin District*, Environment Agency (2009; URL: [www.environment-agency.gov.uk/research/planning/125035.aspx](http://www.environment-agency.gov.uk/research/planning/125035.aspx)) (2000; URL: <http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm>)



Recreation opportunities are numerous, including large heathlands and plantation woodlands near to major settlements.

Such recreational opportunities are available to a large local population, but visitors need to be managed in order to avoid disturbing breeding birds (such as woodlark), and problems such as arson and vandalism. Large and dense conurbations (including Aldershot, Farnborough, Camberley and Sandhurst) merge along the Blackwater and M3, lying just outside the London greenbelt.

Within the greenbelt, low-density housing – such as at Sunninghill – is characterised by large gardens. Settlements are inter-connected and linked to London by the M3 and by numerous, typically straight A roads that dissect the areas of heathland and woodland. Roads and settlements are usually enclosed by tree belts or woodland, while rhododendron is a frequent non-native. Leisure land uses are dominant near to settlements, and include horse paddocks, country parks, garden centres, ‘hobby farms’ and golf courses – including championship venues such as Wentworth. Mansions and the grounds of large, historic estates create a sense of prestige across the NCA, and include well-known names such as Virginia Water and Highclere Castle – both of which are open to the public. These parklands contain veteran trees and remnant wood pasture from the historic royal forests.

## The landscape through time

The oldest exposed rock in the Thames Basin Heaths NCA is the Chalk, which was deposited in tropical seas during the Cretaceous Period 95 to 65 million years ago. In the subsequent Tertiary Era (64 to 2 million years ago), a series of sands and mudstones were deposited on the Chalk. The Reading Beds are the oldest surviving sediments from the Tertiary in this NCA, and were deposited by ancient river systems. The London Clay was laid down when the London Basin was flooded by the sea. The youngest Tertiary sediments are the Bagshot, Barton and Bracklesham Beds, lying at the top of the succession. Around 40 million years ago, the Chalk was also subject to massive earth movements; these folded the bedrock to create the syncline or depressed area of the London Basin. During the Quaternary, rivers cut down into the Tertiary sediments to create valleys and deposited material over the last two million years. Heather grew among the tundra vegetation.

The Thames and its tributaries were a focus for prehistoric humans, with a move into upper valleys and downland occurring later. Stone tools suggest that humans were present around 500,000 years ago. Neolithic and bronze-age barrows and iron-age hill forts are found at vantage points across the area, and flint artefacts have also been found.

Many prehistoric monuments lie in a heathland setting, which itself originated in prehistory. Heathland evolved following woodland clearances, carried out by humans to attract grazing animals and allow cultivation. The freely draining soils, being exposed to the leaching effects of rain, became increasingly acidic, developed iron pans and generally declined in fertility. The marginal agricultural potential of these soils has since shaped its land use. Heathers dominate on these soils, and trees such as birch and oak grow where they have not been checked by either grazing animals or human intervention.

By the end of the 1st century AD, the civitas capital of Calleva Atrebatum (near the modern town of Silchester) had been established. Roman roads radiated out from Calleva, and there were Roman villas and farmsteads across the area. A local tile industry exploited the clay. Grim's Ditch, a linear earthwork running along the higher ground between Calleva and the River Kennet, suggests that there were attempts to define and protect the territory, but the settlement had become marginalised by the 5th century.

Piecemeal woodland clearance produced small, irregularly shaped fields or assarts for farming. Farms were small and scattered across these agriculturally poor soils, giving rise to a high density of farmsteads. Where soils were difficult to cultivate – such as on the clays in north Hampshire – woodland was retained and managed for timber, coppice products and wood pasture under a similar economy to that of the New Forest. Coppicing and other woodland activities were undertaken to supplement farming, and many woods remain today (as ancient woodland sites).

The mosaic of heathland, woodland, wetland and grassland was ideal for hunting and, following the Norman conquest, areas around Pamber, Eversley and Bagshot were designated as 'royal forest', discouraging settlement. Windsor Forest also lies nearby, to the north-east. These royal parks later evolved into large parks and estates, including Stratfield Saye, Dogmersfield and The Vyne. The area covered by historic parkland in this NCA used to be nationally significant (7 per cent of the NCA in 1918), but by 1995 it had halved due to conversion to arable and other land uses.

The medieval market towns providing for the dispersed farms and hamlets included Newbury, Odiham, Kingsclere and Reading. Some developed from Saxon royal estate centres, while others (such as Newbury) were planned 'new towns'.

Settlements developed around commons from the 16th century onwards. Commoners would have used the common for grazing animals, coppicing trees for firewood, digging sand and clay for brick making, and so on. Other than the farmstead, relatively few early buildings survive; by their nature, they were usually small and poorly built, and so were likely to be replaced over time. Excavation pits and tracks are still evident today.



Historic monuments include remains of the Roman city of Calleva.

By the 18th and 19th centuries, most buildings were constructed using brick and tile made by the flourishing local industry. Earlier timber frames were often encased or fronted with brick. There are some important examples of 16th- and 17th-century brick barns in this NCA.

Historically, farming followed a sheep–corn system, but arable production was restricted to the valley floors, such as along the Loddon and Foudry. In the east, mutton and lambs were supplied to London markets rather than wool. Livestock farming involved rough grazing on heathland and other rough pastures, while cattle were grazed on the fertile but wet pastures of the Kennet Valley for fattening and dairy. There were water meadows and mills along rivers such as the Kennet and Wey. Over time, agricultural production drove the re-organisation of field boundaries and enclosure, although historic field systems do remain in places. Original assarts were, in most cases, re-organised; where soils were suitable for arable, fields were enclosed to create medium-sized spaces. There were few open fields to be enclosed by Parliamentary Enclosure Acts in this NCA.

Trade links with London and other markets strengthened on the opening of the River Wey Navigation in 1653. This preceded the so-called Canal Age by 100 years, with the Kennet and Avon Canal and Basingstoke Canal both coming later.

As livestock grazing on heathland areas declined, other uses for them were being sought. Up to the 18th century, this marginal land constituted one of the largest and most continuous areas of lowland heathland in England. The uninhabited, undulating heathland areas have long attracted military uses. The large bases of Aldershot and Farnborough, in the east, have their origins in early military camps, while Greenham and Aldermaston, in the west, were 20th-century wartime airfields. Forces land uses have prevented urban development on large areas of heathland and woodland.

Other changes of use led to fragmentation and a reduction in area of unenclosed heathland. Large blocks of conifers were planted for timber production and, in the east, the acid soils attracted commercial nurseries specialising in rhododendron. In the 19th century large estates enclosed heathland to be managed as farmland. The rapid growth of London – and heathland’s perceived scenic qualities – gave rise to residential development in the east from the 18th century onwards. Park estates, modest country houses and villages grew up, as well as golf courses. Since the mid-19th century, residential development has been intensive in the east, creating large towns such as Ascot, Camberley, Farnborough and Woking.

In the east, the particular focus for development continues to the present day, and construction has been driving almost continuous mineral extraction in the Kennet and Blackwater valleys<sup>5</sup>. Neglect of traditional features such as boundaries, pasture and historic farm buildings was evident in the 1990s. The designation of the Thames Basin Heaths SPA in 2005 has stimulated the creation of new public green spaces, and the improvement of visitor management in the SPA and surrounding area. In recent years, landowners (including the Ministry of Defence) have carried out conservation management of heathland and woodland areas, including scrub clearance and fire prevention measures. A well-known example is the restoration of heathland (from conifer plantation) at Farnham Heath, which began in 2002 and led to the re-introduction of sand lizards at the site in 2012.

<sup>5</sup> *Replacement minerals local plan for Berkshire*, Joint Strategic Planning Unit (2001; URL: <http://static.slough.gov.uk/downloads/Berks-Joint-Replacement-Minerals-Local-Plan-2001-Part-1.pdf>)

## Ecosystem services

The Thames Basin 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 Thames Basin Heaths NCA is contained in the 'Analysis' section of this document.

### Provisioning services (food, fibre and water supply)

- **Timber provision:** Nearly a quarter (or 30,000 ha) of the NCA is wooded and, of this area, 6,500 ha is conifer plantation. There are large, long-established plantations managed to produce timber. Environmentally sustainable timber production is being developed by landowners including the Crown Estate, Forest Enterprise England and others.



With a quarter of the NCA being wooded, there is considerable timber potential.

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

- **Regulating water flow:** Across the NCA, there are settlements in the flood zone. The greatest flood risk is around Weybridge (on both the Wey and Thames), where there is a moderate to high risk. On the clay flood plains, there is potential for rapid run-off and consequent flash flooding. Woodland, hedgerows and grassed areas in the flood plains and on the valley sides help to slow run-off, while floodwater storage is provided by flood plain farmland and wetland habitats (including wet woodlands and reedbeds in the Kennet Valley). In contrast, the chalk geology in the west facilitates infiltration, while base flow in the chalk watercourses responds slowly to storm and drought events. Historically low groundwater levels in the Chalk have dictated low flow in these watercourses, but flooding is still possible. In the east, large settlements comprise extensive areas of impermeable surfaces, culverts and drainage, which facilitate rapid flow; where water is impeded, this can give rise to the flooding of urban and rural land. Sewage treatment works supplement flows as they pass through settlements, for example at Blackwater. Sustainable urban drainage systems manage the water and pollutants associated with new developments and roads.

### Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** Within the context of south-east and its proximity to west London, this NCA is significant for its large areas of informal greenspace – heathland and woodland supporting international biodiversity interest – and its variety of recreational opportunities, accessible thanks to the major road network. There is a well-recognised wartime heritage associated with Aldermaston, Aldershot and Greenham. Woodland is a dominant feature of the NCA, with nearly a quarter of it being wooded (this includes large conifer plantations).

- **Recreation:** The area of formal and informal greenspace is considerable in the east, offering a wide range of opportunities to the large conurbations around Camberley – and also to visitors from further afield, with major road links such as the M3 link to west London. Around 9 per cent of the NCA (or 10,000 ha) is accessible to the public; much of this is woodland and heathland, including common land, where visitors can enjoy a range of wildlife. There are further rights-of-way routes in the wider countryside. Water-filled gravel pits, canals and rivers allow for fishing and boating. Private estates and local authorities across the NCA manage green spaces, with facilities and activities (including cafes, visitor centres and school visits) catering for tourists.
- **Biodiversity:** A large part of this NCA is protected for its habitat and species interest: features range from chalk river and reedbed to ancient woodland and acid grassland. A complex of sites totalling an area of 8,500 ha (or 7 per cent of the NCA) incorporates the South West London Waterbodies SPA and Ramsar site; the Thames Basin Heaths SPA; the Thursley, Ash, Pirbright and Chobham SAC; the Kennet Valley Alderwoods SAC; and the Kennet and Lambourn Flood Plain SAC. Around 11,000 ha of the NCA are designated as SSSI, and another 12,000 ha are covered by Local Wildlife Site designations. The area is readily associated with woodlands, while visitors to the heathlands can enjoy flowering heather, dragonflies and ‘churring’ nightjars.
- **Geodiversity:** Sands and gravels are distinctive of this landscape, and are made prominent along heathland public access routes. They are also evident in the long-established and ongoing presence of the aggregates industry, as it works or restores extraction sites. The local town of Bagshot gave its name to the Tertiary strata known as the Bagshot Beds. In the west, the escarpment of the Hampshire Downs incorporates the highest chalk hill in the country, and is part of the North Wessex Downs AONB. Historic buildings are constructed from brick and tile, made from locally quarried aggregates and clay.



Recreation opportunities are numerous, including guided walks. Green spaces are made accessible by a major road network and close proximity to large settlements.

## Statements of Environmental Opportunity

**SEO 1: At a catchment scale, manage and create woodlands, highway verges, field margins, reedbeds and other features in urban and rural settings to intercept run-off and to filter pollutants. In the heavily developed flood plains of the Blackwater and Thames, adapt the urban environment to manage floodwaters, and restore or enhance modified watercourses.**

**For example, by:**

- Making reference to Catchment Flood Management Plans, the Water Framework Directive (WFD), green infrastructure strategies and restoration plans for aggregate extraction areas.
- Restoring flood plain function wherever possible, allowing natural fluvial processes to operate and geomorphological features to evolve. Working with landowners to identify opportunities for floodwater storage and restoration, or to create features such as wet woodlands, scrapes and wet meadow. For highly modified stretches of river (and where natural fluvial processes are unviable, such as in heavily developed areas), seeking to realise storage and biodiversity benefits through engineered solutions: these could include sustainable urban drainage systems and channels with high flow capacity. Working with property owners in the urban environment to identify locations for improved sustainable urban drainage systems and floodwater storage.
- Across all catchments – but particularly where surface waters and groundwaters are of poor quality – addressing sources of pollution, intercepting pollutants and run-off, and protecting watercourses, in line with the WFD. New and existing features (such as hedgerows, field margins, woodlands, routeways and buffer strips) can be managed as interceptors. These features should also protect against soil erosion and reinforce field patterns so as to maintain biodiversity and the sense of place. Encouraging low-intensity farming practices, particularly where groundwater levels can be high (in terms of chemical use, and also vehicle and livestock movements). Protecting natural resources, for example fencing off livestock to reduce bank erosion.
- Supporting farmers, residents and businesses to harvest rainwater in order to reduce run-off and improve water availability – both within and outside the NCA.
- Identifying historic features that are modifying natural fluvial processes – particularly those that are either contributing to flooding or preventing fish from migrating upstream. Seeking solutions that conserve historic features, such as mill leats and bridges. Exploring the potential for historic water meadows and ditches to be restored, so that they help with floodwater storage and flow management.
- Engaging urban residents, developers, planners, sewage and water companies in devising solutions to address the problems of unsustainable water consumption, flooding and water pollution. Raising awareness of the pollution and flooding that can be the result of poorly designed drainage.

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**SEO 1: At a catchment scale, manage and create woodlands, highway verges, field margins, reedbeds and other features in urban and rural settings to intercept run-off and to filter pollutants. In the heavily developed flood plains of the Blackwater and Thames, adapt the urban environment to manage floodwaters, and restore or enhance modified watercourses.**

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- Designing buildings, roads, urban green spaces and other spaces to manage and store water and pollutants. Providing floodwater storage where appropriate. (This is particularly relevant in the Blackwater Valley, much of which is developed.) Working with planners and developers to build sustainable urban drainage systems.
- Identifying those green spaces where flooding will be detrimental to other ecosystem services, and managing these negative impacts. For example, species-rich swards may suffer from the presence of pollutants and from long-term waterlogging; in addition, safe public access to popular green spaces should be restricted during flood events.

**SEO 2: Maximise the variety of ecosystem services delivered by wooded features – from wet woodlands in the Kennet Valley to the large conifer plantations around Camberley and new woodlands. Conserve soils, water, biodiversity and the sense of place and history; enhance timber and biomass production; and provide for recreation and tranquillity as appropriate.**

**For example, by:**

- Making reference to local Forest Design Plans, green infrastructure strategies, biodiversity strategies and wood fuel strategies.
- Conserving ancient woodlands, historic wooded boundaries, ancient trees and other wooded features that are valued by the public. This will help to maintain a sense of place and history, and to conserve relatively undisturbed soils, carbon stores and biodiversity.
- Restoring native species at ancient woodland sites planted with non-native tree species. Managing restored ancient woodlands to provide habitat for native wildlife, to increase resilience to climate change and, where appropriate, to produce timber and store carbon. Prioritising the restoration of plantations where other features or ecosystem services will benefit such as historic monuments and features.
- Raising awareness among both landowners and the public of the distribution and species composition of woodland now, in the past and in the future. This could inform future plans for new woodlands, help to secure woodland-related ecosystem services, and also aid the restoration of ancient woodlands and former open landscapes (including commons).
- Securing a wooded landscape that is resilient to future climate change, and which can continue to deliver ecosystem services (including biodiversity value, carbon storage and timber provision). Protecting woodlands against fire, and monitoring the impact of climate change on them. Securing diversity in the wooded landscape, in terms of age, structure, silvicultural system, genetic stock, and conserving any native genetic stock that is particular to the area's ancient semi-natural woodlands.

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- Acknowledging the role played by both native and non-native conifer species in this area's landscape character, history and ecosystem service delivery; managing established trees and woodlands accordingly. When re-stocking or planting new woodlands in places where the conservation of wildlife is an objective, planting tree species that will provide a suitable habitat. In the case of heathland birds such as woodlark and nightjar (which require open ground), selecting the least invasive species and those which produce leaf litter that is conducive to conserving heathland soils.
- As appropriate, locating new woodlands, hedgerows and hedgerow trees to reflect historic distribution patterns – particularly where this strengthens the sense of history around historic hunting forests and parklands.
- Avoiding tree planting where soils are relatively undisturbed, since any carbon gains may not compensate for the carbon lost through soil disturbance.
- Working at a landscape scale to adapt and create new wet woodlands along watercourses particularly where it will benefit the Kennet Valley Alderwoods Special Area of Conservation (SAC) and the Kennet and Lambourn Flood Plain SAC, and where it will assist in reducing flood risk to properties. This will maximise any opportunities around biodiversity, regulation of water flow and quality, climate regulation and regulation of soil quality.
- Supporting skills, markets and innovation around forestry products derived from native tree species and around coppice management; this will encourage the management of native (hardwood) woodlands and the use of the products of heathland clearance and coppicing. Bringing woodland owners and managers together to share best practice. Continuing to encourage the wood fuel market as a driver for woodland management, ensuring that it is done in a sustainable way.
- Improving the resilience of all trees and woodlands, including in the Kennet Valley Alderwoods SAC, to pests and diseases to help to secure the long-term future of productive, attractive and ecologically rich woodland in this landscape. Checking for pests and diseases, and dealing with them when they arise. Avoiding any large new single-species plantations that are vulnerable to widespread damage and loss, and adapting existing plantations to increase diversity in terms of age and genetic stock. Conserving self-seeded trees (such as uncloned trees and trees of local provenance) – particularly those in long-established woodlands – for their genetic diversity, which improves resilience to pests and diseases. Working at a landscape scale with woodland managers and owners to manage pests and diseases. Managing woodlands and hedgerows as an inter-connected network in order to secure management and economic efficiencies, but also to provide a functioning ecological network that is resilient to climate change.
- Managing woodlands and other wooded features within the wider context of a mosaic and ecological network of multiple habitat types. Accounting for the needs of species that require a mosaic of habitats, live on the edges of habitats or in ecotones, or in movement corridors. In doing so, catering particularly for declining species (such as willow warbler) and building an ecological network that is resilient to climate change. Across the heathland-woodland mosaic, managing for birds from Special Protection Areas (SPA) – both within and beyond the sites designated as SPA.

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- As part of ensuring structural diversity in woodlands, aiming to provide adequate temporary and permanent open space in woodlands, as well as scrubby or ‘succession’ areas that can provide a suitable habitat for wildlife. This will require the management of grazing and browsing animals, in particular deer. (The particular open-ground requirements of SPA bird species such as the woodlark and nightjar should be accommodated where relevant.)
- Managing the succession of open ground to woodland, and scrub and trees through coppicing in order to provide for a range of wildlife – particularly declining species such as the lesser redpoll and willow tit. Drawing on past experience in the SPA and elsewhere and also exploring new ideas to ensure the most appropriate management for wildlife. Avoiding variations on continuous-cover forestry or any other silvicultural systems that do not provide a woodland structure that will adequately sustain the populations of target species<sup>6</sup>. Where woodland clearance is being carried out to restore open habitats or to achieve other objectives, aiming to achieve the best possible timber or biomass harvest from that woodland.
- Carrying out compensatory planting in appropriate locations in order to conserve the wooded character of this NCA, and to maintain the ecosystem services delivered by the woodland.
- Monitoring, controlling and, where appropriate, removing non-native ground flora and shrubs within all woodlands. Assessing the distribution of rhododendron and considering (on a site-by-site basis) where it might be most appropriately conserved or removed. This decision should take into account the role played by the shrub in landscape character and in the area’s history.
- Working at a landscape scale to manage the deer population. For example, carrying out measures to address unsustainable browsing pressure, economic tree and woodland protection, road accidents and public perceptions.
- Managing rides to provide habitat and movement corridors for wildlife (such as butterflies and heathland birds) both within and beyond the woodland. Working at a landscape scale to ensure that rides provide connectivity between woodlands and other habitats in the mosaic. Managing rides to maximise the ‘edge’ habitat, which caters for a wide range of species.
- Managing rides for the benefit of public access, and of timber and biomass production.
- Managing and, where appropriate, planting trees to screen eyesores and to improve tranquillity. Selecting tree species and designing these buffers in ways that positively contribute to landscape character, and that provide additional ecosystem services (such as biodiversity and regulation of water quality).
- Carrying out tree felling on a rotational basis, ensuring ongoing structural diversity and continuous habitat provision for species using the woodland. Designing compartments and felling activities to minimise soil erosion.

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<sup>6</sup> An assessment of the likely impact of the increased use of continuous-cover forestry in the UK on priority bird species, RSPB (2003)

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- Identifying the different ways in which woodlands or wooded landscapes (such as hedged farmland) can offer positive visitor experiences, including tranquillity. Addressing these perceptions in order to enhance the benefits for recreation and sense of place, particularly in relation to popular visitor destinations.
- Where public access is possible, designing new woodlands and managing existing woodlands to sustainably meet the recreation needs of the local population. Catering for a range of recreation activities, such as walking, cycling and orienteering. Ensuring that woodland contributes positively to the wider network of publicly accessible green infrastructure. Drawing on best-practice examples of visitor facilities that might be appropriate in various settings, from formal to informal greenspace.

**SEO 3: Enhance the sense of history and biodiversity by conserving, restoring and building the resilience of long-established habitats such as heathland, ancient woodland and meadows, and of archaeology such as hill forts. Work at a landscape scale to conserve and restore key attributes of the historic hunting forests (such as Eversley) and historic common land. Engage the public in enjoying this heritage.**

**For example, by:**

- Drawing on, for example Landscape Character Assessments, Historic Environment Characterisation work, green infrastructure strategies and biodiversity strategies, to understand and manage existing and historic mosaics of land use and habitat.
- Improving understanding of the current and historic habitat and land use across the NCA – from mosaics within parklands to mosaics across river-valley farmland. Building understanding around how people and wildlife use these mosaics, and seeking to conserve this function – particularly in relation to recreation and to notable species such as the Dartford warbler.
- Improving understanding of the archaeology across the NCA, to inform land management and public engagement. Identifying archaeology that is important at a local level and which contributes to the sense of place.
- Identifying the core areas and major links that function as an ecological network across mosaics of historic habitat, including the large commons, large heathlands, large woodlands, wetlands along river corridors and tight mosaics of ancient woods and hedgerows. Identifying the long-established elements that have historic and landscape interest, and which generate a sense of history and place (for example prehistoric monuments on common land, ancient boundaries, historic routeways and historic buildings).

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- Maintaining and conserving the heterogeneity of habitats, in order to ensure resilience to pests and diseases. (Heterogeneity can apply to genetic material, spatial configuration of mosaics, and routes for the spread of pests and diseases.) Identifying the rapid routes and high-risk areas for pests and disease transmission, for example watercourses and the urban fringe.
- Focusing conservation and enhancement efforts on long-established habitats and mosaics that are publicly accessible and which deliver a range of ecosystem services, including those found on common land, in parklands and in the relicts of historic royal hunting forests (Eversley, Bagshot, Windsor and Pamber). Conserving the patchwork of ancient hedgerows, historic routes, historic boundary patterns, historic meadows, veteran trees, ancient woodlands, long-established permanent pasture and long-established arable fields.
- Encouraging local communities and visitors to engage with the landscape through a high-quality public access network, interpretation and education. Focusing this engagement on areas where mosaics and archaeology are resilient to visitor pressure and are diverse, on areas near to settlements or major roads, and on areas that are accessible to a range of user groups. Enhancing accessibility as necessary to increase this engagement.
- Assessing the most beneficial balance (both for now and for the future) between wooded and open habitats – particularly in relation to open heathland, which has historically declined in extent due to increasing woodland cover (as a result of natural succession and plantations). Exploring the potential for creating and restoring habitats or land uses where this will enhance the mosaic or ecosystem service delivery. Focusing the reduction of woodland cover on areas where the negative impact on other ecosystem services (such as timber production, biomass and recreation) is not significant, such as failing plantations, woodlands where there is no public access or secondary woodland on former heathland. Securing compensatory planting to ensure that woodland clearance does not diminish the total resource, and to maintain woodland-related ecosystem services.
- Maintaining and increasing the capacity for dynamic change over time within mosaics, allowing space for wet and dry habitats to undergo phases of succession and loss through natural disaster (including fire and flood). Incorporating features such as fire breaks and flood storage areas to manage negative impacts.
- Engaging and working with local communities and visitors to understand how the landscape has evolved, and to manage any future change in partnership with stakeholders. This is relevant to tree removal for the restoration of historic open habitats.

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- Managing and designing mosaics to incorporate features that will regulate water quality, water flow, soil quality and soil erosion – these features might include grass buffers, uncultivated slopes or wet woodland. Drawing on best practice developed by catchment sensitive farming projects.
- Supporting land uses and land management practices that restore and maintain open habitats, as well as archaeology and traditional features. Seeking new, innovative solutions where traditional management is not viable. Trialling community approaches on common land, such as community-owned herds of grazing livestock, machinery rings and volunteer work parties. On private land, developing commercial solutions around local products and sustainable tourism and leisure.
- Conserving Registered Parks and Gardens so that none is on the Heritage at Risk register held by English Heritage. Encouraging the appropriate conservation management of parks that are not on the register but which are of local importance. Managing these parklands to maximise biodiversity, as well as to conserve historic features (including both built features and designed landscape features). Improving, maintaining or enhancing public access opportunities, as appropriate. Bringing managers and owners of commercial and non-commercial parklands together to share best practice.
- Conserving historic buildings; when alternative uses for these are sought, seeking to retain a functional link to the landscape surrounding them. In locations where there is a gap in provision, considering adapting buildings to meet demands from the public to enjoy the landscape, for example converting barns to education venues and visitor centres.

**SEO 4: With a focus on the Blackwater Valley, Newbury and nearby major settlements such as Reading, provide good-quality green infrastructure (incorporating commons, woodlands and restored gravel pits) to facilitate people's sustainable engagement with the local landscape. In doing so, also seek benefits for wildlife, water quality, flood amelioration and climate regulation.**

**For example, by:**

- Making reference to for example green infrastructure strategies, Rights of Way Improvement Plans. Drawing on best practice developed in the Thames Basin Heaths SPA in relation to securing environmentally sustainable recreation.
- Working across administrative boundaries to regularly review the recreation needs of and provision for both local populations and visitors, particularly in light of residential development proposals. Considering all types of accessible greenspace and conserving the range of provision – small, large, informal, formal, commercial and non-commercial (for example golf courses, playgrounds, commons, woodlands, country parks, restored gravel pits and private estates that are open to the public). Addressing any gaps in provision – including quality and range of greenspace – through various mechanisms including securing greenspace alongside new residential development.
- For different types of accessible green spaces, identifying those that are fragile and/or are suffering because of unsustainable recreation, as well as where the visitor experience needs improvement. Fragile features may include wet heath, historic monuments, eroded soils and open habitats used by breeding ground-nesting birds. Targeting visitor management and land management at these fragile and degrading sites, and securing and then encouraging the use of appropriate alternative greenspace. Where necessary, securing appropriate alternative greenspace; increasing the capacity of green spaces to withstand current and future visitor pressure, and to meet visitor needs. Drawing on best practice developed for the Thames Basin Heaths SPA.
- In all accessible green spaces and on access routes, providing appropriate visitor information and interpretation to enable users to understand and conserve the landscape. Where physical signs would have a negative impact on informal, 'untouched' heathlands and meadows, minimising the use of these – or using online interpretation and information instead.
- Positioning common land as the historic and ongoing focus for community engagement with the landscape. Encouraging local communities, existing commoners and visitors to be involved with the management and future of common land. Supporting volunteers in managing visitors, recording wildlife, carrying out scrub management, and other conservation activities. To reinforce the sense of place and history, conserving historic features, restoring land to its historic extent where possible, and continuing or reviving traditional activities (including grazing livestock). Drawing on best practice developed at Greenham and Crookham Commons Site of Special Scientific Interest.
- Managing rides and glades in publicly accessible woodlands to deliver benefits for nature conservation, pest and disease regulation, and recreation.
- Focusing visitor numbers on the woodlands that are most resilient to visitor pressure, such as the large conifer plantations. Identifying and conserving historic features in all woodlands for the benefit of visitors and the sense of history. Engaging people in discussions about timber production and woodland management to ensure that stakeholders are informed about and prepared for potential change.

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**SEO 4: With a focus on the Blackwater Valley, Newbury and nearby major settlements such as Reading, provide good-quality green infrastructure (incorporating commons, woodlands and restored gravel pits) to facilitate people's sustainable engagement with the local landscape. In doing so, also seek benefits for wildlife, water quality, flood amelioration and climate regulation.**

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- Identifying gaps in the network of public access routes linking green spaces to each other, and linking them to settlements and major roads. Addressing these gaps, particularly those relating to popular green spaces that are near to settlements or near areas suffering socio-economic deprivation. Designing and managing these access routes and green spaces to make up a high-quality public access network and a resilient ecological network, bringing the urban and rural environments together.
- Encouraging the sharing of information and best practice between managers of all types of accessible green spaces and access routes and also with visitors so they can enjoy and benefit from recreational opportunities across the whole NCA. Developing a common approach to managing visitor pressure and behaviour, and securing minimum standards for accessibility. Providing education around responsible visitor behaviour (for example fire prevention, responsible dog walking in areas where ground-nesting birds breed and responsible behaviour around grazing livestock).
- Where green spaces are associated with little-disturbed soils – as on heathlands and in ancient semi-natural woodland – managing recreational activities to maintain soil quality (avoiding disturbance, compaction, erosion, and so on). The conservation of soil quality will also maintain carbon stores and assist in the filtration of water to minimise rapid run-off.
- Identifying the accessible green spaces that can assist in the management of floodwaters. Designing and managing green spaces to accommodate floodwaters in a way that minimises any negative impact on the delivery of other ecosystem services (such as recreation and biodiversity). Using green spaces to engage visitors in flooding issues.
- Securing new or improved recreation where it makes the best use of 'marginal' land and there is a gap in recreation provision (often-flooded fields, urban fringe sites, wetland complexes, land awaiting extraction for aggregates or degraded pasture). Supporting landowners through the changes (in management and business terms) involved in providing recreation. Encouraging markets for these new or improved green spaces.
- Working with the aggregates industry to restore excavation sites, to enhance geodiversity and to create high-quality green spaces wherever there is a need. Improving restored sites where necessary.
- Avoiding or minimising the use of polluting substances across all green spaces. Intercepting run-off that is entering green spaces, using vegetated buffers and wetlands (such as reedbeds and wet woodland) to filter pollutants – particularly adjacent to roads and industrial sites. Providing further buffers and wetlands adjacent to watercourses, species-rich ditches and waterbodies such as small ponds. Maintaining buffers and wetlands to ensure that they function effectively over the long term. Such actions will improve water quality and protect biodiversity.
- Using accessible green spaces to demonstrate climate regulation and biomass production, and adopting best practice in the management of features that deliver these services. For example, conserving wetland soils and managing wooded features to maximise carbon storage and biomass production. Supporting markets for biomass produced locally.

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- Managing publicly accessible green spaces and routes to engage people in the landscape and in the variety of ecosystem services (including water resources, geodiversity and biodiversity). Providing interpretation, volunteering and education opportunities and, where appropriate, visitor facilities. Seeking to meet recognised standards (such as the Green Flag Award) for these facilities and promoting them to the public.
- Developing innovative designs for linear infrastructure (particularly roads); these should address the problems associated with the dissection of the landscape, and also with visual and noise disturbance. Assessing where the movement of people and wildlife is impeded by roads, and providing safe, good-quality crossing points. Designing noise and visual barriers that also allow visual and physical access to the surrounding landscape, particularly in relation to popular green spaces and valued views.
- Providing sustainable travel options between settlements and the wider countryside and popular green spaces. Ensuring that non-vehicular public access routes and pavements are appropriately surfaced. Where possible (but particularly in relation to popular destinations), catering for bicycles, wheelchairs and pushchairs as well as pedestrians. Providing signage between settlements and countryside destinations, particularly along popular routes and to popular destinations.
- Drawing on historic features in the urban environment, providing interpretation and education around how the landscape (including settlements) has evolved, and around the links between urban communities and the wider landscape. In doing so, developing contemporary value and uses for historic features that will support their conservation into the future. Encouraging volunteering and other resourcing of the conservation of historic features in the urban environment and the promotion of links to the wider landscape.
- Working across administrative and ownership boundaries to provide comprehensive information about the variety of opportunities to engage with and conserve the urban environment and the wider countryside.

## Supporting document 1: Key facts and data

Area of Thames Basin Heaths National Character Area (NCA): 118,526 ha

### 1. Landscape and nature conservation designations

North Wessex Downs Area of Outstanding Natural Beauty (AONB) designation applies to 20,604 ha or 17 per cent of the total NCA area.

Management plans for the protected landscape can be found at:

- [www.northwessexdowns.org.uk/](http://www.northwessexdowns.org.uk/)

Source: Natural England (2011)

#### 1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	% of NCA
International	Ramsar	South West London Waterbodies	10	<1
European	Special Protection Area (SPA)	Thames Basin Heaths SPA; South West London Waterbodies SPA	8,299	7
	Special Area of Conservation (SAC)	Thursley, Ash, Pirbright and Chobham SAC; Kennet Valley Alderwoods SAC; Kennet and Lambourn Floodplain SAC	3,374	3

Tier	Designation	Name	Area (ha)	% of NCA
National	National Nature Reserve (NNR)	Chobham Common NNR; Castle Bottom NNR; Ashford Hill NNR	566	<1
	Site of Special Scientific Interest (SSSI)	A total of 69 sites wholly or partly within the NCA	10,842	9

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 1,150 local sites in the Thames Basin Heaths NCA covering 12,219 ha, which is 10 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](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

SSSI condition category	Area (ha)	Percentage of NCA SSSI resource
Unfavourable declining	304	3
Favourable	2,446	23
Unfavourable no change	343	3
Unfavourable recovering	7,749	72

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 ranges from 8 m above sea level to 296 m with a mean of 76 m. Low elevations are found in the east where the land slopes down into the London Basin towards the sea and also along the major river valleys.

Source: Natural England 2010

### 2.2 Landform and process

Landform is dominated by flat or gently sloping plateaux with numerous watercourses incising broad or sometimes steep-sided river valleys. At the eastern end around Woking the land falls into the depressed area of the London Basin. Other low lying areas are flood plains of the River Kennet and lower reaches of the Loddon and Blackwater. The River Kennet has a wide flood plain with a lowland river and vale character.

The Hampshire Downs chalk scarp lies at the western edge, associated with springline watercourses. Waterbodies resulting from sand and gravel extraction are strung along the River Blackwater and also River Kennet west of Newbury.

Source: London Basin Natural Area profile,  
Thames Basin Heaths Countryside Character Area description

### 2.3 Bedrock geology

In the west, Chalk emerges from beneath younger bedrock and rises up into the neighbouring NCAs as outcrops of the Chilterns, Berkshire Downs and Hampshire Downs. Chalk is unique, being deposited under specific conditions in tropical seas during the Cretaceous period.

During periods of submersion and uplift, sands and mudstones were laid down over the Chalk and contain fossils reflecting shallow marine, freshwater and terrestrial situations. Reading Beds were deposited first by ancient river systems, followed by London Clay which was formed under shallow semi-tropical seas and is exposed in the Kennet Valley. Succeeding Bagshot, Barton and Bracklesham Beds were laid down on a large coastal plain. These beds create the height of the plateaux, with the youngest bedrock being restricted to the east and concentrated around Chobham. Tertiary earth movements which created the fold of the London Basin are also illustrated in the exposures at Duncroft Farm Pit south of Newbury..

Source: London Basin Natural Area profile,  
Thames Basin Heaths Countryside Character Area description

### 2.4 Superficial deposits

Quaternary sands and gravels were deposited across the area by braided river systems flowing from ice sheets in the north. Deposits cap the plateaux, with the oldest (pre-dating the Anglian) in the west, and have been shaped into terraces by watercourses down-cutting valleys into the plateaux, for example Kennet, Blackwater and Wey. Alluvial deposits are also found following watercourses.

Source: London Basin Natural Area profile,  
Thames Basin Heaths Countryside Character Area description

## 2.5 Designated geological sites

Tier	Designation	Number
National	Geological Site of Special Scientific Interest (SSSI)	5
National	Mixed Interest SSSI	0
Local	Local Geological Sites	6

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>

## 2.6 Soils and Agricultural Land Classification

Soils are largely nutrient-poor acidic soils with a mainly light or slowly permeable character favouring forestry and pasture over arable. Arable crops indicate localised areas of more fertile loamy soils.

Source: London Basin Natural Area profile,  
Thames Basin Heaths Countryside Character Area description

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

Grade	Area (ha)	% of NCA
Grade 1	546	<1
Grade 2	6,042	5
Grade 3	47,708	40
Grade 4	19,902	17
Grade 5	685	1
Non-agricultural	28,203	24
Urban	15,441	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 and 27 types of soils).

## 3. Key water bodies and catchments

### 3.1 Major rivers/canals

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

■ Basingstoke Canal	47k m
■ Kennet and Avon Canal	29 km
■ Blackwater River	26 km
■ River Kennet	25 km
■ River Loddon	21 km
■ River Wey	17 km
■ River Whitewater	15 km
■ River Pang	13 km
■ River Mole	8 km
■ River Wey Navigation	8 km
■ River Hart	6 km
■ River Lambourn	4 km
■ River Thames	2 km
■ Desborough Channel	1 km
■ River Way	<1 km

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.**

All watercourses feed the River Thames via the Kennet, Loddon, Wey or Mole. Main rivers flow on London Clay except the Pang and the reach of the Kennet upstream of Newbury which flow over chalk.

Numerous minor watercourses drain off the plateaux in small gullies to enter river valleys below including the Kennet, Hart and Blackwater.

The Basingstoke Canal links Basingstoke to the River Thames via the Wey Navigation. The Kennet and Avon Canal links the Thames at Newbury to the Avon at Bath and was constructed alongside the River Kennet in this area.

Several waterbodies arising from mineral extraction are strung along the Blackwater and Kennet valleys.

### 3.2 Water quality

The total area of Nitrate Vulnerable Zone is 64,383 ha, 54 per cent of the NCA.

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](http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e)

## 4. Trees and woodlands

### 4.1 Total woodland cover

The NCA contains 30,847 ha of woodland (26 per cent of the total area), of which 5,778 ha (18 per cent) is ancient woodland.

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

### 4.2 Distribution and size of woodland and trees in the landscape

Woodland is a major element of landscape character, covering more than a quarter of the area as a result of the dominant acid, sandy soils making woodland a more favoured land-use choice over agriculture. Very extensive woodland cover is found in the east, with a concentration of large, predominantly conifer plantation areas between Bracknell and Aldershot. In the extensively settled east, suburban housing, roads and golf courses are surrounded by woodland. In the west, a smaller but still significant plantation area is found around Mortimer. Here

the dominant distribution pattern is an irregular patchwork of small woodlands. Woodland is associated with all the Ministry of Defence landholdings. Ancient woodland sites are limited in the east because much of the woodland is plantation or secondary woodland on commons or former heathlands. In the west, there are many ancient sites with the larger examples being near Hermitage and Pamber Heath (both replanted). Beyond the woodlands, trees are common in hedgerows and in limited areas of wood pasture and parkland. Forestry plantations are mainly coniferous, usually Scots pine and some Christmas trees. Bracken is common, with heather in open areas. Secondary and semi-natural woodland is mainly oak with birch and, in the east, rhododendron is frequent. The few valley bottom and plateau gully woodlands in the west are dominated by alder.

Source: London Basin Natural Area profile,  
Thames Basin 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	19,296	16
Coniferous	7,991	7
Mixed	1,691	1
Other	1,869	2

Source: 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	3,872	13
Planted Ancient Woodland (PAWS)	1,905	6

Source: Natural England (2004)

## 5. Boundary features and patterns

### 5.1 Boundary features

Boundaries are minimal where woodlands and heathlands dominate on the plateaux. Unenclosed landscape is unusual in south-east England. Hedgerows dominate and, near the Hampshire Downs in the west, also hedgebanks. Drainage dykes and other channels are found in the Kennet Valley. Post-and-rail fencing is common in horse-grazed fields. Hedgerows typically consist of oak, holly, ash or hazel. Bracken and gorse are present in some boundaries. Hedgerow trees are common.

Source: Thames Basin Heaths Countryside Character Area description;  
Countryside Quality Counts (2003)

### 5.2 Field patterns

Field pattern away from large urban centres is ancient with small, irregular fields and small farms. Some may originate from the original woodland clearance or 'assarting'. Medium-sized fields with slightly curving boundaries are associated with arable crops. Enclosure of common land by phased encroachment is sometimes evident.

Regular small- to medium-sized fields are associated with straight roads and areas of recent development. Small fields, often used as paddocks, are associated with urban fringes.

Heathland areas brought into cultivation, often by large estates in the 19th century, have regular fields bounded by hawthorn hedgerows.

**Source: Thames Basin 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 predominant farm types are 'other' (holdings with only horses, only grass or fodder, only fallow land or buildings, and those where there was no survey data), grazing livestock, and cereals. The number of commercial holdings dropped from 803 in 2000 to 767 in 2009. In 2009, 280 of these were involved in other types of holdings, and 260 with livestock, mostly dairy. The keeping of specialist poultry and pigs increased between 2000 and 2009.

**Source: Agricultural Census, Defra (2010)**

### 6.2 Farm size

The number of holdings declined between 2000 and 2009, in particular those holdings between 5 and 20 ha which declined from 278 to 264, 34 per cent of the total number of holdings. However, holdings larger than 100 ha increased by 9 per cent (from 114 to 1,124) between 2000 and 2009, representing 66 per cent of the total land area farmed.

**Source: Agricultural Census, Defra (2010)**

### 6.3 Farm ownership

2009: Total farm area = 51,260 ha; owned land = 34,993 ha  
2000: Total farm area = 47,166 ha; owned land = 32,200 ha

**Source: Agricultural Census, Defra (2010)**

### 6.4 Land use

The land is predominantly grass and uncropped land. In 2009, cereal crops took up 22 per cent of total land use followed by other arable crops which included crops for medicinal use, borage and crops for stock feeding. There was widespread horse grazing and very little productive arable land due to the poor soils.

**Source: Agricultural Census, Defra (2010)**

### 6.5 Livestock numbers

In 2009 there were 23,100 cattle (a decrease from 32,000 in 2000), 31,900 sheep (a decrease from 41,300 in 2000) and 6,100 pigs (a decrease from 22,900 in 2000). There were 202 commercial holdings with grazing livestock in 2009.

**Source: Agricultural Census, Defra (2010)**

### 6.6 Farm labour

The majority of holdings are run by principal farmers (900 in 2009) with few salaried managers (144 in 2009). However, both these showed declines between 2000 and 2009. During this same period the number of full time workers (726 in 2009) had increased by 29 per cent compared to part time workers (235 in 2009) which had decreased by 25 per cent. The number of casual/gang workers had increased by 54 per cent from 306 in 2000 to 472 in 2009.

**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

Recognised semi-natural habitat covers more than 11 per cent of the NCA (excluding watercourses) and is associated as much with the most densely developed areas in the east as it is with the less developed areas.

The largest areas of semi-natural habitat are all found in the east, dominated by woodland and heathland, with additional diversity provided in parklands and by small areas of grassland, fen and watercourses. There is a wide range of habitats and enhanced species richness due to the contrast between the dry habitats on the plateaux and the wet habitats on the flood plains, combined with varied geology. For example, the Basingstoke Canal and River Kennet flow over chalk and clay, while meadows on calcareous alluvial deposits support calcicole (lime-loving) species as well as the more typical plants.

Acid soils on the plateaux can support heathland and acid grassland. Heathland is predominantly in the east, with the largest tracts near Farnborough and Camberley, associated with Ministry of Defence land holdings. Smaller areas are fragmented amongst plantations and dense development including Chobham Common which is bisected by the M3. In the west, Greenham Common heathland area is by far the largest at only 27 ha. Common land across the NCA often supports small heathland areas. Dry heath, humid and wet heath are all found, often with areas of encroaching scrub or woodland, valley mires, ponds and acid grassland. Heather, gorses and grasses characterise dry heaths whilst wet heath includes cross-leaved heath, willows, mosses and purple moor grass, and humid heath includes cross-leaved heath and heath rush. Acid grassland is less species rich than neutral grassland but supports species of restricted distributions.

Woodland covers more than a quarter of the NCA but only 13 per cent exists as ancient woodland and another 6 per cent is ancient re-planted woodland. In the east, the predominance of conifer plantation on non-ancient sites means that there is limited woodland nature conservation interest. Woodland on former

heathland areas and common land is often set in a mosaic with fragments of open heathland and grassland. Ancient woodlands in the Pang Valley are recognised for their nature conservation value. Wet woodlands associated with minor streams flowing down gullies off the plateaux and in the Kennet Valley support rare plants. (See Section 4 also.)

Besides wet woodland, other wetland interest is present and has a particular focus in the west around the River Kennet catchment. The Kennet Valley supports reedbeds, meadows, water-filled gravel pits with bird interest and stretches of chalk river. Base-rich fens occur at the interface of the London Basin and the Hampshire Downs and Chilterns. Basingstoke Canal, together with associated 'flashes' and heathland, are also nationally important.

Parkland is scattered across the NCA and may support a mosaic of habitats. Highclere Park contains fen, wet woodland, wet and dry grassland and veteran trees hosting diverse lichen, mosses and invertebrates.

The eastern area is of international importance for its bird populations. Heathland supports important numbers of breeding nightjar, woodlark and Dartford warbler. Other species include merlin, hen harrier, short-eared owl and hobby. On the eastern boundary there are a complex of internationally important feeding and roosting sites for wintering wildfowl including gadwall and shoveler around Egham.

Source: Highclere Park SSSI citation; London Basin 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	12,900	11
Lowland heathland	3,216	3
Fens	2,384	2
Coastal and flood plain grazing marsh	739	1
Lowland dry acid grassland	652	1
Lowland meadows	355	<1
Purple moor grass	92	<1
Lowland calcareous grassland	70	<1
Reedbeds	38	<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

On the edge of Greater London and including part of the M25, the eastern third is densely developed with large towns and numerous smaller settlements connected by numerous A roads and the M3. Some areas such as Ascot have low density housing permitting extensive gardens and golf courses including Wentworth. Development has been intensive and rapid in the last 50 years.

In the west, hamlets and farmsteads are scattered, but relatively densely, across the countryside with medieval market towns including Newbury, Odiham, Kingsclere and Reading. This settlement pattern is associated with small woodlands and wood pasture and was established when farmers employed a wood-pasture economy similar to that of the New Forest where they supplemented farming with coppicing or brick making. Villages are commonly linear but locally there is a clear nucleus, typically with a village green. Towns such as Newbury and Thatcham and also villages such as Burghfield have seen recent development.

Riding schools and stud farms are a feature on urban fringes.

Areas of historically open, poor agricultural land have influenced settlement patterns. Common-edge settlement patterns are found scattered. In the east, development has replaced large areas of former heathland. Military bases and large parks or estates, such as Stratfield Saye, Dogmersfield and The Vyne, developed where extensive open land was available.

Barracks, army housing, camps and exercise grounds are dominant around the military bases of Aldershot and Farnborough. In the west, Aldermaston and now-abandoned Greenham Common airbase are features..

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

## 8.2 Main settlements

The Thames Basin Heaths NCA contains the following large settlements: Ascot, Camberley, Farnborough, Woking, Newbury, Odiham, Kingsclere and Reading. These are linked by major transport routes (M3, M4, M25 and A34). The total estimated population for this NCA (derived from ONS 2001 census data) is: 768,821.

**Source: Thames Basin Heaths Countryside Character Area description; Countryside Quality Counts (2003), Natural England (2012)**

## 8.3 Local vernacular and building materials

Brick replaced timber-framed buildings as the dominant tradition in the 16th century. Farm buildings have historically been roofed with straw thatch, tile and slate.

**Source: Thames Basin Heaths Countryside Character Area description; Countryside Quality Counts (2003)**

## 9. Key historic sites and features

### 9.1 Origin of historic features

This is an important occupation area since the Mesolithic linked to exploitation of the rivers and since the 18th century, the proximity to London. Features include henges, long and round barrows, Roman settlements, sunken lanes, traces of ancient field systems and lynchets, flood meadows, waterside mills, heathlands and remnants of the early medieval hunting forests of Eversley and Bracknell.

The important remains of Silchester, the Roman civitas capital, lie north of Basingstoke.

Park estates and modest country houses were established from the 18th century to allow enjoyment of the rural scene within easy distance of London. Large parklands include Stratfield Saye, Dogmersfield and The Vyne.

Historical small farm size often meant that there was little capital to replace buildings so medieval and 16th/17th century farm buildings and moated farmsteads often survive.

Common-edge settlements typically developed from the 16th century to 19th centuries through the encroachment onto the common by squatters. Few early buildings survive although there is often a once-isolated medieval farmstead.

**Source: Thames Basin Heaths Draft Historic Profile, Thames Basin Heaths Countryside Character Area description**

### 9.2 Designated historic assets

This NCA has the following historic designations:

- 41 Registered Parks and Gardens covering 4,480 ha
- 1 Registered Battlefield covering 242 ha
- 141 Scheduled Monuments
- 3,754 Listed Buildings

**Source: Natural England (2010)**

- More information is available at the following address:

<http://www.english-heritage.org.uk/caring/heritage-at-risk/>  
<http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/>

## 10. Recreation and access

### 10.1 Public access

- 9 per cent of the NCA (10,391 ha) is classified as being publically accessible.
- There are 1,795 km of public rights of way at a density of 1.5 km per km<sup>2</sup>.
- There is 1 National Trail within the NCA; the Thames Path covers 2 km.

**Source: Natural England (2010)**

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

Access designation	Area (ha)	% of NCA
National Trust (Accessible all year)	100	<1
Common Land	3,927	3
Country Parks	361	<1
CROW Access Land (Section 4 and 16)	4,650	4
CROW Section 15	3,867	3
Village Greens	249	<1
Doorstep Greens	3	<1
Forestry Commission Walkers Welcome Grants	526	<1
Local Nature Reserves (LNRs)	999	1
Millennium Greens	1	<1
Accessible National Nature Reserves (NNRs)	572	<1
Agri-environment Scheme Access	37	<1
Woods for People	5,345	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) the Thames Basin Heaths become progressively more tranquil to the west; poor tranquillity scores are found in the east.

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

Category of tranquillity	Score
Highest value within NCA	41
Lowest value within NCA	-109
Mean value within NCA	-20

Source: CPRE (2006)

- More information is available at the following address:  
<http://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 the only areas of undisturbed land now lie to the very west of the area.

A breakdown of intrusion values for this NCA is detailed in the table below.

Category of intrusion	1960s (%)	1990s (%)	2007 (%)	% change (1960s-2007)
Disturbed	49	70	70	21
Undisturbed	44	23	13	-31
Urban	7	7	17	10

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are that in 1960 the western half of the area was largely free from intrusion which was no longer the case by 2007.

- More information is available at the following address:  
<http://www.cpre.org.uk/campaigns/planning/intrusion/our-intrusion-map-explained>

## 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%. The convention <1 has been used to denote values less than a whole unit.

## Supporting document 2: Landscape change

### Recent changes

#### Trees and woodlands

- The proportion of established, eligible National Inventory of Woodland and Trees woodland stock covered by a Woodland Grant Scheme rose from 10 per cent in 1999 to about 20 per cent in 2003. Of the woodlands on ancient sites, scheme coverage increased from 23 per cent to 33 per cent.
- Despite grant schemes during 1999 to 2003, there are areas of woodland and tree belts suffering from poor management and deer browsing, leading to decline in timber quality and woodland character and a change to the wider landscape character.
- Woodlands are increasingly being managed for wood fuel.
- Between 1999 and 2003, planting has reinforced existing patterns of woodland cover and also extended woodland cover in some areas, for example around Newbury.
- Encroachment of secondary woodland and scrub onto open heathland and downland is an ongoing, dynamic process. In the ten years prior to 2013, management efforts to clear scrub and woodland on heathland and downland has been ongoing and targeted in particular locations by agri-environment scheme agreements and other initiatives, for example Greenham Common.
- Secondary woodland cover is increasing through invasion of birch and pine across heathlands. In other areas, clearance and grazing to restore or create open habitats has reduced woodland.

#### Boundary features

- Loss/neglect of hedgerows was reported between 1999 and 2003, particularly in eastern areas. Coppiced species are becoming overgrown.
- Between 1999 and 2003, a marked increase in new horse paddocks has altered historic boundary patterns and introduced fencing.
- In 2011, there was approximately 440,000 m of hedgerow benefiting from management funded by Environmental Stewardship agreements. Around 64,000 m of ditches were also being maintained and 31,000 m of woodland boundaries.



Conifers were planted for timber on former open, grazed heathland. Non-native trees are now distinctive in the area.

## Agriculture

- The total farmed area increased between 2000 and 2009 from 47,166 ha to 51,260 ha. Grassland loss has largely ceased. During this period, grass and uncropped land accounted for approximately 50 per cent of the farmed area and cereals for around 25 per cent. There was an increase in areas managed for fruit, vegetables, other arable crops and oilseeds. Other crops such as beans, maize and borage accounted for the largest area at 3,625 ha in 2009 compared with 2,465 ha in 2000.
- Large holdings (over 100 ha) continued to dominate the farmed area between 2000 and 2009. They comprised 66 per cent of farmed area or 34,060 ha in 2009. Numbers of holdings of all farm types changed between 2000 and 2009 but the relative proportions of each type remained the same. For example, holdings classified as 'Other types' remained the dominant farm type over the period 2000 to 2009 with an increase of 22 holdings to realise a total of 280 by 2009. The number of mixed farms and dairy holdings approximately halved to 29 and 26 holdings respectively from 2000 to 2009. Cereals holdings increased by 18 to a total of 125 whilst specialist poultry increased by 6 holdings to total 19 by 2009.
- Numbers of pigs dropped dramatically between 2000 and 2009 by roughly 75 per cent to around 6,100 animals. Sheep and cattle numbers also declined to reach approximately 32,000 and 23,000 respectively. Livestock are rarely put onto marginal pasture, such as wet grassland, without incentives.
- Decline in traditional management activities has resulted in loss or dereliction of hay meadows.

## Settlement and development

- There was a high rate of change in urban areas, with evidence of expansion of urban and fringe into peri-urban around Aldershot, Fleet, Newbury and Thatcham between 2000 and 2009. Development has also taken place in the peri-urban and open countryside areas especially outside the North Wessex Downs AONB boundary in the west.
- Transport corridors have been modified between 2000 and 2009, with new roads and roundabouts introduced in some areas.
- A moderately high rate of barn conversions occurred between 1999 and 2003.

## Semi-natural habitat

- During the ten years prior to 2013, semi-natural habitats in the eastern half of this NCA have benefitted from financial and advisory support for management under Higher Level Stewardship agreements. Land managers have also been undertaking positive conservation management and investment outside of agri-environment schemes, for example the West Berkshire Living Landscape launched in 2008, the Renewal Project targeting the River Lambourn and implementation of the Thames Basin Heaths Delivery Framework since 2009.
- In 2003, uptake of agri-environment schemes was above the national average, with the most extensive options relevant to lowland pastures on neutral/acid soils (1,253 ha) and enhancing existing lowland heath (901 ha).
- Nearly 7,000 ha designated as SSSI (63 per cent of the total SSSI area) is recovering from unfavourable condition while just under 1,000 ha (almost 9 per cent) is unfavourable and declining. Since 2003, this is a positive trend as 29 per cent of SSSI area was unfavourable recovering, 28 per cent was unfavourable with no change and 24 per cent was unfavourable declining.

- In the ten years prior to 2013, heathland area and condition has been vulnerable to ongoing threats of bracken and scrub encroachment, urban edge effects, development, inappropriate behaviour by recreational users, and fragmentation. However, heathland creation and restoration work has taken place in numerous areas under agri-environment schemes and other initiatives.
- Between 1999 and 2003, veteran trees were a declining feature in parklands and farmland, in many cases without successors present. The condition of riparian alder woods in the broad river valleys had declined due to lack of management.

## Historic features

- In 2013, there were no Scheduled Monuments in this NCA on the 'At risk' register but the Registered Park and Garden at Bramshill continues to deteriorate.
- By 2013, publicly accessible historic sites have been restored, including South Hill Park near Bracknell and Odiham Castle near Hook.
- Between 1999 and 2003, many historic farm buildings became redundant and are now falling into disrepair or being converted, often to residential use.

## Rivers

- In the ten years prior to 2013, water quality in some rivers has benefited from initiatives such as the Loddon Farm Advice Project.

## Minerals

- Mineral extraction has taken place along the broad river valleys and in other areas. As a result, between 2002 and 2011, Berkshire's reserves of sands and gravels have declined<sup>7</sup>.

<sup>7</sup> *Aggregates monitoring 2011* (2013; URL: [www.wokingham.gov.uk/EasySiteWeb/GatewayLink.aspx?allId=246282](http://www.wokingham.gov.uk/EasySiteWeb/GatewayLink.aspx?allId=246282))

## Drivers of change

### Climate change

- High rainfall events concentrated in major downpours will lead to greater run-off. Flooding may become a more frequent occurrence. Pollution incidents may also increase as a result of failed drains and rapid run-off during storms. This is significant in relation to urban and rural pollution and run-off.
- Erosion during heavy rainfall events will impact on the soft sands of the plateaux. This will exacerbate erosion associated with recreational use along access routes.
- Drought will reduce water availability and flow and lead to higher concentrations of pollutants. Water quality problems in this NCA will be exacerbated.
- Drought will potentially lead to loss of veteran trees and their associated specialist species.
- A longer growing season will lead to greater vegetation growth. This has implications for the conservation of open habitats such as heathland – scrub management and clearance may become a greater challenge. Geological exposures will also be negatively affected by overgrowth.
- An increased risk of wild fires as a result of hotter, drier summers, with areas of dry heathland and grassland being particularly vulnerable. Adjacent woodlands will be under threat.

- An increased likelihood of eutrophication in lakes, with potential loss of fish spawning habitat. This will impact upon recreation and biodiversity interests associated with waterbodies.
- An alteration of species composition of lowland meadows, favouring stress tolerators and ruderals.

## Other key drivers

- Local demand for recreation and general leisure activities gives rise to a variety of leisure land uses from small to large scale, informal to formal and commercial to freely available. Visitors may expect a variety of recreation facilities that give rise to more formal and designed green spaces. It will be necessary to manage any unsustainable visitor pressure and design facilities and signage sensitively.
  - Public perceptions and preferences will influence those areas where the public enjoy recreation or any other form of connection including views such as accessible woodlands and common land. Fencing, grazing livestock and tree felling are management activities which may be opposed by some members of the public.
  - Incentives driving woodland management include grant schemes and markets for woodland products (including recreation and wood fuel in particular). There has been a decline in coppicing and pollarding leading to loss of traditional features as well as general neglect leading to a decline in timber quality. Forestry policy in relation to species composition and open habitat in relation to woodland will be particularly critical to this NCA.
- Changing silvicultural practices will give rise to opportunities and threats. Wildlife requiring open space habitat is potentially at risk from continuous cover forestry<sup>8</sup>. Deer browsing prevents or damages regenerating woodland ground flora, shrubs and trees.
  - Succession of open habitats to woodland is an ongoing process affecting the internationally designated heathlands as well as other habitats. Birch, oak and Scots pine are all invasive species on the heathlands. Support for grazing and clearance determines whether open habitats are maintained and this is largely carried out by conservation organisations funded by agri-environment schemes. There are opportunities to generate biomass from scrub and tree clearance from heathlands.
  - Availability of grazing livestock, machinery and skilled labour will influence how land is managed. In the east where farming is limited, there is reliance upon local authorities and conservation organisations to provide the necessary resources to manage non-productive land such as heathland.
  - Where a large proportion of the NCA is poor agricultural land, non-productive land such as heathland is neglected or turned to alternative uses unless there are incentives to support maintenance of the habitat and traditional management practices.
  - Requirements to avoid disturbance effects upon ground nesting birds will continue to influence visitor management approaches and development decisions in the Thames Basin Heaths SPA and elsewhere.

<sup>8</sup> *An assessment of the likely impact of the increased use of continuous-cover forestry in the UK on priority bird species, RSPB (2003)*

- The persistence of veteran trees in parklands and wood pasture will depend upon planting or natural regeneration and managing younger generations of trees as successors.
- Ongoing incentives to manage water resources and conserve the water environment will bring restoration of habitats and pollution prevention measures across catchments.
- Continued extraction and consequent restoration of aggregates sites will bring localised, phased change in the landscape. Increasing local knowledge and experience around restoration could give rise to best practice, ambitious restoration schemes. Construction will drive the demand for aggregates while historic and future planning decisions will steer changes in the landscape. There will be reserved areas for extraction that potentially fall into disuse. Recycled aggregate may potentially drive down demand for excavation.
- Common edge settlements associated with heathland landscapes are considered particularly vulnerable to change.
- Ongoing development interests will drive change, potentially increasing local populations. Growth could bring negative or unsustainable impacts upon the landscape. Planning decisions will steer modern development and this steer will potentially be towards accommodating existing historic features and reflecting traditional construction and settlement patterns.
- Incentives for the conservation of historic farm buildings and the viability of alternative uses are critical to the maintenance of these buildings in an area where traditional farming practices are in decline.
- A requirement for increasing renewable energy generation could result in wind farm and solar developments and more biomass crops including short rotation coppice.
- Research into exposures of Quaternary deposits at sites such as Brimpton Pit SSSI, increase our understanding of environmental change and may provide insights into future climate change.

## 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.



Chobham common

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	Tranquility	Recreation	Biodiversity	Geodiversity
<b>SEO 1:</b> At a catchment scale, manage and create woodlands, highway verges, field margins, reedbeds and other features in urban and rural settings to intercept run-off and to filter pollutants. In the heavily developed flood plains of the Blackwater and Thames, adapt the urban environment to manage floodwaters, and restore or enhance modified watercourses.	↔ *	↔ **	↑ ***	n/a	↔ ***	↗ ***	↑ ***	↑ ***	↗ **	↗ ***	↗ *	↗ **	n/a	↔ **	↔ **	↔ **	↔ **	↗ ***	↗ ***
<b>SEO 2:</b> Maximise the variety of ecosystem services delivered by wooded features – from wet woodlands in the Kennet Valley to the large conifer plantations around Camberley and new woodlands. Conserve soils, water, biodiversity and the sense of place and history; enhance timber and biomass production; and provide for recreation and tranquillity as appropriate.	↘ *	↑ ***	↗ **	n/a	↑ **	↗ **	↗ **	↗ ***	↗ **	↑ **	↔ **	↗ *	n/a	↑ ***	↗ **	↗ **	↑ **	↑ ***	↔ ***

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.

Dark plum = National Importance; Mid plum = Regional Importance; Light plum = Local Importance

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	Tranquility	Recreation	Biodiversity	Geodiversity
<b>SEO 3:</b> Enhance the sense of history and biodiversity by conserving, restoring and building the resilience of long-established habitats such as heathland, ancient woodland and meadows, and of archaeology such as hill forts. Work at a landscape scale to conserve and restore key attributes of the historic hunting forests (such as Eversley) and historic common land. Engage the public in enjoying this heritage.	↔ **	↗ *	↗ *	↗ *	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	n/a	↑ ***	↑ ***	↗ *	↗ *	↑ ***	↗ *
<b>SEO 4:</b> With a focus on the Blackwater Valley, Newbury and nearby major settlements such as Reading, provide good-quality green infrastructure (incorporating commons, woodlands and restored gravel pits) to facilitate people's sustainable engagement with the local landscape. In doing so, also seek benefits for wildlife, water quality, flood amelioration and climate regulation.	↔ ***	↗ *	↗ *	n/a	↗ *	↗ ***	↗ ***	↗ **	↗ **	↗ **	↔ *	↗ ***	n/a	↑ ***	↑ ***	↑ *	↑ ***	↑ **	↑ **

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.

Dark plum = National Importance; Mid plum = Regional Importance; Light plum = Local Importance

## Landscape attributes

Landscape attribute	Justification for selection
<p>Plateaux of Tertiary sands and gravels in the London Basin. The largest plateau dominates the eastern end and drops into the London Basin to incorporate the Thames flood plain.</p>	<ul style="list-style-type: none"> <li>■ The Tertiary sediments were variously deposited by rivers and seas, giving rise to a complex layering of silts, sands, gravels and clays. The area gave its name to the Bagshot Beds.</li> <li>■ Sands and gravels give rise to acidic, free-draining soils that favour heathland plants and trees such as birch and oak. These soils make for poor cultivation and rough grazing is the frequent land use in terms of agriculture. In many cases, landowners planted the heathlands with conifers to maximise the productive possibilities of these soils as per early 20th-century forestry theory. Conifers are self-seeding and encroaching onto open heathland.</li> <li>■ The entire NCA drops in altitude eastwards into the London Basin which is at its lowest near London in the east where the Thames meets the Wey and Mole and the low-lying area around Chobham is drained by numerous small watercourses.</li> </ul>
<p>Chalk edges into the area in the far west, including the escarpment of the Hampshire Downs. There are several chalk watercourses including the River Lambourn.</p>	<ul style="list-style-type: none"> <li>■ Walbury Hill is the highest chalk hill in the country at 297 m.</li> <li>■ The escarpment of the Hampshire Downs is characterised by species-rich chalk grassland, hanging woodlands, parklands and springline villages.</li> <li>■ The base of the Berkshire Downs dip slope and the Hampshire Downs escarpment lie around Newbury. This area is recognised as being a nationally important landscape by inclusion in the North Wessex Downs Area of Outstanding Natural Beauty (AONB).</li> <li>■ The Pang, Lambourn and Kennet have eroded down to the Chalk. The national importance of their ecology is recognised by SSSI designation and, in the case of the River Lambourn, European importance as an SAC.</li> </ul>

Landscape attribute	Justification for selection
<p>River valleys floored by London Clay surround the plateaux. Watercourses arise from outside the NCA but also drain the plateaux.</p>	<ul style="list-style-type: none"> <li>■ Watercourses have eroded through the overlying Tertiary deposits to reach the London Clay and shape broad valleys intervening the upstanding plateaux and lay down deposits. Minor watercourses drain down the slopes of the plateaux in steep 'gulleys' that create a rippled profile along the plateaux slopes.</li> <li>■ The Loddon catchment lies in a broad belt of London Clay in the centre of the NCA while the Kennet catchment has created sinuous valleys between several small plateaux. There are numerous minor watercourses off the plateaux and in the flood plains.</li> <li>■ The Blackwater is one of the more heavily engineered watercourses since it is surrounded by extensive settlement. It also suffers from phosphate pollution. Other rivers exhibit unmodified sections and good water quality, including the Lambourn (chalk river) and parts of the Loddon (eutrophic).</li> <li>■ Canals passing through this NCA are the Basingstoke, Wey Navigation and Kennet and Avon Canal. The River Wey Navigation exhibits engineered sections dating back to the 17th century.</li> <li>■ Wetlands include ditches, wet pasture, historic meadow, reed beds, mires, ponds and fens. Wetlands are strung along river corridors with rare neutral meadow on London Clay being present as isolated fragments. Watercourses and wetlands vary in acidity with watercourses flowing off the plateaux, such as the Blackwater, being influenced by acid geology and the watercourses on the London Clay being eutrophic.</li> <li>■ Important wetland habitats include wet pasture, flood plain meadow, reed beds, mires, ponds and fens. The most extensive semi-natural wetlands are in the Kennet Valley, including the largest reedbed in southern England at Thatcham and a complex of wet woodland designated the Kennet Valley Alderwoods SAC.</li> <li>■ The Kennet and Lambourn Floodplain SAC protects numerous areas of habitat of the Desmoulin's whorl snail.</li> <li>■ Pollarded willows and poplar avenues are found in the flood plains on the London Clay.</li> <li>■ Alluvium soils permit localised areas of arable while pasture, meadow fragments and wetlands are found in wetter areas.</li> </ul>
<p>Gravel and sand extraction along the Kennet and Blackwater where chains of numerous old pits have been restored to open water lakes and reedbed.</p>	<ul style="list-style-type: none"> <li>■ Water-filled sand and gravel pits are prominent in the Kennet and Blackwater valleys.</li> <li>■ Open water is often managed for angling and watersports. Planning authorities have sought public access in many cases. There is considerable bird and invertebrate interest associated with individual pits and also complexes.</li> </ul>

Landscape attribute	Justification for selection
<p>Large plantations and secondary woodland across former heathland including commons. Small ancient semi-natural woodlands are densely dispersed across the west, including wet woodlands.</p>	<ul style="list-style-type: none"> <li>■ Decline in grazing pressure has allowed succession of open heathland to secondary woodland of birch, oak and also conifers where plantations are nearby.</li> <li>■ Around 6 per cent of the NCA comprises conifer woodland and another 7 per cent is mixed. There are large plantations on former heathland on the eastern plateau, including Bracknell Forest for example. Heathlands were planted up in order to make productive use of the land since agriculture was marginal on these acid, leached soils.</li> <li>■ Nearly 5 per cent of the NCA is ancient woodland and this is predominantly in the west. These ancient woods may date back to the historic 'hunting forests' of Norman and perhaps Saxon times and today they lie in a small-to-medium-scale patchwork with fields and hedgerows. The largest semi-natural ancient woodland is Pamber Forest. Around 2 per cent of ancient woodland sites are planted with conifers.</li> <li>■ Wet woodlands are found in the steep 'gully' valleys draining off the plateaux as well as in the flood plains, but largely in the west. Kennet Valley Alderwoods SAC covers 54 ha.</li> <li>■ Neglected and overgrown former nurseries in the east have led to unusual woodlands which provide new and varied habitats. Rhododendron is characteristic of designed landscapes such as Virginia Water and of eastern suburbs and roadsides.</li> </ul>
<p>Trees enclose settlements and roads in the east but boundaries are absent across huge blocks of woodland and heathland which include commons. In the valleys, there is a small to medium scale patchwork of fields and woods defined by irregular, hedge boundaries and winding lanes.</p>	<ul style="list-style-type: none"> <li>■ In the past, heathlands were often managed as unenclosed common. Today there is a lack of boundaries but secondary woodland and plantations have created barriers that enclose roads and settlements and frame views.</li> <li>■ Assarting, dating back to medieval times, produced small fields with irregular hedged boundaries. Ancient field systems have rarely survived and there was re-organisation of field boundaries including some enclosure largely by agreement. Historic field patterns and hedgerows can be found across the west in the valleys. Heathland on the plateaux was enclosed by large estates in the 19th century for farmland as well as planted with conifers.</li> <li>■ More recently, horse paddocks have given rise to non-traditional boundaries and field patterns comprising fenced compartments. Rhododendron and laurel defines boundaries in suburban areas.</li> </ul>

Landscape attribute	Justification for selection
<p>Localised areas of transitional habitats and diverse mosaics with varied ecology and land use history.</p>	<ul style="list-style-type: none"> <li>■ Diverse habitats and transitional habitats are found in the valleys and across heathlands as a result of varying soil acidity, water regimes, topography and different land management across the area. Dependent fauna is consequently varied and includes rare species with unusual niches, many of them requiring open habitats.</li> <li>■ On the eastern plateau, mosaics are particularly diverse and extensive due to the large expanses of semi-natural habitat. The small-scale, historic patchwork of fields and woods in the west creates a diverse mosaic of farmland with semi-natural habitats that supports wildlife of the wider countryside as well as more unusual species linked to long-established semi-natural habitats.</li> </ul>
<p>Three large SSSI in the east comprise heaths and woods that are extensive within the context of south-east England.</p>	<ul style="list-style-type: none"> <li>■ Mosaics of acid grassland, dry heath, wet heath, valley bogs, ponds and scrub support a diversity of flora and fauna including rare dragonflies and birds such as woodlark, nightjar and Dartford warbler.</li> <li>■ Up until the 18th century, this area constituted the largest and most continuous area of lowland heathland in England and was managed as common. Plantations, urban development and enclosure for farmland reduced the heathland extent although it remains today as a significant area.</li> <li>■ Three largest heathland and woodland areas are on the eastern plateau: Broadmoor to Bagshot Woods and Heaths SSSI, Ash to Brookwood Heaths SSSI, and Colony Bog and Bagshot Heath SSSI. The latter two are designated as part of Thursley, Ash, Pribright and Chobham SAC in recognition of their European importance in addition to Chobham Common SSSI.</li> <li>■ Other areas of heathland are recognised as nationally and locally important by SSSI and Local Wildlife Site designation.</li> <li>■ Heathlands and woodlands are dissected by roads. The M3 passes through Chobham Common SSSI which is part of the Thursley, Ash, Pribright and Chobham SAC.</li> <li>■ Undulating topography and watercourses give rise to varied water regimes and aspect. This produces transitional habitats and mosaics that include bogs, ponds, streams, scrub, secondary woodland and wet and dry heaths and grasslands.</li> <li>■ The Thames Basin Heaths SPA protects habitat of woodlark, nightjar and Dartford warbler.</li> <li>■ Rare dragonflies can be found at many sites with wet features including Broadmoor to Bagshot Woods and Heaths SSSI where brilliant emerald and ruddy darter have been observed.</li> </ul>

Landscape attribute	Justification for selection
<p>Autumn is vibrant with colour; purples of heather alongside reds, yellows and browns of broadleaves. Churring nightjars and dragonflies are popularly associated with the heathlands.</p>	<ul style="list-style-type: none"> <li>■ There is widespread colour of heathers, trees and rhododendron in green spaces and surrounding settlement and roads.</li> <li>■ Birds and dragonflies are relatively easily seen on the heathlands. Conservation organisations hold events to engage people in such wildlife, with evening nightjar walks being particularly renowned.</li> </ul>
<p>Prehistoric barrows and hill forts, and historic features associated with rivers and canals. Well-known designed landscapes and also parkland, ancient woods and veteran trees are the relicts of historic 'hunting forests'.</p>	<ul style="list-style-type: none"> <li>■ The Thames and its tributaries were a focus area for prehistoric man. As a result, there are numerous prehistoric earthworks resulting from their activities including barrows and hill forts. The area offers vantage points on the slopes of the plateaux and on the Hampshire Downs that are ideal for monuments and defence structures.</li> <li>■ The royal hunting forests from Norman, if not Saxon, times include Eversley, Bagshot, Pamber and Windsor.</li> <li>■ The Thames Valley has long attracted the wealthy wanting to enjoy rural scenery within close proximity to London. This has given rise to numerous parklands in the NCA. Well known designed landscapes include Virginia Waters and Highclere Castle. Registered Parks and Gardens include Stratfield Saye, The Vyne and Dogmersfield which are a continuance of parts of the royal hunting forests.</li> <li>■ Ancient woodlands and veteran trees are present, many of which are associated with the remnants of royal hunting forests and ancient field boundaries.</li> <li>■ Mills and water meadows are found along the Wey, Loddon, Pang and Kennet. The River Wey Navigation was the first canal in the country and therefore contains historically significant engineering features.</li> <li>■ The Roman civitas capital Calleva stands as remains under grassland near Silchester. Remnants of Roman roads and Grimm's Ditch extend from this area. Roman farmsteads and villas are found across this NCA.</li> </ul>

Landscape attribute	Justification for selection
<p>Historic farmsteads and villages are densely dispersed in the west, with Newbury the only major settlement.</p>	<ul style="list-style-type: none"> <li>■ Numerous settlements have Saxon origins. Medieval farmsteads and settlements (for example Newbury, Odiham and Kingsclere) are found in the west. Some farmsteads are moated and there are historic timber-framed buildings dating back to 14th to 17th centuries.</li> <li>■ Saxon charters show that farmsteads were established on the clay of north Hampshire before the early 10th century.</li> <li>■ Military use of the heathlands in the east stimulated the development of Aldershot and Farnborough. Development in this area was significant in the later 20th century giving rise to a major change in settlement pattern whereby major conurbations are strung along the Blackwater Valley and there is a network of interconnected A roads and the M3. This development has dissected the heathlands and woodlands into blocks.</li> <li>■ Military use of the heathland in the west of the NCA gave rise to bases at Greenham and Aldermaston.</li> <li>■ In the east, just beyond the London greenbelt in which historic villages such as Chobham lie, modern conurbations such as Camberley sprawl along the Blackwater valley and M3 with numerous interconnecting A roads.</li> </ul>
<p>Locally made brick and tile are traditional construction materials. National concentration of timber-framed aisled barns.</p>	<ul style="list-style-type: none"> <li>■ Local sands and clays have allowed a local brick and tile industry. Tile making began as far back as the Roman period in Hampshire.</li> <li>■ Timber-framed buildings dominated before brick became widely available. There is a national concentration of historic timber-framed aisled barns in the downland areas.</li> </ul>

Landscape attribute	Justification for selection
<p>Commons and country parks near to settlements and rights of way provide access to farmland, rivers and canals including River Wey Navigation.</p>	<ul style="list-style-type: none"> <li>■ Commons are associated with historic settlements in the valleys as well as with some of the heathlands on the plateaux. The commons in the valleys can be very small whilst the plateaux heathlands can be extensive sites offering far-reaching views across undulating low hills of heath and wood.</li> <li>■ Large areas of heath and wood are owned by the Ministry of Defence as military training areas and, as a result, any public access is permissive and can be temporarily removed or not clearly understood. Visitors may be discouraged by military warning signs and lack of visitor facilities.</li> <li>■ The heaths and woods in the east near large conurbations and London and also in the west near Newbury provide opportunity for recreation to large local populations and represent relatively tranquil spaces.</li> <li>■ Roads dissect heaths and woods, impacting upon tranquillity in some cases. For example, the M3 passes through Chobham Common NNR.</li> <li>■ Local communities and local government manage commons since commoners rarely practice their rights which might help maintain commons. Commons are rarely grazed so secondary woodland is a feature at many.</li> <li>■ With a large urban population nearby, public green spaces are in demand and can be easily accessed by the major road network. There is provision for informal recreation at some commons with car parks and signage. Country parks and large estates also provide for visitors.</li> <li>■ The Kennet and Avon Canal, River Wey Navigation and Basingstoke Canal are managed as recreation corridors with rich natural and cultural heritage.</li> </ul>

## Landscape opportunities

- Conserve the unenclosed, historic commons, including the downlands and heathlands, for their biodiversity, archaeology and amenity value. Seek to secure grazing and scrub management to maintain open habitats in good condition. Manage and create corridors linking heathlands into a network that is resilient to climate change and wider environmental pressures, particularly taking into account the risks of fire. As a minimum, conserve the current size and contiguous distribution of the heathlands and the undeveloped attributes of these areas.
- Where possible, restore historic extents of open heathland through clearance of encroaching scrub and felling of failing or redundant plantations and secondary woodland upon former heathland. Target scrub and tree clearance upon former heathland where this will most improve the habitat mosaic, where historic extent of common land has been lost, and where historic monuments have been overcome.
- Maintain semi-natural habitats across the range of soil types and topography in the area and, where possible, extend, restore and create new areas of habitat including woodland, heathland, grassland, wetland, downland and farmland. This will maximise biodiversity interest and secure resilience to climate change, so conserving rare species and locally significant species such as nightjar.
- Strengthen fragments of historic meadow by expanding species-rich grassland, ditches, watercourses and hedgerows nearby.
- Where there are fertile soils in the valleys and there has been a long history of cultivation, maintain these arable fields so that there is a visually diverse landscape and a mosaic of farmed habitats with historic interest.
- Maintain the wooded character of the area, recognising that conifers as well as native species can positively contribute to landscape character in some places. Conserve historic hedgerows and protect veteran trees in any location in order to maintain the biodiversity and landscape value of these features. Plan for successors to veterans, particularly within the historic boundaries of the royal hunting forests and parklands.
- Manage woodlands to maximise timber quality, biodiversity value and recreation provision. Manage and create rides as links in the ecological and public access network. Encourage recreational use of conifer plantations where it will divert visitor pressure away from ecologically fragile places.
- Restore conifer plantations on ancient woodland sites to semi-natural native woodland by natural regeneration or, where appropriate, re-planting, taking care not to damage archaeology. Focus this particularly in the historic boundaries of the royal hunting forests.

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## Landscape opportunities continued...

- Conserve ancient semi-natural woodlands and, where possible, restore historic features such as coppice for biodiversity, landscape and historic environment interests. In the historic boundaries of the royal hunting forests, create new woodlands to improve the habitat mosaic and restore historic wooded areas.
  - Manage wet habitats such as valley bogs, reedbeds, wet woodland, chalk streams and clay-based watercourses to maintain their diversity of habitat and landscape features. Increase the resilience of these habitats to climate change through managing water levels and extending or adapting habitats where necessary.
  - Where relevant, reconnect watercourses with their flood plains where possible. Restore or adapt culverted and other modified sections of watercourses to improve their ecological and aesthetic value and to allow fish to migrate upstream.
  - Maintain and conserve geological exposures, particularly key reference sites for Bagshot Beds, Reading Beds and the Quaternary environment.
  - Plan to restore pits worked for aggregates in ways which enhance the network of habitats, conserve geodiversity and provide public access opportunities.
  - Bury powerlines where they have a negative impact upon views. Ensure the associated impacts upon soils, archaeology and hydrology are acceptable. Target those areas and views most popular with visitors and undeveloped landscapes, such as open heathland commons.
  - Adapt existing roads and plan new roads to minimise negative visual and noise impacts and accommodate for species movements and public access links. Avoid further fragmentation and destruction of habitats and historic landscapes. In relation to roads and also the urban edge, adapt existing and design new woods and tree belts to provide good sound and visual barriers, while also catering for public access into the wider countryside.
  - Adapt horse paddocks so that they better reflect historic boundary patterns and boundary types. This will bring benefits to the landscape, ecology and historic environment.
  - Encourage traditional building styles and materials, particularly where there has been a loss of distinctiveness of local character in the built environment. Target the restoration of key historic buildings within settlements and maintain historic settlement patterns.
- Continued on next page...**

## Landscape opportunities continued...

- Restore and sensitively adapt historic built structures, such as those associated with canals, watercourses and farmsteads. Ensure historic timber-framed aisled barns are maintained as they are distinctive of this area. Provide interpretation as appropriate.
- Protect the full range of archaeological features including prehistoric henges, long and round barrows, iron-age hill forts, Roman settlements, medieval moated sites, traces of ancient field systems and evidence of lynchets. Manage scrub and woodland cover, particularly where it is encroaching upon little disturbed sites such as on heathland, and manage visitors to avoid erosion and other damage. Provide interpretation of key features where there is public access.
- Restore degraded parklands, including those not on the Register of Parks and Gardens, in order to maximise biodiversity, landscape and historic value.
- As a minimum, conserve current levels of tranquillity in those places where it is enjoyed. Ensure tranquil places are easily accessible to the public, particularly in relation to the large conurbations in the east and near to London.
- Sensitively improve visitor facilities to support enjoyment of commons, country parks and rights of way, particularly near to settlements and major road networks. Manage visitor pressure to avoid damage to features.
- Enhance public access routes and associated visitor facilities near to settlements lacking adequate greenspaces and to key landscape features such as Calleva.
- Create and restore views through clearance of tree and scrub cover, particularly in relation to key landforms such as the Hampshire Downs escarpment, key viewpoints in popular green spaces, popular public access routeways and historic monuments on vantage points.
- Provide interpretation and visitor information about the military history and current use of areas owned by the Ministry of Defence that are publicly accessible. Clarify the identity of these areas.

## Ecosystem service analysis

The following section shows the analysis used to determine key ecosystem service opportunities within the area. These opportunities have been combined with the analysis of landscape opportunities to create Statements of Environmental Opportunity.

Please note that the following analysis is based upon available data and current understanding of ecosystem services. It does not represent a comprehensive local assessment. Quality and quantity of data for each service is variable locally and many of the services listed are not yet fully researched or understood. Therefore the analysis and opportunities may change upon publication of further evidence and better understanding of the inter-relationship between services at a local level.

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Food provision</b>	Climate Soils Grassland	<p>In the south of England, the climate allows for a longer growing season than in the north.</p> <p>Farmland is concentrated in the west since the eastern half of the area is predominantly not in agricultural use. High-value agricultural land is found in this NCA – 500 ha of Grade 1 and 6,000 ha of Grade 2.</p> <p>Approximately 40 per cent of the NCA area considered to be Grade 3 and around 17 per cent Grade 4.</p> <p><b>Continued on next page...</b></p>	Local	<p>The most productive Grade 1 and 2 land is almost entirely restricted to the west along the River Kennet corridor and its northern tributary valleys such as the Pang. Agriculture in the flood plain can take advantage of flat land and floodwater deposits which boost soil fertility. However, the high potential for surface and ground water pollution and waterlogged conditions constrains agricultural activities in the flood plains.</p> <p>Food production is not a dominant land use in large areas of the NCA. Around 28,000 ha are under non-agricultural uses, mostly in the east and largely as plantations and semi-natural habitat such as heathland.</p> <p>Declining livestock numbers combined with changing land use of grass fields from pasture to horse paddock, for example, has affected food provision and reduced incentive for the maintenance of traditional pastoral features such as hedges.</p>	<p>Ensure there are sustainable production systems across areas of Grade 1 and 2 land in order to conserve these areas of high agricultural value in the long term.</p> <p>Where water and soil pollution is a particular problem in the flood plains, adopt low intensity farming to minimise pollutants and, in appropriate areas, to restore wetland habitat, store floodwater, filter pollutants, slow run-off and conserve carbon stores.</p> <p>Identify and deliver opportunities to manage water at the farm scale, including harvesting water and storing floodwater.</p>	<p><b>Food provision</b></p> <p><b>Regulating soil quality</b></p> <p><b>Regulating soil erosion</b></p> <p><b>Regulating water quality</b></p> <p><b>Regulating water flow</b></p> <p><b>Water availability</b></p> <p><b>Biodiversity</b></p> <p><b>Sense of place/ inspiration</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Food provision cont.</b>		<p><b>... continued from previous page</b></p> <p>Approximately 25 per cent of the NCA area is farmed for cereals, with other areas growing fruit and vegetables and also crops not for human consumption, such as livestock feed. This leaves much of the farmland as grass and uncropped land. Livestock farmers produce lamb, beef and dairy, with pig and poultry also being significant.</p>		<p>This area falls into the Thames River Basin District which is one of the driest in the country receiving a quarter less rainfall than the national average. It is therefore important for the agricultural sector in this area, as well as other user groups, to make efficient and sustainable use of water.</p> <p>There is a large local population in the eastern end of the NCA which represents a big market for local produce.</p>	<p>Support measures to explore local food markets and the associated educational and volunteering opportunities which this may afford to the large number of residents in the east.</p> <p>Support food production, particularly livestock farming, which conserves key landscape characteristics such as open common land and historic pasture.</p>	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Timber provision</b>	Woodlands  Large, established plantations	<p>With a quarter of the NCA being wooded, there is potential to support a substantial timber resource. Conifer plantations comprise a large part of this resource accounting for approximately 5 per cent of the NCA area. Corsican and Scots pine dominate in Forestry Commission woodlands. Broadleaf plantations on non-ancient woodland sites are also considerable, for example on the outskirts of Woking.</p> <p>Ancient semi-natural woodlands account for approximately 3 per cent of the NCA and contain many mature trees with timber potential.</p>	Regional	<p>The area of woodland managed by the Forestry Commission and by the Crown Estate is considerable and, in these woodlands trees are managed for timber. Elsewhere and particularly in relation to small woods, there is potential for neglect of the timber resource.</p> <p>The large plantation blocks are vulnerable to widespread infection by pests and diseases and to fire. Measures to reduce risk of fire and manage fire are in place including fire breaks, on-site fire-fighting equipment and liaison between landowners and fire service.</p> <p>Historically, the heavily forested character in the eastern half of this NCA is relatively recent. Historic woodland distribution patterns should inform decisions about future distribution patterns (in terms of restoration of 'lost' woods and former open habitats) so that opportunities to restore historic landscapes with their associated biodiversity benefits are realised.</p> <p><b>Continued on next page...</b></p>	<p>Manage and create rides and glades within woodlands and plantations with the aim of managing fire risk, pests and diseases whilst also providing recreation routes and wildlife movement corridors.</p> <p>Produce high quality timber while mitigating against negative environmental and landscape impacts. Seek environmentally sustainable efficiencies in the production of timber in the large, established plantations. Design clearfell areas to enhance structural diversity, ensuring there is suitable habitat for heathland and woodland birds.</p> <p>Where forestry is inefficient, consider restoration/creation of open space such that biodiversity is enhanced, historic features are conserved and, where relevant, visitor experience is improved. Restore open heathland to contribute to the wider mosaic and network of habitats.</p>	<p><b>Timber provision</b></p> <p><b>Regulating water quality</b></p> <p><b>Regulating water flow</b></p> <p><b>Regulating soil erosion</b></p> <p><b>Climate regulation</b></p> <p><b>Pest regulation</b></p> <p><b>Sense of history</b></p> <p><b>Sense of place/ inspiration</b></p> <p><b>Biodiversity</b></p> <p><b>Recreation</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision cont.				<p><b>... continued from previous page</b></p> <p>The Forest Design Plan 2007–2037 for Forestry Commission woodlands intends that there will be creation of permanent open heathland at the expense of forest cover, but this will be very limited in area.</p> <p>Timber prospects in this NCA are very much about making the most of the existing resource rather than planting new woodlands. New woodlands are however encouraged as compensation for woodland clearance associated with the restoration of open habitats.</p> <p>The woodland resource which is non-native comprises both mixed and conifer plantation. Re-stocking will offer opportunities to restore plantations on ancient woodland sites to native species compositions and to plant species resilient to climate change.</p> <p>Commercial tree nurseries have historically been prevalent in this area, for example around Chobham and Bisley. Such nurseries could produce native local stock for local plantations.</p>	<p>Manage and create woodlands to slow run-off and filter pollutants in order to regulate water quality, water flow and soil erosion.</p> <p>Draw on information about historic woodland distribution patterns to determine locations for new plantings or replacement plantings. Avoid planting on existing or former open/heathland areas, scheduled monuments and high grade agricultural land. Restore ‘lost’ woods to reinforce sense of history whilst also maintaining/increasing the timber resource and carbon stores.</p> <p>Select tree species for re-planting which are resilient to climate change in order to secure the timber resource and wooded character of this NCA.</p> <p>Seek to consider the management requirements of small woodlands collectively at a landscape scale, in order to better realise their timber potential through securing efficiencies in the scale of operations and secure a functioning ecological network.</p> <p>Conserve and restore ancient woodlands, including replacing non-native plantations with broadleaf and protecting historic features from damage.</p>	

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<b>Water availability</b>	Chalk Lower Greensand Gravels Watercourses	<p>The Thames River Basin District is one of the driest in the country receiving a quarter less rainfall than the national average.</p> <p>Over much of the NCA, bedrock functions as a secondary aquifer, with gravels and other superficial deposits also storing water as shallow aquifers. As secondary aquifers, there is very little abstraction but they supply water to springs and watercourses in the area, for example the Lower Greensand supplies baseflow to the River Mole.</p> <p>Deep, confined aquifers of Chalk and Lower Greensand are present beneath younger bedrocks. The confined aquifer of Lower Greensand is productive around Woking<sup>9</sup>.</p> <p>Abstraction in this NCA is managed by the Environment Agency across four catchments – the Kennet and Pang, the Loddon, the Wey, the Mole, and Maidenhead to Sunbury catchments<sup>10</sup>.</p> <p><b>Continued on next page...</b></p>	Local	<p>In the east, there is a considerably large local population requiring a public water supply. There is also water demand for agriculture and water-based recreation. There are water-dependent biodiversity assets including designated sites such as the Kennet Valley Alderwoods SAC in the Kennet flood plain and temporary ponds on heathlands.</p> <p>The whole of the south-east of England is classified by the Environment Agency as an area of 'serious water stress'. This is defined as an area where the demand for water is a high proportion of the water available, which can lead to serious stress on the water environment.</p> <p>Water level fluctuations are particularly relevant to the NCA's gravels. The aggregates industry monitors and manages water levels in relation to their activities.</p> <p>An absence of principal aquifers in this NCA means that surface waters are the sole source of water in some areas. Local demand for water is subject to maintaining water levels in the River Thames (which lies outside this NCA). Water is also brought into the NCA from groundwater sources outside the NCA such as from North Downs boreholes and consequently there is potential for water use in this NCA to have negative impacts in other NCAs.</p>	<p>Work with water companies and consumers to secure sustainable abstraction across catchments and water supply networks in order to benefit water availability, food provision, water-dependent biodiversity and water-based recreation.</p> <p>Seek water-efficient features in new and existing development as part of a broader emphasis upon environmentally sustainable urban design.</p> <p>Engage the large local population in the conservation of water resources and of water-dependent landscape features such as wetlands and chalk watercourses. Target education where water-based recreation activities take place.</p>	<p><b>Water availability</b></p> <p><b>Food provision</b></p> <p><b>Biodiversity</b></p> <p><b>Recreation</b></p> <p><b>Regulating water quality</b></p>

<sup>9</sup> Groundwater quality review: Lower Greensand, Environment Agency (2006; URL: <http://ao768b4a8a31e106d8bo-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/geho1106bmjq-e-e.pdf>)

<sup>10</sup> Abstraction volumes and uses were not available for the Loddon catchment. It is also not possible to confirm that the information about abstraction in the Environment Agency's CAMS documents is necessarily true of the part of the catchment falling into this NCA

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability cont.		<p><b>... continued from previous page</b></p> <p>Approximately a third of the Wey catchment lies in the east of this NCA and water is largely abstracted from groundwater sources and the greatest use is for public consumption. Approximately a third of the Kennet and Pang catchment lies in the west of the NCA and abstraction is largely from groundwater sources and for public water supply and agricultural use<sup>11</sup>.</p> <p>Water is available for abstraction in the Mole<sup>12</sup> and Wye<sup>13</sup> catchments but only where negative impacts upon flows in watercourses including the River Thames are avoided and where the use is non-consumptive and water is returned to the catchment.</p> <p>In the Kennet and Pang catchment, the parts of the catchment in this NCA are over-abstracted and there is a requirement to reduce pressures to avoid unacceptable environmental impacts at low flows.</p> <p><b>Continued on next page...</b></p>		<p>Chalk watercourses in the North Downs and Berkshire Downs have historically suffered low flows and associated negative impacts upon biodiversity and fisheries.</p> <p>Increasing water storage within this NCA to reduce reliance and negative impacts upon resources outside the NCA are being explored. A new groundwater source is planned by South East Water near Aldershot within the next ten years. New developments can incorporate water-efficient features and rainwater harvesting. In the rural setting, reservoirs and water-efficient technologies at the farm scale may be appropriate.</p> <p>The Chalk in the west is permeable and, as such, water features are vulnerable to temporary or permanent loss if water levels drop, for example low flows and receding headwaters in the chalk river of the Pang. In contrast, the valley floors of London Clay are impermeable and give rise to numerous watercourses and ditches.</p>		

<sup>11</sup> Kennet and Pang Catchment Abstraction Management Strategy, Environment Agency (2004; URL: <http://ao768b4a8a31e106d8bo-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/getho4o4bhxh-e-e.pdf>)

<sup>12</sup> Mole abstraction licensing strategy, Environment Agency (2013; URL: [http://ao768b4a8a31e106d8bo-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT\\_3097\\_7b4776.pdf](http://ao768b4a8a31e106d8bo-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_3097_7b4776.pdf))

<sup>13</sup> Wey catchment abstraction licensing strategy, Environment Agency (2012; URL: [http://ao768b4a8a31e106d8bo-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT\\_3310\\_589f70.pdf](http://ao768b4a8a31e106d8bo-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_3310_589f70.pdf))

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability cont.		<p><b>... continued from previous page</b></p> <p>The Foundry Brook area is over-licensed so that there is potential to cause unacceptable environmental impact at low flows<sup>14</sup>.</p> <p>The Enbourne area has water available at high flows but priority is given to maintaining flows in the River Thames over meeting local demand<sup>15</sup>.</p> <p>The Basingstoke Canal is fed by nearby springs and small streams. The River Wey Navigation and River Wey share water.</p>				
Genetic diversity	n/a	n/a	n/a	n/a	n/a	n/a

<sup>14</sup> *Kennet and Pang Catchment Abstraction Management Strategy*, Environment Agency (2004; URL: <http://ao768b4a8a31e106d8bo-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/getho4o4bxxh-e-e.pdf>)

<sup>15</sup> *Kennet and Pang Catchment Abstraction Management Strategy 3rd annual update*, Environment Agency (2008)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Biomass energy</b>	<p>Extensive woodland resource</p> <p>Historic coppice</p> <p>Plantations</p> <p>Hedgerows and hedgerow trees</p> <p>Urban trees and tree belts</p>	<p>A quarter of the NCA area is wooded, representing a huge potential source of wood fuel in the form of logs or chippings.</p> <p>The Forestry Commission manages a significant area of woodland in the Thames Basin and these woods are managed to optimise wood fuel opportunities<sup>16</sup>. Some small farm woods in the west are managed for biomass but this is not widespread.</p> <p>Wood fuel is produced and supplied to users in the NCA, including on-farm examples such as the Englefield estate which produces its own fuel.</p>	Local	<p>Existing woodland offers great potential for biomass energy. Wood fuel can make use of coppiced material but also brash or 'waste' from timber extraction. There is potential for arisings from tree surgery in woodlands and on residential properties to be chipped for wood fuel.</p> <p>The local market is potentially very large. There are major road links to assist distribution such as the M3.</p> <p>The market for wood fuels is being stimulated by various wood fuel suppliers working with wood fuel producers and users in the Thames Valley and Surrey area. There are a range of small to large-scale wood fuel users in the area, including local estates and schools and also business properties in Andover, Heathrow and Bracknell. Projects targeted at developing a market and infrastructure for wood fuel have included BeWILD (Berkshire-based project 2008–2011) and the North Wessex Downs AONB Woodland Strategy work.</p> <p>Wood fuel opportunities may motivate woodland managers to bring unmanaged woodlands back into production.</p> <p>There is potential for short rotation coppice to be incorporated into this wooded landscape with minimal landscape impact. However, the opportunities associated with existing woodland resources may dissuade against creating additional areas or new crops for biomass.</p> <p><b>Continued on next page...</b></p>	<p>Support biomass energy production which utilises products of coppice, hedgerows and hedgerow trees as a driver for the revival and continuity of management of these features.</p> <p>Improve woodland management for the benefit of timber and biomass production, as well as biodiversity and historic environment benefits. Strategically invest in the wood product supply chains and encourage local to regional markets.</p> <p>Design and manage new plantings and adapt existing plantations to deliver biomass products as well as provide for recreation and habitat diversification.</p> <p>Provide interpretation and information for the public in relation to biomass and management practices affecting popular recreation sites and views.</p>	<p><b>Biomass energy</b></p> <p><b>Timber production</b></p> <p><b>Biodiversity</b></p> <p><b>Sense of place/ inspiration</b></p> <p><b>Recreation</b></p>

<sup>16</sup> Thames Basin Forest Design Plan, Forestry Commission (2007)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biomass energy cont.				<p><b>... continued from previous page</b></p> <p>The NCA's acidic soils are a constraint upon the productivity of some biomass crops. There is also potential for damage to features of existing value. The open aspect, historic features and ecology of the NCA's large areas of heathland would be negatively impacted by plantings. The NCA's pastoral landscapes would also be inappropriate for introductions of biomass crops.</p>	<p>Explore the potential for biomass as an opportunity to address wooded features in the landscape that have a negative impact upon landscape character, for example explore markets for poor quality conifer crops, scrub invading heathland and common land, and rhododendron.</p> <p>Compartmentalise woodlands and schedule cutting rotations to provide a mosaic and continuous habitat for species which use woodland edge and early re-growth/recent plantation/scrub habitats, for example woodlark, nightjar.</p> <p>Use the large plantations as places to trial approaches; seek efficiencies; minimise disturbance of public access and avoid negative impacts or controversial change to key views.</p>	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Trees	The extensive area of woodland provides a significant store of carbon both in growing trees and in the soils which, in ancient semi-natural woodland, will be relatively undisturbed.	Local	Tree clearance can lead to the loss of carbon stores. Re-stocking and planting of new woodlands can compensate, over time, for carbon loss associated with harvesting while also delivering other ecosystem services associated with woodlands.	Adopt sustainable approaches when managing woodland for wood fuel and maximise carbon sequestration rates and retention. Retain deadwood habitat to conserve biodiversity.	Climate regulation
	Semi-natural ancient woodland soils	Heathland soils (particularly those that are deep, undisturbed and wet) possess relatively high carbon content (10-50 per cent) and, being uncultivated, represents a long-established and maintained store. Heathland covers around 3 per cent of the NCA.				
	Heathland soils					Biomass energy
	Wetland soils					Sense of history
	Long-established permanent grassland					Timber provision
		There are also very small areas of fen peat soils, which have large and important stores of carbon. Other wetlands and permanent grasslands will offer similar carbon storage potential.			Avoid/minimise soil disturbance which releases carbon, particularly in relation to undisturbed soils with high storage capacity, for example wetland peat soils. This is applicable to plantings of woodland for wood fuel.	
					Identify locations for new woodland where it will secure multiple benefits for a range of ecosystem services including regulating water flow.	
					Increase carbon sequestration, conserve soil quality and regulate soil erosion within arable farming systems by increasing organic matter inputs and by reducing the frequency / area of cultivation.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Wetland habitats	In the west, the quality of groundwater in the confined aquifer is generally less good than that in the unconfined Chalk <sup>17</sup> .	Local	<p>The most widespread soils are the slightly acid loamy soils covering 12 per cent of the NCA and the very acid sandy and loamy soils covering 8 per cent. These are associated with groundwater in the plateaux which are not primary aquifers. Freely draining soils over the primary Chalk aquifer are restricted to 2 per cent.</p> <p>In the valleys, the low gradient, low energy rivers increase potential for sediment accumulation and, within the sediment, build up of metals and non organic compounds which are detrimental to flora and fauna.</p> <p>High levels of nutrients in rivers can lead to excessive plant growth and in turn affect the river's wildlife. Sources of nutrients in this NCA include effluent from sewage treatment works, urban run-off and agricultural pollution. The</p>	<p>Work at a catchment scale to manage run-off and activities that are potentially polluting in order to regulate soil, water quality and manage soil erosion.</p> <p>Manage and create new wetlands and buffer strips to maximise both filtration of pollutants from water and storage of water. Design these features to enhance biodiversity benefits.</p> <p>Manage livestock near watercourses to avoid unacceptable erosion of riverbanks. Where fencing is necessary, select fencing that has least visual impact upon the landscape.</p> <p>Manage water quality in water-filled gravel pits, seeking associated benefits for biodiversity and recreation.</p>	<p><b>Regulating water quality</b></p> <p><b>Regulating soil quality</b></p> <p><b>Regulating soil erosion</b></p> <p><b>Regulating water flow</b></p> <p><b>Biodiversity</b></p>
	Grass buffers	Surface water quality in many watercourses is poor and linked to both urban and agricultural sources. The Loddon is affected by effluent discharged from a major sewage treatment works at Basingstoke and there is also diffuse source pollution from agriculture <sup>18</sup> .				

<sup>17</sup> Kennet and Pang Catchment Abstraction Management Strategy, Environment Agency (2004; URL: <http://ao768b4a8a31e106d8bo-5odc8o2554eb38a24458b98ff72d55ob.r19.cf3.rackcdn.com/getho4o4bvxh-e-e.pdf>)

<sup>18</sup> Loddon catchment implementation plan, Environment Agency (2013; URL: [www.environment-agency.gov.uk/static/documents/Research/Loddon\\_CIP.pdf](http://www.environment-agency.gov.uk/static/documents/Research/Loddon_CIP.pdf))

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality cont.		<p><b>... continued from previous page</b></p> <p>Due to the presence of water-dependent SAC habitats that are particularly sensitive to water quality problems, the Kennet and its tributary the Lambourn fall within a Defra Priority Catchment as far as Thatcham, with soil erosion and unrestricted livestock access affecting water quality and riverbanks.</p> <p>The River Whitewater has good water quality.</p>		<p>density of settlement along the Blackwater makes urban run-off a particular problem.</p> <p>The geology of sands and silts on the plateaux makes sediment pollution more likely. Sands are exposed along access routes and elsewhere on the heathlands. Thin soils in the west are also prone to erosion, particularly when cultivated and on steep slopes.</p>		

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Groundwater	There are several surface water catchments in this NCA with contrasting flow characteristics and factors. The base flow of the River Pang is largely dictated by groundwater levels in the Chalk. Low flows have historically been observed along the River Pang. In contrast, the Enbourne is a clay catchment river with a very variable flow rate, a low base flow component and a 'flashy' nature responding quickly to extreme rainfall events due to the impermeable nature of the underlying clay.	Regional	Where soils do not drain freely in the valleys, the land cover and its management is significant in slowing run-off to avoid flash flooding. Wet soils are vulnerable to compaction and capping which reduces infiltration further.	Design developments to minimise flood risk by avoiding high risk areas and incorporating floodwater storage areas.	<p><b>Regulating water flow</b></p> <p><b>Regulating water quality</b></p> <p><b>Biodiversity</b></p> <p><b>Recreation</b></p> <p><b>Sense of history</b></p> <p><b>Regulating soil quality</b></p>
	Freely draining soils					
	Watercourses					
	Springs					
	Undeveloped flood plain	The Loddon's principal tributary is the River Blackwater, into which several of the catchment's larger sewage treatment works discharge. This significantly enhances river flows in the Blackwater <sup>19</sup> .		High-density development in fluvial flood plains and associated heavily modified watercourses which often involve underground culverting as found in the Blackwater Valley are prone to flash floods and there can be a very short time between rainfall and flooding. Development is planned in areas of high flood risk, including the Blackwater Valley <sup>20</sup> .	Where flooding is a significant problem affecting settlements, seek to secure suitable floodwater storage areas and build channel capacity. Work with landowners across the flood plain to identify suitable floodwater storage areas. Manage storage areas such as scrapes and reedbeds to deliver biodiversity and regulate water quality.	
	Urban greenspace					
	Wetlands					
	Wooded and vegetated slopes and buffers					
Historic water meadows	<b>Continued on next page...</b>	The drift geology of the Thames Valley, characterised in many areas by permeable gravels, makes the construction of flood embankments impractical.	Design floodwater storage areas to deliver multiple ecosystem services including regulation of water quality and biodiversity, for example create new areas of flood plain grassland and wet woodland along watercourses.			
Water level management structures and ditches						
				To protect these locations it will be necessary to store very large quantities of water upstream, or convey very large quantities of water in flood alleviation channels.		

<sup>19</sup> Loddon catchment abstraction licensing strategy, Environment Agency (2012; URL: [http://ao768b4a8a31e106d8bo-5odc802554eb38a24458b98ff72d55ob.r19.cf3.rackcdn.com/LIT\\_1777\\_a16a18.pdf](http://ao768b4a8a31e106d8bo-5odc802554eb38a24458b98ff72d55ob.r19.cf3.rackcdn.com/LIT_1777_a16a18.pdf))

<sup>20</sup> Thames catchment flood management plan, Environment Agency (2009; URL: <http://cdn.environment-agency.gov.uk/geth1209bqyl-e-e.pdf>)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow cont.		<p><b>... continued from previous page</b></p> <p>Flow is influenced by man-made and natural structures in the flood plain. On the Loddon, for example a range of physical structures such as weirs, sluices, culverts and bridge aprons affect flow rates<sup>21</sup>. Construction of the Kennet and Avon Canal, River Wey Navigation and Basingstoke Canal incorporated features to manage flow, including drainage channels into adjacent land and cuttings to store excess water during flood events.</p> <p>Along the Kennet, several areas of wetland function to store and impede flow including the numerous wet woodlands of the Kennet Valley Alderwoods SAC and Thatcham Reedbeds SSSI.</p> <p>Weybridge is identified as an area of moderate to high flood risk in the Thames Catchment Flood Management Plan, while most of the remaining NCA is at low to moderate risk. The settlements along the Blackwater represent a large number of properties within the flood zone. The Upper Mole is another concentration of flood risk.</p> <p><b>Continued on next page...</b></p>		<p>Flows in this NCA have an impact upon flows in the Thames downstream into London since all the watercourses are Thames tributaries<sup>22</sup>.</p> <p>In addition to property, flow can have a significant effect upon biodiversity. Coarse fish species, such as roach, bream and carp, are found in the lower Kennet and demand flow variation throughout the year to maintain their habitats – from fast flowing shallows, or riffles, to deep pools<sup>23</sup>.</p> <p>In the valleys, there is potential for flash flooding. Impermeable artificial surfaces facilitate rapid run-off and this is a particular problem in urban areas. In the rural landscape, woodland, hedgerows, grass buffer strips and other features contribute towards slowing run-off and temporary floodwater storage is provided by flood plain agricultural land.</p>	<p>Enhance sense of history through the restoration and conservation of historic flood meadows where this secures floodwater storage and/or water level management benefits.</p> <p>Build the resilience of greenspaces to flood damage and ensure impacts upon public access are minimised.</p> <p>Review and manage man-made structures to better manage water levels and flow. Seek biodiversity benefits in the management of ditches, ponds etc. Where structures facilitate rapid flow, ensure the landscape downstream can accommodate this flow.</p>	

<sup>21</sup> Loddon catchment implementation plan, Environment Agency (2013; URL: [www.environment-agency.gov.uk/static/documents/Research/Loddon\\_CIP.pdf](http://www.environment-agency.gov.uk/static/documents/Research/Loddon_CIP.pdf))

<sup>22</sup> Mole abstraction licensing strategy, Environment Agency (2013; URL: [http://ao768b4a8a31e106d8bo-5odc8o2554eb38a24458b98ff72d55ob.r19.cf3.rackcdn.com/LIT\\_3097\\_7b4776.pdf](http://ao768b4a8a31e106d8bo-5odc8o2554eb38a24458b98ff72d55ob.r19.cf3.rackcdn.com/LIT_3097_7b4776.pdf))

<sup>23</sup> Kennet and Pang Catchment Abstraction Management Strategy, Environment Agency (2004; URL: <http://ao768b4a8a31e106d8bo-5odc8o2554eb38a24458b98ff72d55ob.r19.cf3.rackcdn.com/getho4o4bhxh-e-e.pdf>)

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow cont.		<p><b>... continued from previous page</b></p> <p>Localised flooding is an issue along stretches of several of the area's rivers, including the Kennet and Lambourn, the Pang (with major flooding at Pangbourne in 2007 affecting around 400 homes), the River Loddon (with flooding at Charvil), and the River Bourne (with repeated flooding events at Chobham).</p> <p>Undeveloped areas of the flood plains store floodwaters, involving farmland in rural settings such as along the Loddon and Kennet, and public greenspace in urban areas, such as the Royal Oak Valley in Hart District.</p>				

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Regulating soil quality</b>	Soils under permanent grass and ancient woodland  Alluvium soils managed as meadow	<p>Soils include:</p> <ul style="list-style-type: none"> <li>■ Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, covering 32 per cent of the NCA.</li> <li>■ Naturally wet very acid sandy and loamy soils (20 per cent).</li> <li>■ Loamy soils with naturally high groundwater (8 per cent).</li> <li>■ Slightly acid loamy and clayey soils with impeded drainage (7 per cent).</li> <li>■ Loamy and clayey flood plain soils with naturally high groundwater (5 per cent).</li> <li>■ Fen peat soils (1 per cent).</li> </ul> <p>Grade 1 and 2 land is associated with the valleys in the west where river alluvium provides fertility.</p> <p>There are fragments of historic meadow and pasture preserving undisturbed soil profiles and, where well managed, good soil structure.</p> <p>There are 3,900 ha of ancient woodland where cultivation will have been minimal or entirely absent, preserving soil fertility and structure.</p>	Local	<p>Grade 1 and 2 land is severely restricted in area and is therefore a limited resource.</p> <p>Conservation (including replenishment) of soil fertility is particularly critical to the management of historic meadow. Remaining fragments today may conserve fertile and well-structured soils.</p> <p>Some of the dominant soil types have intrinsic structural fragility. Compaction and/or capping may be a feature of the slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils covering a third of the NCA. The naturally wet very acid sandy and loamy soils can have a weak structure but are easily worked, with topsoil compaction potentially occurring as well as cultivation pans.</p> <p>Managing stocking levels to avoid poaching will be particularly relevant in this NCA where a significant proportion of farmed area is under grass.</p> <p>Compaction and capping may lead to increasingly poor water infiltration and diffuse pollution as a result of surface water run-off.</p>	<p>Conserve permanent pasture, riverside meadow and ancient woodland for soil quality, sense of history, sense of place and biodiversity benefits.</p> <p>Avoid activities which lead to compaction and capping of soils, particularly when soils are wet. This will conserve soil quality and help regulate rapid run-off.</p> <p>Incorporate organic matter to improve soil structure and also relieve soil compaction.</p>	<p><b>Regulating soil quality</b></p> <p><b>Regulating water flow</b></p> <p><b>Biodiversity</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Regulating soil erosion</b>	Heavy soils	<p>The seasonally wet base-rich loamy/clayey soils (covering around a third of the area) are at low risk of soil erosion, as are the loamy soils with naturally high groundwater except where coarser textured variants occur on sloping or uneven ground.</p> <p>The freely draining loamy and sandy soils (covering 22 per cent) have enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, often exacerbated where organic matter levels are low after continuous arable cultivation or where soils are compacted. There is also a threat of wind erosion on the lighter/coarser components of these soils, as well as on the naturally wet sandy and loamy soils (20 per cent), and a risk of rapid run-off during storm events or after heavy rain.</p> <p>Many of the loamy and clayey soils with impeded drainage (7 per cent) are prone to capping/slaking, leading to increased risk of erosion.</p>	Local	<p>In the west the River Kennet and its tributary the Lambourn fall within a Defra Priority Catchment as far as Thatcham, with soil erosion and unrestricted livestock access affecting water quality and riverbanks.</p> <p>The likelihood of erosion of any soil type is increased on steep slopes and bare soils. Public access routes on heathlands can suffer erosion.</p>	<p>Maintain vegetation cover across the soils types which are most vulnerable to erosion, aiming for permanent cover where possible.</p> <p>Conserve heathland, permanent grassland and woodland in recognition of the soils they protect as well as their biodiversity.</p> <p>Work at a catchment scale to tackle sediment pollution of watercourses, particularly where sediment is a recognised problem, for example the Kennet and Lambourn catchment.</p>	<p><b>Regulating soil erosion</b></p> <p><b>Biodiversity</b></p> <p><b>Regulating water quality</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Pollination</b>	<p>Extensive areas of flowering heather</p> <p>Flowering field margins, meadows and hedgerows near arable fields</p> <p>Bare ground habitat</p>	<p>Sources of nectar for pollinating insects are provided by the extensive areas of lowland heathland (9,806 ha), as well as areas of unimproved grassland (3,570 ha) and the network of species-rich hedgerows.</p> <p>25 per cent of the farmed area in the NCA is arable, with additional areas under 'other crops' and horticultural crops (including insect pollinated field bean, borage, fruit and vegetables).</p> <p>Exposed areas of sand on the heathlands and woodlands of the plateaux provide habitat for pollinating insects.</p>	Local	<p>Pollinating insects assist food production in this NCA, but the quantity is unknown.</p>	<p>Ensure habitat for pollinating insects is within the vicinity of crops requiring pollination so as to secure food provision benefits.</p> <p>Maintain and enhance the mosaic of flower-rich habitats and nesting habitat for pollinating insects as a means of conserving pollination services and biodiversity.</p>	<p><b>Pollination</b></p> <p><b>Food provision</b></p> <p><b>Biodiversity</b></p>
<b>Pest regulation</b>	<p>Diversity of habitats</p> <p>Small-scale mosaic of land uses and habitats</p> <p>Field corners and margins</p>	<p>There is a diversity of habitats supporting numerous species.</p> <p>Natural predators of pests may be present in the landscape, including in field edges.</p>	Local	<p>Diversity of habitats, land uses and field pattern increases resistance against widespread infection.</p> <p>The large plantations of single species and particularly those of cloned stock will be vulnerable to widespread infection by pests and diseases.</p> <p>The Kennet Valley Alderwoods SAC needs to be monitored and managed for pests and diseases because it is an internationally important habitat and spread of infection is facilitated by water.</p>	<p>Manage large plantations to guard against infection and build resistance against pests and diseases and protect timber and biomass prospects.</p> <p>Increase the resilience of the Kennet Valley Alderwoods SAC, securing biodiversity benefits.</p>	<p><b>Pest regulation</b></p> <p><b>Timber provision</b></p> <p><b>Sense of place/ inspiration</b></p>

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<b>A sense of place/ inspiration</b>	Heathland	Woodland covers around a quarter of the NCA and is therefore a dominant feature in the landscape, particularly when vibrant with colour in the autumn. Large conifer plantations are prominent in the landscape, with rhododendron being a non-native shrub that is widespread in woods and gardens.	Regional	Lying to the west of London and in the densely settled south-east, the countryside and undeveloped areas of this NCA are significant and are accessible by major roads.	Maintain the distinctive heathlands, preserving the unenclosed character of larger areas and enhancing the mosaic of habitats and conserving archaeology.	<b>Sense of place/ inspiration</b>		
	Woodland							
	Conifers and rhododendron							
	Ministry of Defence land uses							
	Common land	The natural growth on soils on Tertiary deposits is characterised by bracken, heather, gorse, oak and birch.					<b>Tranquillity</b>	
	High density development in the east contrasting with rural settlement in the west	The poor agricultural soils gave rise to historic common land and also several Ministry of Defence (MoD) properties. Aldershot is a well known military base while Greenham was a wartime airfield. MoD land is identifiable by signs.						<b>Biodiversity</b>
	Aggregates extraction sites							
Parklands	In the east, the large areas of undeveloped heathland and woodland stand out beside large conurbations and is near to west London. Good accessibility and open access allows people to enjoy these huge green spaces near to people's homes. Well-known green spaces or visitor attractions include Chobham Common NNR, Virginia Waters and Wisley.	<b>Recreation</b>						
Golf courses			<b>Sense of history</b>					
		<b>Continued on next page...</b>		The recreation opportunities available in this NCA are well known and they can draw people from within and beyond the NCA, facilitated by the major road network.	Maintain the predominance of woodland cover but adapt woodlands for the future. Explore potential to remove non-native species on ancient woodland sites in order to enhance sense of history and biodiversity. Improve the efficiency of timber production and continue to provide recreation opportunities.			
				In the west, part of the area is recognised as being of national significance by the designation of the North Wessex Downs Area of Outstanding Natural Beauty.	Conserve remnant historic field patterns, settlement patterns, ancient boundaries and mosaic of farmland in the interests of sense of place, sense of history and biodiversity.			

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<b>A sense of place/ inspiration cont.</b>		<p><b>... continued from previous page</b></p> <p>Horse paddocks and golf courses are also very prevalent in the east, including the championship venue Wentworth.</p> <p>Historic field pattern, land use and settlement have been preserved in the west and include brick buildings and timber-framed aisled barns. In the valleys, there are comparatively extensive wetlands including a complex of wet woodlands along the Kennet.</p> <p>The Kennet and Blackwater are also associated with numerous sand and gravel extraction sites (working and restored).</p>		<p>MoD presence is evident as large military bases and signage. However, informal spaces owned by the MoD such as the heathlands sometimes lack clear identity or signage. This may deter potential visitors to the area.</p> <p>The aggregates industry will continue to work in this area. There are ongoing opportunities to build upon past restoration schemes to enhance sense of place and other ecosystem services.</p> <p>Historic buildings and settlement patterns are more evident in the west. On the eastern plateau, the history and style of settlement is modern.</p> <p>Development, tree belts and woodland obstruct visual or physical access to some features which are distinctive but overlooked in the landscape today. This includes prehistoric archaeology on former heathland that is now scrubbed over or planted. Experience of the landscape is limited to a narrow corridor where roads are lined with belts of trees.</p>	<p>Encourage the use of red brick, tile, thatch and timber in construction and conserve historic buildings for sense of place and sense of history reasons.</p> <p>Manage existing greenspaces and design new greenspaces to conserve sense of place, enhance recreation opportunities and deliver a range of other ecosystem services.</p> <p>Particularly in the eastern conurbations, use innovative designs to manage the interface between development and countryside. Ensure tree belts and other visual barriers conserve and enhance sense of place, provide access to the countryside and deliver other ecosystem services.</p>	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Sense of history</b>	<p>Prehistoric monuments</p> <p>Calleva</p> <p>Historic farmsteads</p> <p>Timber-framed aisle barns</p> <p>Historic settlement pattern</p> <p>Ancient woodlands, hedgerows and veteran trees</p> <p>Parklands</p> <p>Designed landscapes and non-native plantings</p> <p>Common land</p> <p>Military monuments</p>	<p>There are 141 Scheduled Monuments, one Registered Battlefield, 3,754 Listed Buildings and 41 Registered Parks and Gardens. The Scheduled Monuments include numerous barrows, Napoleonic redoubts, castles, moated manor houses, abandoned medieval settlements, hill forts and World War military structures. A number are accessible to the public.</p> <p>Prehistoric monuments can be found on high ground on common land, although often obscured by trees or scrub. There are dedicated visitor destinations associated with historic assets such as Odiham Castle and The Vyne. There are some relatively well known historic features or landscapes in this area, such as Highclere Castle, Virginia Water, Chobham Common.</p> <p>There is a national concentration of historic timber-framed aisled barns in the downland areas.</p> <p><b>Continued on next page...</b></p>	Local	<p>Development in the 20th century dominates in the east, destroying or detracting from historic features and historic settlement pattern. In contrast, the historic settlement pattern in the west is relatively intact and historic buildings on farms and in settlements have survived. A sense of history is therefore strong in the west.</p> <p>Lack of interpretation and scrubbing over of monuments means that many features are overlooked on common land and in woodland. The more obvious monuments and those associated with popular visitor destinations are recognised however, such as Odiham Castle, Virginia Water and Wisley.</p> <p>Visitor pressure and neglect threaten the condition of historic features.</p> <p>There are numerous historic parklands and monuments not included on the national lists held by English Heritage, which are likely to be overlooked.</p>	<p>Identify historic monuments that are most important to sense of history and sense of place and focus conservation and public engagement efforts upon these.</p> <p>Explore conservation and public engagement opportunities in well visited locations but also consider engaging people in assets that have previously been under-promoted or overlooked especially where this will draw people away from fragile historic and biodiversity features.</p> <p>Develop interpretation and conservation of features and landscapes relating to the area's military history. This will secure benefits for recreation, biodiversity and sense of place associated with heathland and woodland.</p> <p>Conserve parklands on the Register and investigate the conservation requirements of those which are not on the Register.</p>	<p><b>Sense of history</b></p> <p><b>Biodiversity</b></p> <p><b>Recreation</b></p> <p><b>Sense of place/ inspiration</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Sense of history cont.</b>		<p><b>... continued from previous page</b></p> <p>Long-established and long-managed ecology generates a sense of history, including veteran trees, ancient hedgerows and ancient woodlands.</p>		<p>A history of designed landscapes has given rise to plantings of non-native species such as rhododendron in gardens, and these can be invasive and threaten native plants and plant communities.</p> <p>There is considerable military history with several military bases that would be of interest to local people and employees.</p>	<p>Manage parklands to conserve their historic environment but also to conserve long-established biodiversity which could include veteran trees, historic meadow, ancient woodland and watercourses Maximise sustainable recreation opportunities.</p> <p>Maintain historic features on farmland such as ancient hedgerows, veteran trees, historic meadow, coppice woodland and historic routeways to benefit sense of history, sense of place and biodiversity.</p>	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Tranquillity</b>	<p>Large areas of undeveloped land</p> <p>Pockets of undeveloped land near major conurbations and roads</p> <p>Enclosure features near visual and noise disturbance, such as roadside tree belts</p>	<p>There has been a significant loss of tranquillity in recent years, with just 13 per cent of the NCA now classed as 'undisturbed' (down from 44 per cent in the 1960s). 'Undisturbed' areas in the east are limited to the centres of three large heathland and woodland areas. In the west, disturbance is limited to settlements and major roads, with areas of countryside offering high levels of tranquillity.</p> <p>Modern development in the east has been associated with visual and noise barriers, particularly tree belts, which have reduced potential negative impacts upon tranquillity.</p>	Local	<p>Development in the 20th century was significant and included two 'new towns' of Woking and Bracknell as well as the growth of large conurbations around Camberley and the associated major road network including the M3. Areas offering tranquillity in the east have therefore declined significantly.</p> <p>The large size of the heathland and woodland areas in the east means that disturbance at the periphery is not reaching the core area. These areas are Broadmoor to Bagshot Woods and Heaths SSSI, Colony Bog and Bagshot Heath SSSI and Ash to Brookwood Heaths SSSI. These SSSI are part of the Thames Basin Heaths SPA where disturbance of breeding woodlark, nightjar and Dartford warbler is a threat to their conservation. To conserve these rare islands of tranquillity, it is important to conserve the size of these undeveloped areas and prevent any intrusion towards their centres.</p> <p>In the east, the need to provide visual and noise barriers (most frequently tree belts) to enclose more recent development are in conflict with a local history of unenclosed heathland/common offering broad views. However, enclosed roads and settlements may today be an accepted, perhaps valued, characteristic of this area.</p> <p>It is possible that 'disturbed' greenspace and countryside offer tranquil experiences relative to their surroundings. Greenspace with water, for example the restored gravel pits along the Blackwater Valley, can be perceived as tranquil.</p>	<p>Maintain the dispersed rural settlement pattern in the west in order to retain or improve upon current tranquillity levels. This will also serve to conserve the historic environment and sense of place.</p> <p>Maintain the extent of the three 'tranquil' locations in the east while also securing other ecosystem services in these locations relating to sense of place and biodiversity (in particular SPA breeding birds).</p> <p>Adopt best practice in the design and management of noise and visual barriers, seeking to minimise disturbance of SPA birds as well as people where this applies.</p> <p>Design and locate new development to minimise further intrusion.</p>	<p><b>Tranquillity</b></p> <p><b>Biodiversity</b></p> <p><b>Sense of place/ inspiration</b></p> <p><b>Regulation of water quality</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Recreation</b>	<p>Commons</p> <p>Open access land</p> <p>Country parks</p> <p>Angling and watersports lakes</p> <p>Canals</p> <p>Local Nature Reserves</p> <p>Picnic sites</p> <p>Three National Nature Reserves</p> <p>Large areas under public sector and conservation sector ownership</p> <p>Rights of way including cycle routes</p> <p>Rivers</p> <p><b>Continued on next page...</b></p>	<p>Around 9 per cent of the NCA is considered publicly accessible with the majority being open access land, common land and also woodland under a Forestry Commission grant scheme and Forest Enterprise land. Much of this land is under public sector management.</p> <p>There are additional areas of Ministry of Defence land where public access is dependent upon military activities, so is sporadically accessible.</p> <p>There are nearly 1,000 ha open to the public as Local Nature Reserves.</p> <p>Rights of way total around 1,800 km, including canal towpaths, the Thames National Trail and locally promoted routes such as the Three Castles Path.</p> <p>Provision and range of outdoor recreation is considerable in the east and includes dedicated visitor destinations such as The Lookout near Bracknell which provides a car park, play areas, cycle route network, bike hire and, hosted school visits. The River Wey Navigation offers a visitor centre and a range of recreation opportunities including canoeing.</p>	Regional	<p>Large areas of common land are accessible to the public for recreation. Education provision and disabled access provision is often associated with publicly owned sites but privately owned parklands provide a high quality experience too. This significant recreation asset serves a large local population in the east and to adjacent settlements including west London.</p> <p>The large local and regional 'market' for leisure activities means that commercial visitor destinations are prevalent, for example Wellington Country Park, with associated farm shops, gift shops, and cafes. The area of golf courses in the east is also extensive, with championship courses pulling golfers from far and wide.</p> <p>Horse studs and paddocks are another feature of the urban fringe. These modern leisure land uses are a potential threat to the historic environment and traditional landscape character and in some cases, the landscape has been degraded.</p> <p>In the Blackwater and Kennet valleys, a long history of aggregates extraction and restoration schemes has given rise to a number of recreation facilities. Their quality is variable however, with restoration tending to be high quality with the most recent schemes.</p>	<p>Encourage the local planning system to ensure any new development creates new and improved recreation spaces. Draw on best practice developed in the Thames Basin Heaths SPA (Suitable Alternative Natural Greenspace SANG). This will avoid negative impacts upon biodiversity and tranquillity.</p> <p>Bring together information about the range and location of accessible green spaces and access routes managed by different landowners (public and private; not for profit and commercial) and disseminate effectively to local residents and businesses as a comprehensive package.</p> <p>Promote responsible behaviour and encourage visitors to use the less ecologically fragile sites. In doing so, secure benefits for recreation, tranquillity and biodiversity.</p> <p>Raise awareness amongst visitors and landowners about the multiple ecosystem</p>	<p><b>Recreation</b></p> <p><b>Biodiversity</b></p> <p><b>Tranquillity</b></p> <p><b>Sense of history</b></p> <p><b>Geodiversity</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<p><b>Recreation cont.</b></p>	<p><b>... continued from previous page</b></p> <p>Golf courses, including championship venues</p> <p>Private parklands open to the public</p>	<p>In the west, the greatest concentration is around Newbury where Thatcham Discovery Centre is one of the key venues and the Kennet and Avon Canal. Country parks are promoted to the public as ideal locations for outdoor recreation. Several green spaces in the NCA are managed in accordance with accreditation schemes such as the Green Flag Award, for example Elvetham Heath.</p> <p>More informal or less comprehensive visitor facilities are provided at commons, with informal car parking areas being frequent.</p> <p>Beyond the dedicated and staffed visitor destinations, signage and interpretation can be minimal which may detract from visitor enjoyment.</p> <p>The lakes (restored gravel pits) and rivers such as the Kennet are well known angling locations. Fishing is open to paying guests or members only. Similarly, numerous golf courses in the east are open to the paying public, including exclusive venues such as Wentworth.</p> <p><b>Continued on next page...</b></p>		<p>In the case of MoD land, some people may be discouraged from visiting due to lack of information and fear of danger.</p> <p>Disturbance of breeding birds and other negative impacts associated with irresponsible or ill-informed visitor behaviour have occurred and are most likely at locations that receive high visitor numbers, are not staffed and/or where visitor information is minimal. These factors apply often to commons near settlements and to several green spaces in the east.</p>	<p>services that their land provides, other than recreation. Across large sites and complex sites including designated sites, identify fragile features and areas of high visitor pressure. This will inform the conservation of biodiversity, geodiversity, archaeology, sense of place and soils.</p> <p>Promote visitor management among land managers. Draw on and share best practice among all landowners and managers but particularly those whose primary purpose is not conservation and where there is no agri-environment scheme or woodland grant scheme agreement, for example golf courses, parklands and private commercial forest.</p> <p>Identify strategically important recreation sites and routes across the NCA but particularly near settlements and major roads and ensure these are well maintained and provide suitable visitor facilities including education activities. Review the provision of country parks and Local Nature Reserves and assess the provision in farmland near settlements in case improvement is needed. Improve information and on-site signage on MoD land.</p>	

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Recreation cont.		<p><b>... continued from previous page</b></p> <p>Paying visitors can also visit several parklands and designed landscapes including Virginia Waters in the east and Highclere Castle, The Vyne, Englefield and Wellington Country Park in the west.</p> <p>In addition to the large conurbations in the east, there are large towns bordering the NCA in the west (Reading, Basingstoke) and in the east (Guildford, west London). The major road and rail connections suggest that it is likely people will travel into this NCA for recreation purposes.</p>			<p>Work with commercial visitor destination and leisure providers, including golf courses, to cater for disadvantaged groups and young people.</p> <p>Work with horse riders and associated businesses to ensure there are adequate routes for riding and that the horse riding community maximises its support for hay production from historic meadows.</p>	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Biodiversity</b>	<p>Complexes of internationally designated sites</p> <p>Diverse habitat mosaics</p> <p>Large, contiguous areas of heathland</p> <p>Fragments of historic meadow</p> <p>Chalk rivers</p> <p>Diverse wetlands</p> <p>Open water</p> <p>Ancient woodland sites</p> <p>Veteran trees</p> <p>Historic parkland</p> <p>Typical and rare species of lowland heathland mosaics and chalk river</p>	<p>A small part of the numerous sites comprising the South West London Waterbodies SPA and Ramsar site lies in this NCA. This SPA supports populations of wintering wildfowl of European importance. Around 7 per cent or 8,000 ha is designated as the Thames Basin Heaths SPA for the purposes of conserving populations of woodlark, Dartford warbler and nightjar. These species and other flora and fauna found here and on other heathland and woodland sites in the NCA are typical or special to lowland heathland.</p> <p>Disturbance of breeding birds by visitors and their dogs is managed at places such as Greenham Common.</p> <p>A smaller but still significant area of nearly 3 per cent or around 3,400 ha falls into four SAC. The three wetland SAC associated with the Kennet catchment in the west contrast with the complex of heathland sites in the SAC in the east. The Thursley, Ash, Pirbright and Chobham SAC includes Chobham Common National Nature Reserve which has a long history of natural history research.</p> <p>Another two NNRs are present – Castle Bottom and Ashford Hill.</p> <p><b>Continued on next page...</b></p>	National	<p>With nearly 8,500 ha (7 per cent of the NCA) being internationally designated for its natural interest, it is clear that this NCA has a high wildlife value. Much of this biodiversity exists in the east and in close proximity to large conurbations and roads. The management of impacts from existing and new development and of visitor behaviour is as important to the conservation of these habitats as is the actual on-site land management.</p> <p>Due to the large area of heathland SSSI, the history and ongoing threat of scrub and woodland encroachment means that 63 per cent of SSSI area in this NCA is in unfavourable recovering condition. Grazing and clearance has to continue if open heathland of any extent is to be retained and this is a challenge in the east where agriculture is a minor land use and where forestry interests seek to maintain some degree of tree cover. A mosaic of habitats meets the needs of a range of species throughout their life cycles.</p> <p>With many areas of habitat being accessible to the public as open access land, breeding birds including ground nesting species such as woodlark and nightjar on the Thames Basin Heaths</p>	<p>Maintain the diversity of habitats and species across the NCA including the farmed mosaic, in order to conserve biodiversity and sense of place. Create and restore habitat where possible.</p> <p>Maintain historic land uses originating from the royal hunting forests and commons. This will conserve long-established biodiversity, areas of relatively undisturbed soils and carbon stores, and sense of history.</p> <p>Extend and connect fragile and isolated habitats in order to secure the associated ecosystem services for the future. Create new green spaces and public access links as part of this improved ecological network, particularly near to settlements and where visitor pressure needs to be dissipated.</p>	<p><b>Biodiversity</b></p> <p><b>Sense of history</b></p> <p><b>Sense of place/ inspiration</b></p> <p><b>Recreation</b></p> <p><b>Tranquillity</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Biodiversity cont.</b>		<p><b>... continued from previous page</b></p> <p>With nearly 11,000 ha (9 per cent) of the NCA being designated SSSI and another 12,000 ha (10 per cent) being Local Nature Reserve, there is a huge area protected for its natural and geological interest.</p> <p>There is a diversity of habitats and species, from dry to wet and from calcareous to acid, for example chalk river, dry heath, neutral meadow, calcareous fen, valley bog and acid grassland.</p> <p>There are over 24,000 ha of priority habitat covering around 20 per cent of the NCA (of which much will be designated as a protected site). This most notably includes lowland heathland (nearly 10,000 ha) and wet woodland (around 4,000 ha). The extent of fens is considerable at around 3,000 ha and there are 360 ha of lowland meadow. There are also habitat mosaics across the farmed areas of the valleys which support farmland flora and fauna.</p> <p><b>Continued on next page...</b></p>		<p>SPA are exposed to risks of disturbance by people and dogs. Fly tipping, arson and vandalism in general is another threat near to settlements and roads.</p> <p>Heathlands and plantations are not the most biodiverse of habitats but heathlands support species which catch people's imaginations such as dragonflies, flowering heathers and 'churring' nightjars. Chalk grassland can be very species-rich with flowering, scented plants.</p> <p>Some rivers, in the Loddon catchment for example, are classed as heavily modified. There are physical barriers to fish passage and a loss of habitat diversity.</p> <p>Open water habitat in the South West London Waterbodies SPA and in the west along the Kennet and Blackwater valleys provide habitat to large numbers of waterfowl. Future restoration of extraction sites in the east offers opportunities to enhance biodiversity. Scrubbing up of open water to carr is an ongoing process.</p>	<p>Drawing on best practice relating to the Thames Basin Heaths SPA, secure sustainable recreational use and alternative greenspace where areas of semi-natural habitat are publicly accessible, particularly the most vulnerable, for example small, heavily visited sites, small areas of wetland and breeding areas for ground nesting birds. Seek to reduce disturbance and damage to biodiversity and other services where possible.</p> <p>Work with farmers, graziers, conservation organisations and smallholders to maintain the mosaic of land uses and, as part of this, secure sustainable grazing of open habitat on the plateaux and in the valleys. Explore and promote markets for heathland products.</p>	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity cont.		<p><b>... continued from previous page</b></p> <p>Heathland and downland are invariably designated as open access land, giving the public access to enjoy the local biodiversity. Biodiverse commons include Bucklebury, Snelsmore and Greenham in the west. There are also areas of woodland open to the public including the large forest to the south of Bracknell.</p> <p>Some SSSI are very near to settlements, including the heathlands and woods on the plateau in the east around Camberley and off the M3. Popular SSSI recreation sites include Fleet Ponds, Odiham Heath, Basingstoke Canal, River Wey Navigations and Greenham Common.</p>			<p>Explore potential for community-led, landscape-scale, co-operative and extensive grazing schemes on commons and other land in order to bring benefits for biodiversity, recreation, sense of place and sense of history.</p> <p>Manage ancient woodland sites, ancient hedgerow boundaries and veteran trees to conserve biodiversity, archaeology and sense of place and also produce timber and wood fuel. This includes restoring sites planted with non-natives and succession management for veteran trees in parkland landscapes and hedgerows.</p> <p>Restore or enhance modified sections of watercourses to benefit biodiversity and improve water quality regulation.</p> <p>Restore gravel pits to provide biodiversity, geodiversity and recreation benefits.</p>	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
<b>Geodiversity</b>	<p>Alluvium soils</p> <p>Relief features</p> <p>Walbury Hill</p> <p>Designated sites</p> <p>Bagshot Beds</p> <p>Reading Beds</p> <p>Chalk pits</p> <p>Sands and gravels</p> <p>Restored gravel pits</p> <p>Water-retaining Chalk and gravels</p> <p>Brick and tile</p>	<p>Flood plain soils based upon alluvium are the most fertile in the area and are very localised. They support the few areas of arable farming.</p> <p>The Hampshire Downs escarpment and plateaux of Tertiary deposits provide vantage points from which people can enjoy views. Walbury Hill is the highest Chalk hill in the country. The Downs escarpment is a distinctive landform, providing a backdrop to several springline settlements. Scrub and tree cover obscures some landforms on the Downs escarpment and across the plateaux.</p> <p>There are 7 Local Geological Sites and 5 SSSI including nationally important reference sites for understanding particular geological strata, deposits and events. The Bagshot Beds are named after a town in this NCA.</p> <p>Many geological sites are threatened and degraded by scrub.</p> <p>Sand and gravel has attracted the aggregates industry. The public engage with this geology at some restored extraction sites. Erosion often exposes sands and gravels.</p> <p><b>Continued on next page...</b></p>	Regional	<p>Cultivated soils in the flood plains are vulnerable to waterlogging, flooding and deposition of pollutants during flood events. Since the areas of fertile soils are limited in this NCA, it is particularly important to conserve them.</p> <p>The agriculturally poor land of Tertiary deposits and Chalk has discouraged cultivation and consequently there are large areas of historic common (heathland and downland) which are accessible to the public to enjoy.</p> <p>The obvious undulating topography of the plateaux tells a story about past environments. Scrub and tree cover encroaches onto open downland and heathland where grazing livestock or clearance does not keep check and/or where there has been planting.</p> <p>Scrub and tree growth is a major threat to designated sites, many of which are redundant pits. General neglect is common.</p>	<p>Conserve Grade 1 soils in the flood plain to benefit food production and conserve geodiversity.</p> <p>Manage scrub and tree cover to ensure key views of landforms are maintained for sense of place, recreation, biodiversity and geodiversity benefits.</p> <p>Provide interpretation to raise awareness of geodiversity in the landscape as part of wider recreation and sense of place measures, particularly on commons and at restored excavation sites. Maximise access to geological SSSI. Make information widely available about key sites.</p>	<p><b>Geodiversity</b></p> <p><b>Food provision</b></p> <p><b>Recreation</b></p> <p><b>Sense of place/ inspiration</b></p> <p><b>Biodiversity</b></p> <p><b>Water availability</b></p>

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity cont.		<p>... continued from previous page</p> <p>Gravels and Chalk store water. The gravels are secondary aquifers, while the Hampshire Downs and Marlborough and Berkshire Downs are primary aquifers.</p> <p>Traditional buildings are constructed with bricks and tiles. Local production has now ceased.</p>		<p>Access routes and pits expose sand and gravel on the plateaux, making the local geology readily obvious to access users.</p> <p>Being accessible from London, the plateau in the east has been a popular destination for geologists, such as Chobham Common SSSI.</p> <p>The aggregates industry and associated landfill industry have a strong presence in the area due to a long history of extraction, with a particular focus in the Kennet and Blackwater Valleys. Aggregates are distributed beyond the NCA<sup>24</sup>. Restored excavation sites are a legacy which have biodiversity and recreation value.</p> <p>Water levels in the gravels and the Chalk fluctuate. Excavation of aggregates affects water levels in the gravels.</p> <p>Historically, there has been a thriving brick and tile industry. Historic buildings are distinctive in red brick, sometimes incorporating a pattern using glazed headers.</p>	<p>Secure long-term maintenance of key geological sites. Engage community groups in conservation for recreation and geodiversity benefits.</p> <p>Maximise the range of ecosystem services that can be realised from restoration of excavation sites.</p> <p>Manage erosion of access routes in the interests of geodiversity and recreation.</p> <p>Monitor water levels in gravel aquifers to improve understanding of extraction impacts upon aquifer function and water-dependent habitats.</p> <p>Encourage the use of traditional building materials in new builds and explore the potential for local brick and tile making for conservation projects. This will maintain sense of place and celebrate the area's geodiversity.</p> <p>Research environmental change using the geological record at sites such as Brimpton Pit SSSI and use this understanding to build resilience into the landscape.</p>	

<sup>24</sup> Berkshire Minerals Plan, 2001

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