



Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper¹, Biodiversity 2020² and the European Landscape Convention³, we are revising profiles for England's 159 National Character Areas (NCAs). These are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.

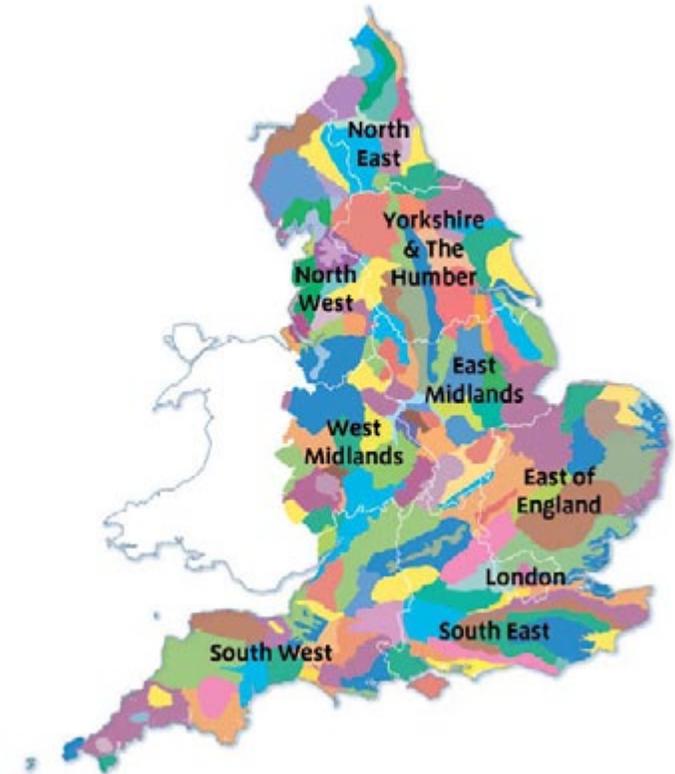
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

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

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

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

National Character Areas map



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

² Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, Defra (2011; URL: www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf)

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

Summary

The Northamptonshire Vales National Character Area (NCA) consists of a series of low-lying clay vales and river valleys, including the valleys of the rivers Nene and Welland and their tributaries. The area is 10 per cent urban, and settlement is often visually dominant. Major road networks that traverse the area include the M1, A45, A6 and A5. This area adjoins the Leicestershire Vales NCA to the north-west and has many similar characteristics.

Despite the predominance of built settlements and related levels of low tranquillity, this contrasts strongly with a distinctly more rural feel and higher levels of tranquillity particularly along river corridors and in areas of arable and pastoral farmland.

This area is rich in historic character, with country houses, historic parkland, ridge and furrow and open field patterns, especially in the valleys of the Welland, Ise and Nene. These river valleys are striking features of the area, with their riverside meadows and waterside trees and shrubs. Also common are the flooded gravel pits and their associated wetlands, which result from reclamation schemes. These have given rise to some of the most important freshwater wetlands in the Midlands, supporting large numbers of wetland birds and wildfowl, especially over winter. The Upper Nene Valley Gravel Pits were designated as a Special Protection Area in 2011 in recognition of their wetland bird assemblage, which includes non-breeding great bittern, gadwall and European golden plover. The rivers and associated habitats also provide regional ecosystem services such as regulating water flow, quality and availability, as well as providing extensive recreational and biodiversity resources for the surrounding urban areas.

Challenges for this area include retaining the sense of place in light of ongoing pressure for development growth, and protecting and enhancing key features such as the many heritage assets, meadows, woodlands and hedgerows in the light of new development, continuing gravel extraction and the pressure to produce more food. However, these issues also provide opportunities to strengthen and increase habitat networks and appropriate recreational provision for the surrounding urban communities.

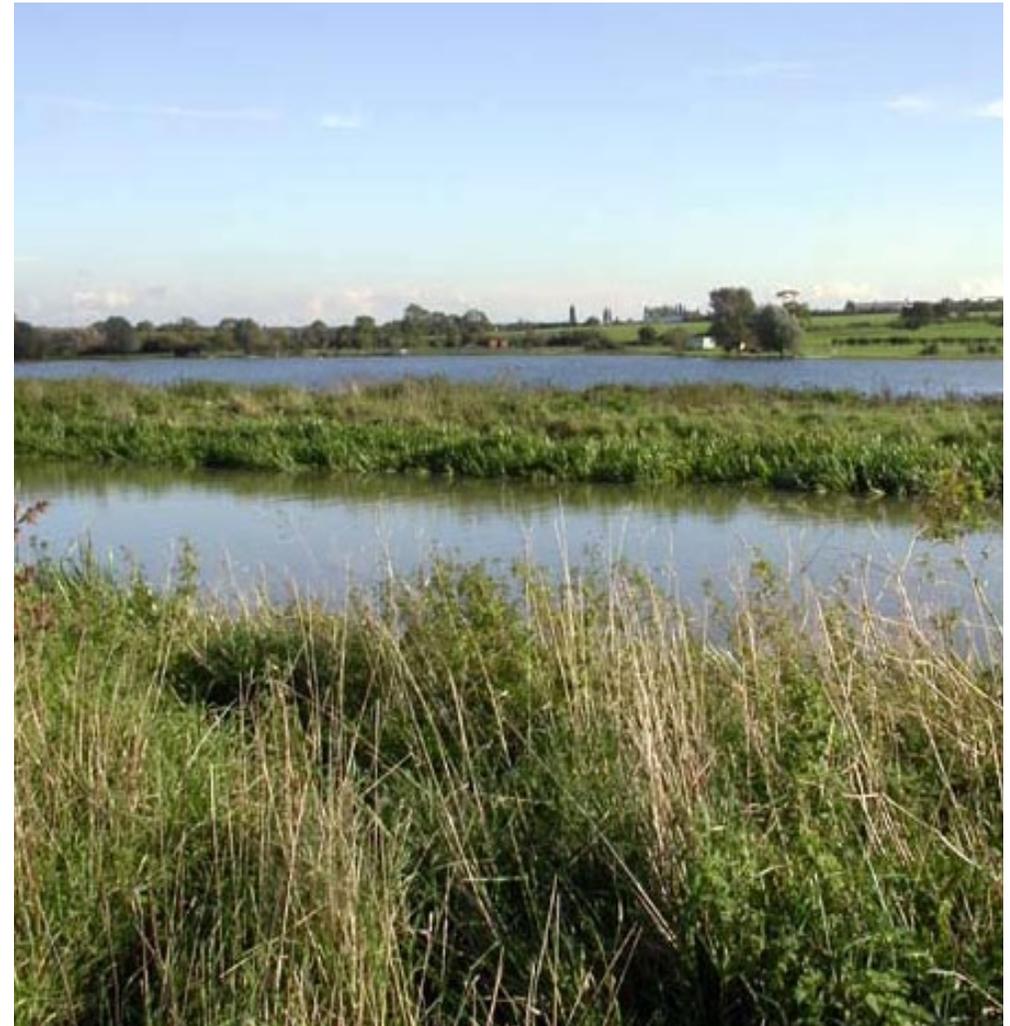
[Click map to enlarge; click again to reduce.](#)

Statements of Environmental Opportunity

SEO 1: Appropriately manage the flood plains of the River Nene and River Welland, their tributaries, and the Upper Nene Valley Gravel Pits Special Protection Area, and deliver the most beneficial restoration of sand and gravel extraction sites, to enhance associated habitats and biodiversity and connections with the farmed environment; to regulate water flow, water quality and water availability; to enhance landscape character; and to increase the opportunities for informal recreation.

SEO 2: Sustainably manage the soils, productive farming, woodlands, coverts and spinneys that contribute to the sense of place, maintaining viable long-term food production and protecting historical and cultural assets such as the ridge-and-furrow sites found in the Nene and Welland valleys, the historic parklands and the variety of field patterns.

SEO 3: Plan ongoing strategic growth and development within the area so that it strengthens the sense of place and increases biodiversity, incorporating extended and restored hedgerow networks, open spaces and the conservation, management and promotion of geological features as part of green infrastructure planning.



The River Nene with a flooded gravel pit in the background. The freshwater wetlands in this NCA, are some of the most important in the Midlands, supporting large numbers of wetland birds and wildfowl.

Description

Physical and functional links to other National Character Areas

The Northamptonshire Vales National Character Area (NCA) is shaped like an anchor, with the Yardley Whittlewood Ridge and the Bedfordshire and Cambridgeshire Claylands NCAs sharply defining the southern edge. High Leicestershire and the Leicestershire Vales NCAs are to the north. The Welland Valley extends north-eastwards as part of the area, north of Rockingham Forest NCA. The Northamptonshire Vales NCA sweeps between the Northamptonshire Uplands NCA to the south-west and Rockingham Forest NCA to the north-east, the latter forming the northern boundary of the Nene Valley.

This NCA shares many key characteristics with the Leicestershire Vales NCA, including a shared geology with most of the area. Outcrops of the Great Oolite Group along the Nene Valley have more in common with the Rockingham Forest NCA.

The area is dominated by the major rivers of the Welland and Nene, both of which link several NCAs – such as High Leicestershire and The Fens – and drain into The Wash. The River Nene is an important source of water for public water supply, supplying water to fill and maintain both the Pitsford (located in the Northamptonshire Uplands NCA) and the Rutland (located in the Leicestershire and Nottinghamshire Wolds NCA) reservoirs. The Grand Union Canal runs through the area from London to Birmingham with the Northampton Arm linking the canal with the River Nene.

The slightly higher ground around Market Harborough defines the Soar from the Welland catchment. Higher ground on the Northamptonshire Clay Wolds–



The 140 kilometer 'Jurassic Way' long-distance footpath runs through the centre of this area, from Banbury in the south-west to Stamford to the north-east.

Rockingham Forest axis divides the Welland Valley from the Nene Valley, where the extensive northern catchment is fed by large streams and small rivers including the Ise. Expansive views over the vales landscape are afforded from the fringes of the elevated clay wolds. This contrasts with the views along the Nene and Welland, which are much more contained.

The M1 cuts through the western end of this NCA, linking London with the North. The A45, which starts in this NCA at the A14 (Thrapston), runs along the Nene Valley to Northampton and then on through the Northamptonshire Uplands NCA, Dunsmore and Feldon NCA and on into Birmingham, which sits within Arden NCA.

The Northamptonshire Round long-distance footpath links the Northamptonshire Vales NCA with its neighbour the Northamptonshire Uplands. This footpath is approximately 80 km long and circles Northampton. The 140-kilometre Jurassic Way long-distance footpath runs through the centre of the area, from Banbury to the south-west to Stamford to the north-east.

Key characteristics

- An open landscape of gently undulating clay ridges and valleys with occasional steep scarp slopes. There is an overall visual uniformity to the landscape and settlement pattern.
- Diverse levels of tranquillity, from busy urban areas to some deeply rural parts.
- Mixed agricultural regime of arable and pasture, with arable land tending to be on the broader, flat river terraces and smaller pastures on the slopes of many minor valleys and on more undulating ground.
- Relatively little woodland cover but with a timbered character derived largely from spinneys and copses on the ridges and more undulating land, and from waterside and hedgerow trees and hedgerows, though the density, height and pattern of hedgerows are varied throughout.
- A strong field pattern of predominantly 19th-century and – less frequently – Tudor enclosure.
- Distinctive river valleys of the Welland and the Nene, with flat flood plains and gravel terraces together with their tributaries (including the Ise). Riverside meadows and waterside trees and shrubs are common, along with flooded gravel pits, open areas of winter flooded grassland, and wetland mosaics supporting large numbers of wetland birds and wildfowl.
- Frequent large settlements that dominate the open character of the landscape, such as Northampton and Wellingborough, and associated infrastructure, including major roads, often visually dominant.
- Frequent small towns and large villages often characterised by red brick buildings and attractive stone buildings in older village centres and eastern towns and villages. Frequent imposing spired churches are also characteristic, together with fine examples of individual historic buildings.



Oundle is predominately built of limestone and has retained the older character of a market town.

- Relatively frequent, prominent historic parklands and country houses towards the outer edges and close to more wooded areas. Other characteristics include ridge and furrow and nationally important townships such as Sutton Bassett and Clipston.
- Localised high concentrations of threshing barns and high status timber-framed farm buildings from the 18th century or earlier.

Northamptonshire Vales today

This is a large, relatively open, uniform landscape composed of low-lying clay vales interrupted by varied river valleys. Its sense of place comes less from its overall landform and more from its visually dominant settlements and views of the surrounding higher ground. The area has many settlements within it, including the major urban area of Northampton, and it abuts the southern edge of the city of Peterborough. Other large- to medium-sized settlements include Market Harborough and Wellingborough, with many attractive towns and villages, buildings and features of historic interest in between. As in the Nene Valley, there are many fine stone buildings built from locally sourced Ketton Stone (oolitic limestone, extracted at Ketton, just north of this NCA) and ironstone extracted from within the NCA.

Despite the predominance of settlements and a general lack of tranquillity, this contrasts strongly with a distinctly rural feel to the landscape, particularly in the southern part of the area, which features a mixture of arable and pastoral farmland. Country houses, historic landscapes, designed parkland, and waterside trees and meadows add further variety.

To the east of the Northamptonshire Clay Wolds, the younger, generally harder rocks of the Inferior Oolite Group extend south-west to north-east through Northampton, juxtaposed with outcrops of the Great Oolite Group (including the Cornbrash) along the Nene.

The area is dominated by the river valleys of the Welland and the Nene which, along with flooded gravel pits and their associated wetlands, which result from reclamation schemes, have given rise to some of the most important freshwater wetlands in the Midlands, supporting large numbers of wetland birds and wildfowl, especially over winter.



Fotheringhay Church dominates the surrounding landscape and displays the fine creamy-grey local limestone.

The Welland Valley is narrow and remote, the main industrial influence being the views of Ketton cement works to the north. The scarp at the edge of Rockingham Forest is a dominant feature and the generally open character is punctuated by waterside trees. On the narrow valley bottom, meadows are frequent but there has been much conversion to arable in recent years and the overall character is remote and rural. As in the Nene Valley, there are many fine stone buildings of Ketton Stone and ironstone. The Nene, a historically navigable river, has well-defined terraces and is fed by numerous tributaries forming side valleys. Much of the flood plain is now dominated by either active gravel working or the lakes formed from former workings. The Upper Nene Gravel Pits, from Northampton to north of Thrapston, are designated a Special Protection Area (SPA) of European significance for wintering birds. The Site of Special Scientific Interest (SSSI)

designation that also covers this area is for wintering and breeding birds as well as the associated wetland habitats. Land use is both arable and pasture. Valley sides are dominated by the rectilinear pattern of Parliamentary enclosure. The Ise Valley is in part disguised by the settlements of Wellingborough and Kettering and in part, near Newton and Geddington, is designated as an SSSI for nature conservation importance as a good example of meadow and a lowland clay river, with much intact habitat that includes riffles, pools and meanders. It supports several priority species such as white-clawed crayfish, water vole and otter.

Woodlands are not characteristic and are usually small and confined mainly to valley sides and to spinneys and 'fox coverts' on ridges and on more undulating land, particularly in the Ise Valley. There is intermittent woodland cover along the Welland and Nene valleys. Tree cover throughout the area has been substantially affected by Dutch elm disease. A few large wooded areas do exist but these are principally those maintained in parkland estates or for public recreation. Ancient woodland and orchards are scattered and fragmentary; their distribution derives from and reflects the pattern of boundaries and margins of medieval and later open field townships. The landscape contains a considerable variety of field patterns and a strong pattern of enclosure – regular geometric patterns with straight hedgerows and roads among which sit farmsteads – and there are also sizeable areas of less regular non-Parliamentary enclosure dating from the 16th and 17th centuries, such as those along the Brampton Brook and River Ise. There is considerable variety in the distribution, condition, extent and density of hedgerows and tree cover. Hedgerows tend to be low, and hedgerow trees are often in poor condition. There are waterside trees and meadows, but generally the flatter areas are given over to arable, where hedgerows can be particularly low, broken or intermittent, for example at Dingley. The most common hedgerow shrub is hawthorn, but older hedgerows contain a wide variety of species often characteristic of woodland,

including field maple, dogwood and buckthorn. Hedgerow trees such as ash and oak provide additional habitat for birds and bats. Characteristic hedgerow butterfly species include brimstone, orange-tip, gatekeeper and holly blue.

Fragments of ridge and furrow survive under pasture but most important is the survival of open field patterns at Sutton Bassett and Welham (Welland Valley), Great Oxendon and Clipston (Ise Valley).

This is an area of mixed farming where, on the slopes of the many minor valleys and on more undulating ground generally, pasture in small fields, close to settlements, tends to predominate. Seeds from arable weeds are an important food source for many species of farmland bird such as grey partridge, corn bunting and skylark. Habitats associated with arable farming also support butterflies such as the small skipper, gatekeeper and ringlet.

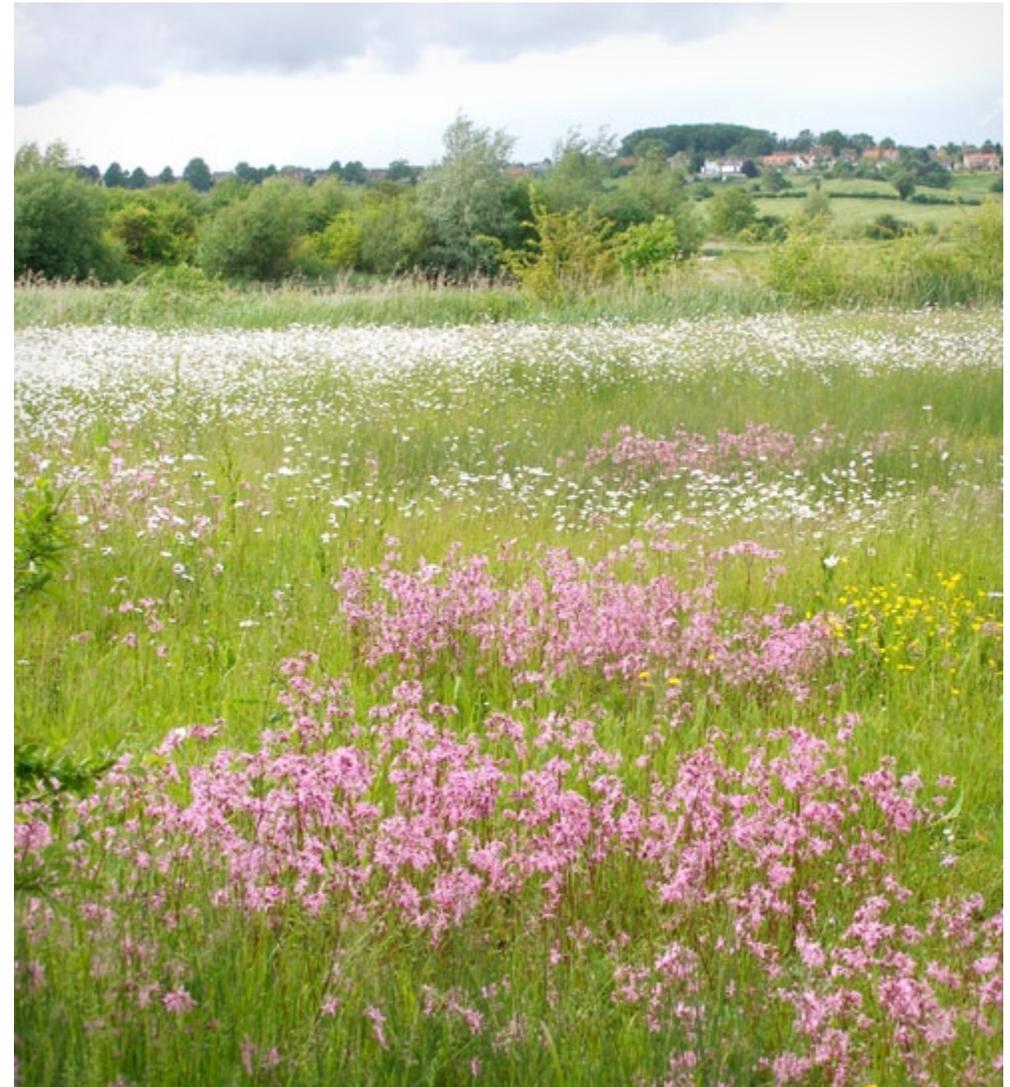
Mineral extraction has transformed the Welland Valley ironstone areas since the late 19th century. In the 20th century extensive areas of the Nene Valley gravel terraces produced modern landscapes of lakes and wetlands, often managed for ecological benefits, particularly for wildfowl, and also for recreation. Riverside meadows and riverside trees continue to experience pressure and loss to gravel extraction and general neglect. Some unimproved grassland and disused railway lines offer further habitat for wildlife and recreational access. Areas such as Irchester and Summer Leys and Stanwick Lakes (within the Upper Nene Valley Gravel Pits SPA) act as important green infrastructure provision associated with the high levels of development growth in the area.

In the village and town centres, and to some extent in the frequent small towns and villages in the eastern part of the area, older buildings and walls are constructed in an attractive range of local stones. These settlements have been subject to less

20th-century influence, displaying an older character of mellow brick and stone, and fine stone churches. The visual impact of modern development is frequent and prominent on the edges of the larger settlements. Many of the towns and large villages such as Irthlingborough, Raunds, Thrapston and Higham Ferrers industrialised in the 19th and 20th centuries. Church towers and, notably, spires act as historical visual landmarks across the area. Along the Nene Valley, Oundle is largely a limestone town, and the unforgettable and extravagant Fotheringhay church displays the fine creamy grey stone. Extracted from the quarries at Barnack and Collyweston on the edge of the area, Barnack Stone and Collyweston Slates can sometimes be seen in the towns and villages that radiate out from the quarries. To the north-east, Ketton Stone, which is one of the purest oolitic limestones, has been used. Westwards along the Welland, extending down the Nene Valley and into Leicestershire, ironstone can be found and boundary walls are a feature. Brick predominates and varies in colour from orange to deep red, with the use of limestone and render a component both in the older village cores and in the more regimented terraces of the area's industrial towns and villages. Market Harborough and Oundle have retained the older character of market towns and they are linked by a dense network of minor roads.

The area is rich in historic buildings, from the remarkable turriform Anglo-Saxon tower church of Earls Barton, to the late medieval buildings and many fine manor houses such as Dallington Hall and the groups of estate cottages and estate villages near the large country houses.

There is a relatively high rate of change to urban, with growth focused on Northampton, Wellingborough, Rothwell and Desborough but also occurring throughout, with many new estates appearing. Together with the presence and use of major transport routes, notably the M1 and other major roads such as the A14, A6, A45 and A5, this development is threatening the rural and unspoilt character of much of the area and further urbanising the road corridors.



This is an excellent example of one of the waterside meadows that can be found within this area.

The landscape through time

The rocks that characterise this NCA were deposited during the Jurassic Period between about 195 million and 160 million years ago, with later Pleistocene glacial sediments and river-formed alluvial deposits being laid down on top of the Jurassic bedrock some time during the last 1 million years. The Jurassic rocks consist of the Lias Group, overlain by the Inferior Oolite Group, the Great Oolite Group and the Ancholme Group (including the Oxford Clay). These Jurassic rocks consist of limestones, mudstones and sandstones, which were deposited in what was a tropical coastline similar to the modern-day Bahamas. The limestones were

deposited when the area was submerged under a shallow sea, while in general the mudstones and sands were deposited when sea levels dropped and the area became a swampy coastal plain. The Oxford Clay, however, is rich in marine fossils and was deposited in a marine environment. East of Northampton the River Nene has a very broad valley, which seems out of keeping with the size of the present-day river. This was probably caused by the enormous amount of water that was released by melting ice during the ice ages. Substantial deposits of gravel were laid down in the valley by the glacial river system. These have been exploited for aggregate and other uses for many years and the flooded former workings now provide important habitat for waterfowl and other animals and plants.



The extensive northern catchment of the River Nene is fed by large streams and small rivers including the River Ise.

The many river valleys were a focus of settlement from at least Neolithic times and had become extensively settled by the Bronze Age. Gravel terraces of the Welland and particularly the Nene were thick with bronze-age occupation and ritual sites, and the valleys have been settled ever since. The route of the prehistoric 'Jurassic Way' (not to be confused with the route of the current Jurassic Way long-distance footpath) ran through the area from Northampton towards Market Harborough and so influenced the distribution and shape of parishes. A total of 17 parishes are bounded to the Jurassic Way along a 14.5-kilometre stretch of its course and this area has a common character, similar to the landscapes that bound the River Nene. By the Iron Age, much of the better land had been cleared and there were major settlement sites along all valleys. Dense occupation of the valleys continued into Roman times. Period pottery manufactured in the Nene Valley was widely used in southern England. Anglo-Saxon influence was over a landscape that was already substantially cleared of woodland, except furthest from the river valleys. The '-tons' and '-hams' still dominate the place names, and parish boundaries in places reflect some 'Saxon' estates. Along the Nene Valley numerous thin, rectilinear parishes extend from the river, each taking a share of riverside, fertile flood meadow, river terrace and slope and the wooded tops of the valley sides

(in the adjacent NCA). Away from the river valleys, settlement was less dense. As the population expanded, frequent nucleated villages developed, surrounded by open fields. At strategic sites along the valleys, Northampton and Fotheringhay castles marked the major centres. The prosperity of much of the area in the Middle Ages is most obvious in the large, imposing spired churches.

Northampton was a significant Viking settlement, expanding rapidly up to the 14th century. It was often treated as the capital of England throughout the Middle Ages and even into the Tudor period, with Northampton Castle hosting Parliament. Important towns such as Oundle and Market Harborough also owe their origin to the pre-conquest period. From the 15th century onwards there was piecemeal enclosure, but much of the landscape remained unenclosed until much later. With the pastoralisation of the landscape after the 15th century and with the production of cattle, the leather industry grew; it is still evident today, with a few remaining boot and shoe manufacturers. The landscape contains a considerable variety of field systems. The area is notable for the survival of nationally important examples of ridge and furrow under pasture and, importantly, the survival of open field patterns in the nationally important townships of Sutton Bassett and Welham (Welland Valley), Great Oxendon and Clipston (Ise Valley). With the exception of the wooded areas and seasonal wetlands the medieval open field system was extensive throughout this area. Significant enclosure had certainly taken place before 1750, but many open fields remained and the dominant settlement type associated with them was the linear village with farms concentrated within it. Extensive enclosure, some achieved by private agreement but much formalised through Parliamentary Enclosure Acts, took place in the late 18th and 19th centuries. As in the 15th and 16th centuries, enclosure usually meant the conversion of ploughland to pasture. Fossilised cultivation strips, preserved from the last episode of ploughing, were once widespread across the pastoral landscape of this area. Modern arable intensification has dramatically altered



Bede House, Higham Ferrers is a unique building built using layers of brick, local ironstone and limestone.

this picture, and now most of the remaining areas of ridge and furrow are highly fragmented and vulnerable, though sizeable ridge and furrow survives and acts in some parishes as a key historic feature.

Agricultural production developed in relation to the expanding markets of the industrialising towns, focusing heavily on livestock for meat and dairy products. Wealthier farms were those newly created, many with combination barns serving cattle courts. The poorer inheritors of the enclosed landscape clustered in the

old village farmsteads, which gradually declined. As a result, the area contains a much modified, but still highly significant, medium density of pre-1750 farm buildings within the villages, mostly threshing barns, as well as some larger and high status timber-framed barns, which are 18th century or earlier. Landscaped parks with grand houses developed between the 16th and 19th centuries, when many of the area's fine manor houses were constructed and villages were rebuilt

in local stone. The 18th and 19th centuries saw the rapid growth of Northampton as a red brick-dominated residential and manufacturing centre. An iron and steel industry in Northampton and Kettering also played a major part. There was also the continuing growth of boot and shoe making. Textiles, engineering and brickworks transformed settlements in the eastern part of the area, spurred by the development of the Grand Union Canal and later railways. The principal towns acted as stopovers on the Great North Road, later to become the A1 corridor, and as a focus for much 20th-century settlement.

The Grand Union Canal, linking the Nene and Trent rivers, was a substantial stimulus to growth. In the 20th century Northampton continued to expand, absorbing surrounding villages. Wellingborough and Kettering developed as substantial towns and witnessed surrounding large-scale mineral extraction. Ironstone was won in the east of the area, particularly around the edges of Rockingham Forest, and sand and gravel have been extensively excavated, particularly along the Nene, creating a new wetland landscape.

In the mid 1960s Northampton was identified as a 'new town' and a development corporation was set up in 1968. This resulted in a dramatic and rapid expansion of the town, mainly to accommodate 'overspill' from north London, principally in the Eastern District, extending along the Nene Valley towards Wellingborough, and in the Western District, south of the river. Extensive modern-day development remains a major factor in the area, particularly along the main transport routes and especially in the vicinity of the major urban settlements, where out-of-town retail and industrial parks are common and widely visible features. Transport infrastructure developments – M1 widening, the A14/M1/M6 junction, the M1/M69 junction, and the park and ride at Junction 21 – are having an intrusive visual impact which is further urbanising the M1 corridor.



The woodland cover in this area derives mainly from spinneys, copses, hedgerow trees and hedgerows.

Ecosystem services

The Northamptonshire Vales 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 Northamptonshire Vales NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

■ **Water availability:** There are a large number of main rivers in the NCA, including the River Welland, the Eye Brook, the River Nene, Harpers Brook, the River Ise and the River Tove. There are no major aquifers in the NCA. The upper River Welland and its tributaries (which include the Eye Brook) have a Catchment Abstraction Management Strategy (CAMS) 'over-abstracted' status.⁴ The River Nene is an important source of water for public water supply, supplying water to fill and maintain both the Pitsford and the Rutland reservoirs (both located outside this NCA). The River Nene and its main tributaries (the River Ise and Harpers Brook) have an 'over-licensed' CAMS status.⁵

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

■ **Regulating soil erosion:** The majority of the soils in this NCA are at risk of erosion. The soils in the NCA fall broadly into three categories with regard to erosion characteristics: soils with impeded drainage; freely draining soils; and seasonally wet/flood plain soils. There is also potential for wind erosion on some coarse-textured cultivated variants of the freely draining, slightly acid loamy soils.

¹The Welland Catchment Abstraction Management Strategy, Environment Agency (April 2007)

²The Nene Catchment Abstraction Management Strategy, Environment Agency (March 2005)

■ **Regulating water quality:** Water quality in this NCA is in need of improvement. The potential ecological status of the River Ise and the Eye Brook is 'good'; that of Harpers Brook, the Grand Union Canal and the River Tove is 'moderate'; while that of the River Welland is 'poor'. Upstream of Northampton in the NCA the River Nene has a 'moderate' ecological potential status, falling to 'poor' downstream but rising again to 'moderate' downstream of the Nene's confluence with the River Ise.

■ **Regulating water flow:** The majority of the NCA is located within the River Nene catchment. The River Nene has a history of flooding. Flood risk in the NCA is generally caused by high rainfall that has led to watercourses and drains being overwhelmed, flood defences overtopped or raised embankments breached.

Cultural services (inspiration, education and wellbeing)

■ **Sense of place/inspiration:** Sense of place is provided by a series of low-lying, gentle clay vales and river valleys, including the rivers Nene and Welland and their tributaries, with major sand and gravel deposits. Many of these areas have been extensively excavated, especially along the Nene Valley, resulting in a new wetland landscape that supports a fantastic wildlife resource, especially the bird population. Strong patterns of Tudor and Parliamentary enclosures with hedgerows surround a mix of pasture and arable land. Nevertheless, this is a landscape dominated by the urban areas of Northampton and Wellingborough and their associated urban fringe developments, and the smaller towns of Rushden, Raunds and Oundle, characterised by red brick buildings, with attractive stone buildings common in older villages and in the buildings of larger country estates with their prominent parklands. Settlements are never very far away and the church spires and towers are one of the more prominent features of rural areas.

- **Sense of history:** The history of the landscape is evident in the area's long history of occupation. Cropmarks and remnant ridge-and-furrow and other earthworks are found alongside historic sites, including the complex of medieval structures at Fotheringhay. Northampton was a significant Viking settlement and strategic site marked by its castle, growing rapidly in the 18th and 19th centuries as a result of the leather industry. Red brick construction, with limestone and use of render, is typical of the area, both in the older village cores and in the more regimented terraces of the area's industrial towns and villages. Other key historic features include a network of Roman roads and the Grand Union Canal, with features dating from the Industrial Revolution onwards. Aspects of history likely to be most evident to the general public include the estates of Castle Ashby, Elton Hall and Milton Hall, as well as the large churches and church spires of the area.
- **Recreation:** Recreation is supported by the area's 1,178-kilometre rights of way network (with a density of 1.3 km per km²) as well as a small area of open access land totalling just over 14 ha (0.01 per cent of the NCA). Stanwick Lakes is a very large wildlife and water-based recreation site that has been recognised as an award-winning green infrastructure development. The Sywell Reservoir and Country Park is also a popular local attraction. Other areas of recreational interest include Ecton Brook Linear Park, which has picnic areas along its length; and East Carlton Country Park. Many of the country parks are formed from the disused gravel extraction sites.
- **Biodiversity:** This NCA is increasing and expanding its wetland habitats through reclaiming gravel pits and working with farmers to restore areas around gravel pits. The Upper Nene Valley Gravel Pits were designated as an SPA in 2011 in recognition of a water bird assemblage that includes non-breeding great bittern, gadwall and European golden plover. The rivers

and associated habitats also provide regional ecosystem services. Work continues through the Nene Valley Nature Improvement Area and other local projects to re-create and re-connect natural areas.



This NCA is increasing and expanding its wetland habitats through the reclamation of gravel pits and restoration of the areas around them.

Statements of Environmental Opportunity

SEO 1: Appropriately manage the flood plains of the River Nene and River Welland, their tributaries, and the Upper Nene Valley Gravel Pits Special Protection Area, and deliver the most beneficial restoration of sand and gravel extraction sites, to enhance associated habitats and biodiversity and connections with the farmed environment; to regulate water flow, water quality and water availability; to enhance landscape character; and to increase the opportunities for informal recreation.

For example by:

- Managing existing lakes created from sand and gravel extraction, to enhance visitor facilities and recreation opportunities while ensuring the conservation and enhancement of their biodiversity value. Plan and manage the future restoration of sand and gravel sites for after-use as wetland habitats such as meadows, reedbeds and marshland.
- Supporting the creation of new landscapes following aggregate extraction which provide multiple benefits for people and wildlife.
- Promoting the management and replanting of riparian vegetation, including willow pollards, to conserve this highly distinctive and prominent landscape feature that traces the site of river and stream channels, giving it prominence in the wider landscape, particularly in the Nene and Welland valleys.
- Promoting the management of existing woodland, together with small-scale new woodland planting. In the Nene Valley this should focus on the valley side slopes or be associated with the restoration of gravel workings, where wet woodland in particular should be encouraged as part of a mosaic of wetland habitats that includes reedbed, fen, some open water and wet grassland. In the Ise Valley, new planting should reflect the existing pattern of coverts and linear planting along the watercourse; in the Welland Valley new planting should take place on the gentle valley sides to integrate with Rockingham Forest scarp to the south.
- Planning for future land management that seeks to restore more natural river channels and drainage patterns and creates areas of permanently or seasonally wet meadow, reedbed and other typical riverside land uses. Priority should be given to habitat enhancement in proximity to existing areas of wet meadow and designated nature conservation sites and where the influence of habitat enhancement can also extend more widely into the farmed environment.
- Managing and enhancing the streams, rivers and lakes, taking a catchment-based approach so that they achieve and maintain good ecological status.
- Planning for new access routes, particularly around Grafton, Lowick, Brigstock, Weekley and other parishes that are poorly served by existing access and where demand can be shown. Where appropriate, link to the aims and objectives of the Nene Valley Nature Improvement Area and the Welland Valley Partnership.
- Maintaining and extending public access routes within the National Character Area (NCA), linking where possible with existing routes such as the Nene Way.
- Planting new woodland and streamside vegetation that will provide 'stepping stones' linking areas of semi-natural habitat, to facilitate the dispersal of wildlife species and extend the carbon sequestering potential of the NCA.

SEO 2: Sustainably manage the soils, productive farming, woodlands, coverts and spinneys that contribute to the sense of place, maintaining viable long-term food production and protecting historical and cultural assets such as the ridge-and-furrow sites found in the Nene and Welland valleys, the historic parklands and the variety of field patterns.

For example by:

- Conserving and maintaining ridge-and-furrow cultivation earthworks and important medieval settlement remains, for example at Sutton Bassett and Welham (Welland Valley), Great Oxendon and Clipston (Ise Valley), by working with farmers to alter damaging cultivation practices.
- Conserving remaining areas of historic designed parkland, typically on the edge of the area next to the more wooded landscapes, for example by working with landowners to protect important features such as veteran trees and by planting replacement trees of appropriate species in keeping with historic landscape character.
- Managing soils to allow continued sustainable agricultural production by increasing the soils' organic content and water infiltration, for example through the use of grass buffers along watercourses and inclusion of fallow in crop rotation.
- Working with landowners and managers to maintain and enhance the orchards, woodlands, coverts and spinneys.
- Encouraging best farming practices to improve soil structure.
- Enhancing and expanding the network of semi-natural habitats to build resilience to climate change and to aid the movement of species and bring benefits for pest regulation within food crops, as well as pollination and biodiversity.
- Managing unimproved species-rich grasslands and retaining ridge and furrow for their many functions, including their educational value.

- Promoting the management of existing hedgerows, reinstating hedgerows in areas where they have become intermittent, and initiating an ongoing programme for the monitoring and replanting of mature hedgerow trees to conserve and enhance the overall structure of the landscape. Attention should focus on sinuous ancient hedgerows and fringes of settlements, as well as hedgerows along roads and public rights of way.



To conserve and enhance the overall structure of the landscape there is an opportunity to promote the management of existing hedgerows and reinstate hedgerows and hedgerow trees in areas where they have become intermittent.

SEO 3: Plan ongoing strategic growth and development within the area so that it strengthens the sense of place and increases biodiversity, incorporating extended and restored hedgerow networks, open spaces and the conservation, management and promotion of geological features as part of green infrastructure planning.

For example by:

- Ensuring that the location, form and design of the planned sustainable urban extensions around Northampton are guided by landscape character assessment objectives and incorporate large-scale landscaping measures that can link to the green infrastructure network. This would both counteract the dominance of new developments and contribute to climate change adaptation.
- Encouraging tree planting around settlement fringes to help to reduce visual impact, integrate new development into the landscape and contribute to an increase in the woodland resource.
- Working to ensure that future change is informed by and appropriate to local character and that new buildings use appropriately characteristic materials including local limestone and ironstone.
- Conserving more remote areas from development by working to ensure that traditional settlement patterns are retained and that relatively high levels of tranquillity are maintained.
- Conserving, managing and promoting the nationally and locally important geological features (for example, mineral resources) that characterise this NCA, seeking to interpret them in order to provide educational opportunities to understand past environmental change.
- Identifying the sources of high levels of light pollution and seeking to mitigate the effects by careful landscape planning – or directly seeking to reduce lighting levels where appropriate.



Summer Leys Local Nature Reserve (within the Nene Valley SPA) acts as important green infrastructure provision for nearby communities.

Supporting document 1: Key facts and data

Total area: 90,387 ha

1. Landscape and nature conservation designations

There are no landscape designations in this NCA.

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	n/a	n/a	0	0
European	Special Protection Area (SPA)	Upper Nene Valley Gravel Pits SPA	1,358	2
	Special Area of Conservation (SAC)	n/a	0	0
National	National Nature Reserve (NNR)	n/a	0	0
National	Site of Special Scientific Interest (SSSI)	A total of 22 sites wholly or partly within the NCA	1,647	2

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 245 local sites in Northamptonshire Vales covering 3,570 ha, which is 4 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: 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)	% of SSSI land in category condition
Unfavourable declining	5	<1
Favourable	627	38
Unfavourable no change	64	4
Unfavourable recovering	946	58

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 5 m above sea level to a maximum of 164 m. The average elevation of the landscape is 84 m above sea level.

Source: Natural England (2010)

2.2 Landform and process

This large, complex and heterogeneous area comprises low-lying clay vales and river valleys extending between wold landscapes and other areas of higher ground.

Source: Northamptonshire Vales Countryside Character Area description

2.3 Bedrock geology

East of the Northamptonshire clay wolds, the younger, harder rocks of the Inferior Oolite extend south-west to north-east through Northampton, juxtaposed with outcrops of the Great Oolite and Cornbrash along the Nene Valley.

Source: Northamptonshire Vales Countryside Character Area description

2.4 Superficial deposits

The River Nene dominates the area; the gravel, alluvial and head deposits along the river have considerably influenced the settlement patterns and industry of the area.

Source: Northamptonshire Vales Countryside Character Area description

2.5 Designated geological sites

Designation	Number of sites
Geological Site of Special Scientific Interest (SSSI)	6
Mixed interest SSSI	0

There are 22 Local Geological Sites within 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>

2.6 Soils and Agricultural Land Classification

Mudstones underlie more than half of this area and give rise to productive clay soils. The area has fertile soils along the river corridors owing to the conditions produced by the alluvial and glacial drift deposits. Farmed land can be found across the area as a result of the fertile soils resulting in predominantly Grade 3 agricultural land. None of the area is classified as Grade 1.

Source: Natural England (2010), Northamptonshire Vales 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):

Agricultural Land Classification	Area (ha)	% of NCA
Grade 1	n/a	n/a
Grade 2	1,1564	13
Grade 3	67,585	75
Grade 4	4,559	5
Grade 5	n/a	n/a
Non-agricultural	310	<1
Urban	6,370	7

Source: Natural England (2010)

Maps showing locations of Statutory sites can be found at:

<http://magic.defra.gov.uk/website/magic/> – select 'Landscape' (shows ALC classification and 27 types of soils)

3. Key water bodies and catchments

3.1 Major rivers/canals

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

Name	Length (km)
River Nene	98
River Welland	28
Grand Union Canal	22
River Ise	16
River Tove	8
Harper's Brook	4
Eye Brook	2

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.

The major rivers are the Nene and the Welland. Higher ground on the Northamptonshire clay wolds and Rockingham Forest axis divides the Welland and Nene valleys, where the extensive northern catchment is fed by large streams and small rivers including the Ise. More than 22 km of the Grand Union Canal runs through this NCA linking London with Birmingham.

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 90,387 ha, or 100 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

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

4. Trees and woodlands

4.1 Total woodland cover

The NCA contains 3,782 ha of woodland (4 per cent of the total area), of which 527 ha is ancient woodland.

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

4.2 Distribution and size of woodland and trees in the landscape

There is considerable variety in the distribution and extent of tree cover. On some of the valley flood plains, like parts of the Welland valley, there are substantial numbers of waterside trees. Woodlands are mainly confined to the valley sides and to copses and spinneys on ridges.

Source: Northamptonshire Vales 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	2,884	3
Coniferous	530	1
Mixed	98	<1
Other	270	<1

Source: Forestry Commission (2011)

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

Woodland type	Area (ha)	% of NCA
Ancient semi-natural woodland	313	<1
Ancient re-planted woodland (PAWS)	214	<1

Source: Natural England (2004)



The woodland cover in this area derives mainly from spinneys, copses, hedgerow trees and hedgerows.

5. Boundary features and patterns

5.1 Boundary features

There is much variety in the distribution and extent of hedgerow and tree cover and the density of hedgerows. On some valley flood plains, such as that of the Welland, there are substantial numbers of waterside trees and meadows. Elsewhere flatter areas are used as arable farmland with low and intermittent hedgerows.

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

5.2 Field patterns

There is a considerable variety of field systems, largely, related to the process of regular enclosure undertaken in the late 18th and 19th centuries. The survival of fragments of ridge and furrow under pasture and, most importantly, the survival of legible open field patterns in the nationally important townships of Sutton Basset and Welham (Welland Valley), Great Oxendon and Clipston (Ise Valley) and Easton Neston and Bythorn and Keyston (Nene Valley). In the Nene and Ise valleys the principal fieldscapes are those of 19th century parliamentary enclosure; regular geometric patterns with straight hedgerows and roads among which sit the newly created farmsteads and field barns of that time.

Source: Northamptonshire Vales 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

Cereal farms are the most numerous in this NCA with 287, followed by 166 grazing livestock holdings. There was a 46 per cent reduction in the number of dairy farms between 2000 and 2009, falling from 26 to 12. There was also a drop in mixed farming of 72 per cent. Cereal farming has only seen a slight rise from 283 to 287 farms.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Holdings over 100 ha in size are the most numerous, with 214 accounting for nearly 31 per cent of the farmed area. The area of holdings remained fairly static from 2000 to 2009.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

2009: Total farm area = 63,992ha; owned land = 42,198ha

2000: Total farm area = 69,362ha; owned land = 44,378ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

Forty per cent of the farmed land is used for growing cereal crops (25,907 ha), followed by 34 per cent used for grass and uncropped land (21,717 ha). These figures remained constant between 2000 and 2009.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

Sheep are the most common livestock (77,000) followed by cattle (23,100) and pigs (4,900). Between 2000 and 2009 the number of sheep fell by 45,700 (37 per cent). The number of cattle and pigs also fell between 2000 and 2009, by 11 per cent (2,900) and 66 per cent (9,700) respectively.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The number of full-time principal farmers fell slightly between 2000 and 2009; down from 981 to 894. Numbers of full-time farm workers also fell during this time from 332 to 231 as did part-time workers from 332 to 171. However the number of casual workers rose from 116 to 207.

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

Wildlife occurs throughout the area in a wide range of habitats found in both rural and urban areas. Farmed land is an important habitat and in common with much of lowland England, arable land and agriculturally improved pasture comprise a major proportion of the habitats now present within the NCA. These habitats give much of the character to the area and support a wide range of species, including some that have undergone dramatic declines such as skylark and grey partridge.

Source: West Anglian Plain 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; 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
Fens	13,969	15
Coastal flood plain and grazing marsh	3,007	3
Broadleaved mixed and yew woodland (broad habitat)	1,238	1
Lowland meadows	230	<1
Lowland calcareous grassland	104	<1
Lowland heathland	74	<1
Limestone pavement	62	<1
Purple moorgrass and rush pasture	13	<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/>

8. Settlement and development patterns

8.1 Settlement pattern

There have been moderately high rates of change from rural to urban and a large share of national build outside urban and urban fringe areas. There is development around the M1 motorway junctions near to Northampton and Towcester in association with the upgrading of the A43. There has also been notable development around Thrapston and Rushden, Desborough and Wellingborough associated with the A45. Development continues to transform the character of the area. The relatively open and densely settled character of this landscape means that urban areas and infrastructure are often visually dominant.

Northamptonshire Vales Countryside Character Area description;
Countryside Quality Counts (2003)

8.2 Main settlements

The main settlements within the Northamptonshire Vales are; Northampton, Wellingborough, Market Harborough, Rushden, Thrapston, and Oundle. The total estimated population for this NCA (derived from ONS 2001 census data) is: 423,720.

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

8.3 Local vernacular and building materials

Older buildings are constructed in a range of local stone. Oundle is predominantly a limestone town and nearby Fotheringhay church is also built from fine limestone. Barnack Stone and Collyweston slate are used locally in the east of the area. Ironstone can also be found along the Welland, extending down into the central Nene Valley. Brick predominates in the towns.

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

9. Key historic sites and features

9.1 Origin of historic features

Historic designed parks and garden are frequent and often sited at the edge of the area, adjacent to more wooded landscapes. The river valleys, and the Nene terraces in particular, contain a dense and varied array of archaeological evidence representing clearance and settlement from the Neolithic onwards. Clearance altered the landscape both here and downstream, though increased slopewash and alluvial processes, contributing to the development of the fens to the east. The elaboration of manors and the development of grand houses was a particular feature of the area in the 18th and 19th centuries, reflecting agricultural, industrial and commercial wealth generated both within the county and abroad by the major landowning families of the day. Parkland remains a significant component of the valley landscapes. Industrial centres developed in the late 18th and 19th centuries, centred on the boot and shoe

manufacture in Northampton. Textiles, engineering, iron works and brickworks transformed settlements in the eastern part of the area, spurred by the development of first the Grand Union Canal and later railways.

Source: **Countryside Quality Counts Draft Historic profile, Countryside Character Area description**

9.2 Designated historic assets

This NCA has the following historic designations:

- 9 Registered Parks and Gardens covering 684 ha
- 1 Registered Battlefields covering 88 ha
- 98 Scheduled Monuments
- 2,964 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

- One per cent of the NCA 1,113 ha is classified as being publically accessible.
- There are 1,178 km of public rights of way at a density of 1.3 km per km².
- There are no National Trails within the Northamptonshire Vales NCA.

Sources: **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)	0	0
Common Land	8	<1
Country Parks	165	<1
CROW Access Land (Section 4 and 16)	180	<1
CROW Section 15	<1	<1
Village Greens	19	<1
Doorstep Greens	<1	<1
Forestry Commission Walkers Welcome Grants	50	<1
Local Nature Reserves (LNR)	254	<1
Millennium Greens	1	<1
Accessible National Nature Reserves (NNR)	0	0
Agri-environment Scheme Access	443	<1
Woods for People	292	<1

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 least tranquil areas correspond with the settlements and in particular the larger towns in the NCA such as Northampton.

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

Tranquillity	Tranquillity Score
Highest value within NCA	38
Lowest value within NCA	-89
Mean value within NCA	-8

Sources: 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 particularly around Northampton areas are increasingly disturbed whereas the more rural areas and villages experience less intrusion. A breakdown of intrusion values for this NCA is detailed in the table below.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	35	57	61	26
Undisturbed	59	37	29	-30
Urban	6	6	10	4

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are the high percentage change in urban areas; a result of the developments around the M1 and Northampton.

More information is available at the following address:

<http://www.cpre.org.uk/resources/countryside/tranquil-places>



In this area settlements are never very far away and the church spires and towers are one of the more prominent features of rural areas.

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 Inventory of Woodland & Trees, Forestry Commission (2003)
- 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)Detailed River Network, Environment Agency (2008)

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 and trends

Trees and woodlands

- Dutch elm disease affected large parts of the area during the 20th century. Woodland cover is generally sparse (covering four per cent of the NCA), except for intermittent small woodlands and small valley-side woods, spinneys and copses on the ridges and more undulating land.
- Agricultural activities on adjacent areas have caused impoverishment of woodland flora, through eutrophication and spray drift, particularly on smaller sites. Conversion of pasture to arable land with close ploughing has also sometimes resulted in tree root damage.



There has already been a slight increase in arable farming in this NCA contributing to the national drive for greater self-sufficiency in food production.

- Habitat fragmentation is evident across the area. There is a lack of younger generations of trees producing an uneven age structure, leading to breaks in continuity of deadwood habitat and loss of specialised dependent species.
- Mature trees have also been affected by urban development and agricultural practices, removal of trees for safety reasons or perceptions of tidiness, lack of management, for example re-pollarding and unsympathetic pollarding.
- Wet woodland and successional scrub growth around former gravel extraction sites has increased notably, in places much changing the character of the previously open flood plain.

Boundary features

- There is variety in the distribution and extent of hedgerows, hedgerow tree cover and density of hedgerows. On some valley flood plains, such as that of the Welland and Nene, there are waterside trees and meadows, but elsewhere flatter areas are arable farmland with low and intermittent hedgerows.
- In some areas, neglect of hedgerows and lack of management or over-management, has led to noticeable change in the overall structure of the landscape and an increase in the visual dominance of urban influences.

Agriculture

- There is a mix of arable and pasture land, with arable land on the broader flat river terraces and smaller pastures on the slopes of many minor valleys and on more undulating ground.

- Between 2000 and 2009 dairy farms have reduced by nearly a half and cereal farming has seen a slight increase.
- Expansion of the numerous urban centres of the area ‘consumes’ some agricultural land.

Settlement and development

- This NCA is dominated by the urban areas of Northampton and Wellingborough and the smaller towns of Rushden, Raunds and Oundle, among others. Northampton is defined as a Principal Urban Area and the need for urban intensification and planned, sustainable urban extensions has been highlighted.
- There has been substantial increased development of large edge-of-town buildings and new roads, notably along the M1, A45 and A14 roads, which can be intrusive in what is often a very open landscape. Urban expansion, in particular along the Nene Valley, will continue to reinforce the 20th-century character of the landscape, adding commercial and recreational features alongside housing.
- High-density residential development at the edges of villages and towns is visually intrusive and alters the historic settlement pattern, layout and character of villages across this area.

Semi-natural habitat

- Trends show that semi-natural habitat has been lost to many different land uses; gravel extraction, farming and development but in the last few years this trend has started to slowly reverse as restoration opportunities within redundant gravel extraction sites become available and projects such as the Nene Regional Park (and Nene Valley Nature Improvement Area) actively restore semi-natural habitat.

- Semi-natural habitat currently covers two per cent of the NCA.

Historic features

- Changes in land use threaten to diminish still further the area’s important legacy of ridge and furrow cultivation under pasture, a particular feature in the Laughton Hills.
- In 1918 about 3 per cent of the area was historic parkland. By 1995 it is estimated that 49 per cent of the 1918 area had been lost. About 29 per cent of the remaining parkland is covered by a Historic Parkland Grant, and 9 per cent is included in an agri-environmental scheme. About 71 per cent of listed historic farm buildings remain unconverted. Most are intact structurally.

Coast and rivers

- Changes that have affected the rivers include: infilling, river engineering schemes, siltation as a result of agricultural cultivation, road building and other developments which increase run-off and alter the catchment characteristics, recreational pressures and eutrophication caused by fertiliser application.
- The Grand Union Canal has been subject to eutrophication from fertiliser application to surrounding land and increased recreational use, including boating and fishing, with associated dredging and management.

Minerals

- There has been large-scale mineral extraction throughout the NCA. Ironstone has been won in the east of the area, particularly around the edges of Rockingham Forest, and sand and gravel have been extensively excavated, particularly along the Nene creating a new wetland landscape.

Drivers of change

Climate change

- The Northamptonshire Vales is un-wooded in character so what tree and woodland cover there is makes an important contribution. Climate impacts may make subtle and varied changes to this landscape overall but it is likely that impacts in some places will be more significant. It is likely that individual trees, groups of trees and hedgerows may be more at risk of loss and damage, notably due to pests/disease, drought stress, wind-blow and fire.
 - Climate change may bring increased risk of soil erosion and unstable ground (landslides). It may lead to increased risk of flooding and there may be unseasonable flooding of meadows along the valley floors.
 - There are potential impacts of reduced rainfall on the NCA's wetlands which are of major biodiversity interest- drying out of features may have serious implications for current species assemblages, particularly birds within the SPA.
 - Increased summer temperatures may lead to an increase of incidents of algae bloom on some of the larger waterbodies and drought stress in arable crops.
 - As air temperatures rise, so do water temperatures particularly in shallow stretches of rivers and the surface waters of lakes. The rivers and streams may become unsuitable for certain species of fish.
 - Stream flows may peak earlier in the spring owing to warmer temperatures and higher rainfall, and low stream flows begin earlier in the summer and last longer into the autumn. These changes stress aquatic plants and animals that have adapted to specific flow conditions.
- Non-native invasive species may find favourable conditions (a particular problem where fertile soils combine with increased temperatures and changes in precipitation).

Other key drivers

- There has already been a slight increase in arable farming in this NCA and with increased pressure for food production as a result of a national drive for greater self-sufficiency this trend is likely to continue.
- Lowland meadows and pasture within the flood plain will play a more important role in retaining and storing floodwater and this traditional type of management would further assist in flood risk regulation.
- Continued pressure for growth, development and infrastructure associated with on-going expansion of Northampton, Wellingborough, the other Nene Valley towns and Market Harborough.
- Initiatives such as the Nene Valley Nature Improvement Area which aims to reverse the decline in biodiversity and restore the ecological network in the Nene Valley. Help meet the challenges of a growing population, changing climate, and need to produce food while realising complementary benefits that create a naturally functioning interlinked landscape
- Continuing pressure for gravel extraction along the river valleys.

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.



Hay meadow with improving species diversity.

Statement of Environmental Opportunity	Ecosystem service																		
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place / Inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Appropriately manage the flood plains of the River Nene and River Welland, their tributaries, and the Upper Nene Valley Gravel Pits Special Protection Area, and deliver the most beneficial restoration of sand and gravel extraction sites, to enhance associated habitats and biodiversity and connections with the farmed environment; to regulate water flow, water quality and water availability; to enhance landscape character; and to increase the opportunities for informal recreation.	↔ *	↗ **	↗ **	↔ *	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ *	↗ *	n/a	↗ ***	↗ ***	↗ *	↗ ***	↗ ***	↗ *
SEO 2: Sustainably manage the soils, productive farming, woodlands, coverts and spinneys that contribute to the sense of place, maintaining viable long-term food production and protecting historical and cultural assets such as the ridge-and-furrow sites found in the Nene and Welland valleys, the historic parklands and the variety of field patterns.	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	↗ ***	n/a	↗ ***	↗ ***	↗ ***	↔ *	↗ ***	↗ *
SEO 3: Plan ongoing strategic growth and development within the area so that it strengthens the sense of place and increases biodiversity, incorporating extended and restored hedgerow networks, open spaces and the conservation, management and promotion of geological features as part of green infrastructure planning.	↔ *	↗ **	↗ ***	↔ *	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ *	↗ *	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>An open landscape of gentle clay ridges and valleys of gently undulating land with occasional steep scarp slopes.</p>	<ul style="list-style-type: none"> ■ Underlain by Mercia Mudstones, these rocks gives rise to a moderately undulating landscape characterised by a mixture of pasture and arable agricultural use that has developed on the neutral clay soils. ■ The valleys drain radially from the uplands and have a significant influence on the landscape where the streams have eroded convex sloped valleys that are in part responsible for creating the undulating landform.
<p>Many historic features particularly buried archaeological remains, Roman roads, buildings, canals, ridge-and-furrow and other earthworks, and historic parks, gardens and estates.</p>	<ul style="list-style-type: none"> ■ The history of the landscape is evident in the area's long history of occupation. Cropmarks, remnant ridge and furrow and other earthworks are found alongside historic sites, for example the complex of medieval structures at Fotheringhay. ■ Over time the landscape became dominated by frequent nucleated villages which grew particularly in the Middle Ages. Northampton was a significant Viking settlement and nationally strategic site marked by its castle, growing rapidly in the 18th and 19th centuries linked to the leather and shoemaking industry. ■ There is remaining evidence of the bronze-age pattern of settlement along the main valleys and a network of Roman roads which still influence the character of the area, such as the route of the A5. ■ The landscape contains a considerable variety in field patterns, despite a strong pattern of enclosure; regular geometric patterns with straight hedgerows and roads among which sit farmsteads, there are also sizeable areas of less regular non-Parliamentary enclosures dating from the 16th and 17th centuries such as those along the Brampton Brook and River Ise. ■ Fragments of ridge and furrow survive under pasture and, most importantly, the survival of open field patterns at Sutton Bassett and Welham (Welland Valley), Great Oxendon and Clipston (Ise Valley).
<p>Varied field and hedgerow pattern.</p>	<ul style="list-style-type: none"> ■ In some areas neglect of hedgerows and lack of management or over-management, has led to the decline of the overall structure of the landscape and an increase in the visual dominance of urban influences. ■ There is considerable variety in the distribution, condition and extent and density of hedgerow and tree cover. Hedgerows tend to be low and hedgerow trees are often in poor condition. There are substantial waterside trees and meadows, but generally the flatter areas are given over to arable where hedgerows can be particularly low, broken or intermittent, for example at Dingley.

Landscape attribute	Justification for selection
Open landscape with many urban areas and large, visually dominant settlements.	<ul style="list-style-type: none"> ■ This is a landscape dominated by the urban areas of Northampton and Wellingborough, and their associated urban fringe development. Red brick construction, with limestone and use of render, is typical of the area, both in the older village cores and in the more regimented terraces of the area's industrial towns and villages.
Distinctive river valleys of the Welland and Nene with flat flood plains and gravel terraces.	<ul style="list-style-type: none"> ■ Riverside meadows and waterside trees and shrubs are common. ■ Gravel extraction is prominent along the Nene Valley, often on land previously used as flood meadow and arable farmland. ■ The Welland Valley is narrow and remote, the main industrial influence being the views of Ketton cement works to the north. On the narrow valley bottom, meadows are frequent but there has been much conversion to arable in recent years and the overall character is remote and rural. ■ The Nene, a navigable river, has well-defined terraces and it is fed by numerous tributaries forming side valleys. Much of the flood plain is now dominated by either active gravel working or the lakes formed from former workings and crossed by willow-lined causeway roads.
Low percentage of woodland resource.	<ul style="list-style-type: none"> ■ Only 4 per cent of the NCA is woodland. ■ A timbered character is derived only from the presence of spinneys and copses on the ridges and more undulating land and from waterside and hedgerow trees and hedgerows. ■ Dutch elm disease has negatively affected tree cover.
Mixed pasture and arable agricultural use that has developed on the neutral clay soils.	<ul style="list-style-type: none"> ■ Neutral clay soils supporting three quarters of the area are Grade 3 agricultural land. ■ An area of mixed farming where on the slopes of the many minor valleys, on more undulating ground generally and close to settlements, pasture in small fields tends to predominate. ■ There is a tendency for arable land on the broader flat river terraces. ■ Between 2000 and 2009 cereal farming has increased slightly while dairy farming has reduced by one half.

Landscape attribute	Justification for selection
<p>The area is characterised by red brick buildings and attractive stone buildings in older village centres and the eastern towns and villages.</p>	<ul style="list-style-type: none"> ■ The smaller towns of Rushden, Raunds and Oundle, are characterised by red brick buildings with attractive stone buildings common in older villages and in the buildings of larger country estates with their prominent parklands. ■ Collyweston Slate and Barnack Stone are also found on the edge of the area from the quarries at Barnack in the Soke of Peterborough and Collyweston. ■ The Lias Limestone at the centre of the area comprises greyish-blue clays with limestone and sandstone beds that come to the surface in the centre of Northamptonshire and around Market Harborough, although exposures are few. Certain beds within the Lias are of commercial importance, notably the marlstone or 'rock bed', at the top of the Middle Lias, which is used as a building stone, and parts of the Upper Lias which are excavated for brick-making. ■ Northamptonshire Sand outcrops around Northampton and contains the distinctive ironstone with which so many buildings in Northamptonshire are constructed, particularly the villages in the north of the county, and surrounding counties.

Landscape opportunities

- Protect the open gently undulating landscape of gentle clay ridges and valleys with occasional steep scarp slopes with its rich and varied geodiversity and heritage features and its fragile but valuable woodland and hedgerow resource.
- Protect this landscape's mixed farming regime and encourage the retention of pasture. Extend the influence of high quality patches of unimproved grassland by linking and buffering them with lowland pasture, hay meadows and grass margins and manage lowland grassland to prevent fragmentation to improve habitat condition, encourage species diversity and resilience to climate change following appropriate management options under Environmental Stewardship.
- Protect from damage and appropriately manage the areas cultural and historical heritage in particular the areas of ridge and furrow, historic country houses and their parkland setting in a landscape including veteran trees and hedgerows.
- Plan to establish a strong landscape framework as a context to potential modern development expansion from Northampton ensuring that new development does not have a negative impact on landscape character. Consider the visual impact of modern development particularly from urban intrusion and manage road improvements to maintain the existing character of the rural road network.
- Manage arable cropping patterns and arable cultivation to maintain strong visual identity and encourage rare arable plants and the range of farmland birds and mammals, following appropriate management options under Environmental Stewardship.
- Manage and conserve the distinctive field patterns, hedgerow networks and hedgerow trees. Ensure woodland can be managed as a single entity and include measures to reduce their fragmentation and restore structural diversity. Reintroduce active coppice management where this will enhance woodland habitat and wildlife interest and strengthen hedgerow networks, particularly the Midlands style of hedge laying and where hedgerows connect areas of woodland.
- Manage the network of streams and rivers, such as the Nene and the Welland, to maintain them as distinctive features in the landscape and enhance their riverine character and wildlife interest, while restoring, expanding and re-linking wetland habitats, and bringing rivers back into continuity with their flood plains where these will help sustain wetland habitats.
- Plan for the opportunity to enhance the old workings of gravel extraction sites along the river valleys, creating new wetland habitats and providing access and recreational opportunities.
- Plan for the use of traditional building materials for construction, extension and repair work.

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 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	Analysis	Opportunities	Principal service offered by opportunities
Food provision	Soils Mixed farming regime	Underlain by Mercia Mudstones these rocks give rise to a moderately undulating landscape characterised by mixed pasture and arable agricultural use that has developed on the neutral clay soils. Arable farming can be found across the area with around three quarters of the area being Grade 3 agricultural land. On steeper ground and where clays are heavier, pasture farming is common. Between 2000 and 2009 dairy farms have reduced by nearly a half and cereal farming has seen a slight increase.	Local	Intensively farmed soils can become vulnerable to compaction and erosion. It will be important to maintain high levels of soil organic content and good soil structure to ensure soils remain productive. Arable farming can provide multiple benefits in maintaining the level of food production and for potentially enhancing biodiversity and preserving the historic landscape character. Pressures include the reduction or loss of permanent pasture to arable and the potential effects of diffuse pollution on watercourses particularly along the rivers Welland and Nene. To achieve a balance and optimise food production, land managers and farmers could be encouraged into agri-environment schemes. Ongoing expansion of the many towns across the area and the extraction of aggregates have resulted in loss of farmland, mainly pasture.	Manage soils to allow continued sustainable agricultural production by increasing soil organic content and water infiltration, for example use of grass buffers along watercourses and inclusion of fallow in crop rotation. Seek to work with farmers to manage arable cropping patterns to maintain levels of productivity while encouraging rarer arable plants, farmland birds and mammals and create grass margins around arable fields. Extend agri-environment agreements with farmers to minimise the effects of diffuse pollution by adopting buffer strip management particularly along the rivers Welland and Nene to help improve water quality and to reduce inappropriate loss of pasture to arable.	Food provision Biodiversity Pollination Sense of history Sense of place/ inspiration Regulating water quality Regulating soil quality Regulating soil erosion

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Timber provision	<p>Areas of existing woodlands</p> <p>Parkland areas with woods and trees</p>	<p>This area has a low hectarage (3,782 ha) of woodland with no significant commercial forestry interest so current timber provision is low.</p> <p>The woodland covers 4 per cent of the NCA, of which just less than 15 per cent is ancient woodland.</p>	Local	<p>Bringing existing undermanaged woodland into management could increase the local supply of timber in the future which may also bring benefits for biodiversity, water quality, soil quality, and reducing soil erosion.</p> <p>Better management of the historic woodland within parkland areas could lead to the more efficient and sustainable harvesting of timber using techniques such as coppicing.</p> <p>By reintroducing coppicing there will be an increase in small section timber available in the area and spin off benefits for biodiversity with healthier and more diverse woodland stock.</p> <p>A range of woodland management techniques are required, including non-intervention; dead wood is an important component of semi-natural woodlands for biodiversity as well as nutrient cycling and soil formation which supports the regulation of soil erosion, soil quality, climate and water quality.</p>	Bring woodlands, including woodlands within parklands, into active management and re-introduce coppicing to increase timber provision.	<p>Timber provision</p> <p>Biodiversity</p> <p>Sense of place/ inspiration</p> <p>Sense of history</p> <p>Climate regulation</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Regulating water quality</p> <p>Regulating water flow</p> <p>Biomass energy</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Water availability	Rivers Reservoirs Semi-natural habitats Topography	<p>There are a large number of main rivers in the NCA including; the River Welland, the Eye Brook, the River Nene, Harpers Brook, the River Ise, and the River Tove. There are also a number of waterbodies located along the River Nene Valley and the Sywell Reservoir. There are no major aquifers in the NCA.</p> <p>The upper River Welland and its tributaries (which include the Eye Brook) have a CAMS 'over-abstracted' status.⁶ The River Nene is an important source of water for public water supply, supplying water to fill and maintain both the Pitsford and Rutland reservoirs (both located outside this NCA). The River Nene and its main tributaries (the River Ise and Harpers Brook) have an 'over-licensed' CAMS status⁷ while the River Tove has CAMS status of 'no water available'.⁸</p>	Regional	<p>Water resources during dry months can be scarce. In severe cases, low flows and water levels can affect water supply causing restrictions to people and business. Provision of water for livestock from rivers may also be compromised.</p> <p>The ability of a catchment to maintain a constant flow rather than experience flood and drought episodes is improved by healthy soils and vegetative cover, which improves infiltration of rainfall. Climate change is likely to result in more intense precipitation events with warmer, drier summers in the long term, and future demand for water both for crop irrigation and public water supply is likely to increase.</p> <p>Water should be used sustainably and land management practices encouraged that which will increase water infiltration.</p> <p>A partnership vision for the Welland Valley exists with an ambition for the River Welland, from its source to the sea including all associated watercourses, to</p> <ul style="list-style-type: none"> ■ Be cleaner and healthier. ■ Support more fish, birds, and other wildlife. ■ Meet the needs of drinking-water suppliers and business. ■ Provide a more attractive amenity for people to enjoy. ■ Be sensitively managed by everyone whose activities affect it. <p>The Nene Valley has a similar approach and vision, working in partnership to deliver a Nature Improvement Area.</p>	<p>Appropriately manage the rivers and tributaries of the Welland and Nene to protect the main water and recreation resources within the area.</p> <p>Seek opportunities to restore semi-natural habitats such as wet woodland and grazing marsh to improve water storage capacity while reducing flood risk and soil erosion, improving water quality, climate regulation, habitat networks and ecosystem resilience to climate change.</p> <p>Work with other partners to implement the Welland Improvement Plan and Nene Valley Nature Improvement Area objectives to tackle water resource and flow issues.</p> <p>Work in collaboration with riparian land owners and managers, potentially through the Catchment Sensitive Farming Scheme to manage watercourses to prevent diffuse pollution entering the water courses and allow water table levels to rise where appropriate.</p>	<p>Water availability</p> <p>Regulating water quality</p> <p>Biodiversity</p> <p>Recreation</p> <p>Sense of place / inspiration</p> <p>Regulating soil erosion</p>

³The Welland Catchment Abstraction Management Strategy, Environment Agency (April 2007)

⁴The Nene Catchment Abstraction Management Strategy, Environment Agency (March 2005)

⁵The Upper Ouse and Bedford Ouse Catchment Abstraction Management Strategy, Environment Agency (March 2005)

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Genetic diversity	Orchards	Local varieties of apples and pears such as the cooking apple 'Eady's Magnum' which was developed in about 1908 by Miss D.A. Eady of Wellingborough, are locally grown fruit. There are initiatives underway to encourage native orchards such as Wilson's Orchard in Northampton.	Local	It is important to maintain the genetic diversity of orchard fruit varieties in order to safeguard food provision and afford increased resilience to climate change and disease.	Seek to encourage viable harvests of local varieties of fruit to secure their future. Work with orchard owners and the local community to explore the potential to develop the brand and a local market for quality local fruit produce. Seek to raise the profile of the produce and its historical significance with the area through branding. Promote the production of the fruit as a good way of enhancing the biodiversity and landscape of the area.	Genetic diversity Sense of place/ inspiration Biodiversity Food provision Sense of history
Biomass energy	Soils Existing woodlands	The soils can support a potential high yield for short rotation coppice (SRC) and a medium potential miscanthus yield. The existing woodland cover (4 per cent of the NCA) is currently only used to produce small volumes of material for local wood fuel.	Local	The potential yield for short rotation coppice (SRC) is generally high in the NCA, although there are areas with medium/low SRC potential to the north of Northampton, to the north of Wellingborough and between Oundle and the south of Peterborough. The potential miscanthus yield in the NCA is generally medium, although there are some areas of high potential yield around Northampton and in the south-west and north-east of the NCA towards Peterborough. For information on the potential landscape impacts of biomass plantings within the NCA, refer to the tables on the Natural England website at: http://www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/areas/default.aspx Local woodland offers some potential for the provision of biomass, through bringing unmanaged woodland under management.	Seek opportunities to plant energy crops to increase biomass production while maintaining the overall character of the landscape. Ensure good soil management to keep soils fertile and increase biomass opportunities by increasing organic matter inputs. Bring unmanaged areas of woodland back into management to increase biomass production from existing areas of appropriate woodland.	Biomass energy Climate regulation Regulating soil erosion Regulating soil quality Biodiversity Timber provision Sense of place/ inspiration

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities	
Climate regulation	Soils	The mineral soils over the majority of the NCA have low carbon content. There are however, a number of pockets of soil in the NCA with a slightly higher carbon content (5 to 10 per cent) which may be associated with the small areas of loamy and clayey flood plain soils with naturally high groundwater (covering 9 per cent of the NCA). These are mainly mineral soils but some may be peaty at depth or include small volumes of peaty soils.	Local	Carbon sequestration and storage in mineral soils could be raised by improving soil structure, steadily increasing organic matter inputs to cultivated soils, and by reducing the frequency and area of cultivation (while avoiding the potential impacts on other ecosystem services such as water quality through diffuse pollution). Soil carbon and soil carbon storage will be higher under areas of woodland, pasture, reedbeds and grazing marsh.	Encourage the maintenance of permanent pasture to allow increases in soil carbon storage, with a subsequent improvement in soil quality.	Climate regulation	
	Existing woodlands						
	Grazing marsh						
	Pasture						
	Reedbeds	Higher carbon levels may also be associated with the soils of areas of flood plain grazing marsh, wet woodland, lowland meadows, reedbeds, and other semi-natural permanent grasslands where the soils will have remained undisturbed over a long period allowing organic matter to build up.			Temperature regulation is a particular challenge for urban areas which suffer the urban heat island effect, where the urban fabric absorbs and retains heat during the day and releases it at night, preventing urban areas and its inhabitants from cooling down.		Maintain woodland in good condition to benefit carbon storage in soils.
	Woodland and hedgerows						
	Urban forest (trees and woodlands)						
	Greenspace network including large public parks						
Green infrastructure	Trees in streets and public open spaces throughout the NCA provide shading to buildings and people. Trees, woodlands, and some vegetated green spaces regulate air temperature through evapotranspiration. This can impact on public health particularly in periods of high temperature.	Trees also remove pollutants from the air, improving air quality and capture carbon.	Increase appropriate woodland management (such as coppicing and pollarding) to increase both sequestration and the resilience of woodlands to climate change.	Ensure that any new woodland planting is generally appropriate, making a contribution to increasing the overall semi-natural habitat coverage in the region and integrating and enhancing the landscape, as well as boosting carbon storage.			
					Promote the use of the 'right tree, right place principle' for tree planting to take account of future climate change.		
					Identify areas within the urban realm that can help offset the urban heat island effect.		

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Regulating water quality	<p>Rivers, streams, and reservoirs and other large waterbodies</p> <p>Permanent pasture</p> <p>Woodlands and hedgerows</p> <p>Soils</p>	<p>Water quality in this NCA is in need of improvement. The potential ecological status of the River Ise and the Eye Brook is 'good'; that of Harpers Brook, the Grand Union Canal and the River Tove is 'moderate'; while that of the River Welland is 'poor'.</p> <p>Upstream of Northampton the River Nene has a 'moderate' ecological potential status, falling to 'poor' downstream but rising again to 'moderate' downstream of the Nene's confluence with the River Ise.</p> <p>The area is limited in woodland cover as a whole. Woodlands and hedgerows help to improve water quality by slowing down the pathway of run-off.</p> <p>Approx two- thirds of the soils in the area have impeded drainage and suffer from soil compaction and increased soil erosion which then runs off into water courses affecting quality. The permanent grassland sites in the area are less likely to be the source of impacts on water quality.</p> <p>The large urban areas throughout this NCA also impact on water quality demanding both waste water treatment and as a result of direct run-off from roads and other hard surfaces.</p>	Regional	<p>Wider application of best practice land management (Catchment Sensitive Farming techniques) would reduce nutrient and pesticide losses to water from agricultural holdings, increase best practise storage, handling and use of pesticides to reduce the loss to groundwater or watercourses, improve soil and manure management on agricultural holdings, improve the management of drainage water and dirty water on farm yards, limit the pathways for pesticides and nutrients entering the river.</p> <p>Water quality can be enhanced by ensuring that the rivers are kept in good condition, semi-natural vegetation used as buffer strips, and reedbeds as filtration systems that would also increase biodiversity and naturally filter the water enhancing the quality.</p> <p>Pressures affecting water quality include land use change, agricultural intensification and high levels of phosphorous from sewage treatment works and road run-off.</p> <p>Himalayan balsam, a non-native invasive plant which colonises the river banks, is also preventing native riverside plant species to thrive which in turn increases the amount of fine sediment entering the channel through surface run-off.</p> <p>Slowing the pathway of run-off could have significant impacts on regulating soil erosion and subsequent sedimentation, biodiversity and soil and pollution sources from urban areas.</p>	<p>Appropriately manage the rivers, streams and reservoirs to support and protect their biodiversity and ensure good water quality.</p> <p>Promote the Welland Implementation Plan and the Nene Valley Nature Improvement Area to domestic, agricultural and industrial stakeholders to improve the quality of the water in this catchment.</p> <p>Promote the Catchment Sensitive Farming Scheme to farmers and landowners.</p> <p>Ensure good management of woodlands and hedgerows so that they can act as natural barriers to run-off.</p> <p>Provide buffer strips of semi-natural vegetation around the reservoirs and along the river banks, and increase the quantity of reedbeds to naturally filter the water.</p> <p>Identify pollution pathways from urban areas and introduce green infrastructure where possible to improve downstream water quality.</p>	<p>Regulating water quality</p> <p>Regulating water quality</p> <p>Biodiversity</p> <p>Water availability</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Regulating water flow</p> <p>Sense of place/ inspiration</p> <p>Recreation</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Regulating water flow	<p>Rivers and streams</p> <p>Soils</p> <p>Semi-natural habitats; woodlands, flood plain grazing marsh</p> <p>Gravel extraction sites</p> <p>Green infrastructure in and around urban areas</p>	<p>The majority of the NCA is located within the River Nene catchment. The River Nene has a history of flooding. Flood risk in the NCA is generally caused by high rainfall which leads to watercourses and drains being overwhelmed, flood defences being overtopped or raised embankments breached. Numerous engineering schemes have been implemented to reduce flood risk in the NCA including a number of Flood Storage Reservoirs (FSRs) that provide protection; for example, Barnwell, Harrowden, Wilby, Northampton Washlands and Billing Brook detention ponds.</p> <p>Construction of flood walls and embankments in Thrapston, Kissingbury and Central Northampton also provide protection.</p> <p>Gravel extraction sites are prominent along the Nene.</p> <p>Green infrastructure measures incorporated into more recent developments around the main towns are contributing to the reduction of flood risk.</p>	Regional	<p>Flood storage areas on the flood plain can reduce flood risk to settlements downstream and the preferred approach to future flood management is to investigate flood storage options potentially combined with environmental enhancements including improving the natural state of the rivers and their habitats.</p> <p>Opportunities along the rivers where bank and channel maintenance can be reduced are being investigated. This will improve the flow between the rivers and their flood plains and increase water storage on the natural flood plain.</p> <p>New woodland planting schemes along banks and on the flood plain could also help slow the flow of water thereby further reducing flooding events.</p> <p>Potentially the risk of major flood events could increase with climate change and there is a major opportunity to significantly enhance the regulation of water flow by restoring and creating multi-functional semi-natural habitats within the main river corridors to encourage the river to respond to varying levels of water flow more naturally.</p>	<p>Work together with the Environment Agency and other stakeholders to implement the River Welland and the River Nene Catchment Flood Management Plans.</p> <p>Manage the aquatic habitats and flood plain habitats to help attenuate run-off.</p> <p>Where feasible re-naturalise the rivers and restore them to their original courses, cease unnecessary bank and channel maintenance where appropriate so that wetland habitats can be developed that help to regulate water flow.</p> <p>Use the opportunity to take old workings of gravel extraction sites, especially along the Nene, and turn them into additional wetlands with multi-functional semi-natural habitats that can help balance water flows. This would also enhance biodiversity and recreation.</p> <p>Plan for and encourage the incorporation of green infrastructure into new and existing developments that helps to store water and attenuate peak flows of water originating in urban areas.</p>	<p>Regulating water flow</p> <p>Regulating soil quality</p> <p>Regulating soil erosion</p> <p>Regulating water quality</p> <p>Biodiversity</p> <p>Sense of place/ inspiration</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Regulating soil quality	Soils Areas of semi-natural habitat: woodlands, hedgerows Permanent grassland	<p>A quarter of the NCA has lime-rich loamy and clayey soils with impeded drainage. They are calcareous soils with some natural resilience and enhanced workability.</p> <p>The freely draining slightly acid but base-rich soils (a fifth of the area) also have some calcareous layers that provide some natural resilience and enhanced workability. Development of iron pans can occur in this soil type.</p> <p>Both soil types are at risk of soil compaction and poaching. The freely draining lime-rich loamy soils (covering a fifth of the area) are shallow and droughty but as in the other soils described above, their calcareous nature means they have a degree of natural resilience and, as above, increased organic matter content can improve soil structure.</p> <p>The slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (21 per cent) may suffer compaction and/ or capping as they are easily damaged when wet. In turn this may lead to increasingly poor water infiltration and diffuse pollution as a result of surface water run-off. Management measures that increase organic matter levels can again help reduce these problems.</p> <p>Woodland cover and semi-natural habitat particularly permanent grassland, although only covering less than one per cent of the area, provides important areas of undisturbed soils with increased organic matter by which to judge the quality of other soils.</p> <p>Hedgerows in the area are overall in poor condition however they are important to maintaining soil quality by introducing some permanence and stability to the farmed environment.</p>	Local	<p>Soils throughout the area are easily damaged when wet and therefore it is important to minimise compaction which will tend to exacerbate problems resulting from increased run-off.</p> <p>To counter this, best farming practices should be encouraged such as reducing machinery operations on more vulnerable soils and during protracted wet periods, encouraging permanent leys to improve soil structure and minimising cultivation activity where possible and appropriate.</p> <p>Stabilising the soil and increasing the organic matter could be enhanced and managed around the network of hedgerows and increasing the amount of semi-natural habitat within the farmed environment would also have multiple benefits increasing biodiversity and the landscape features that contribute to sense of place.</p>	<p>Maintain good soil structural condition and enhance soil organic matter levels.</p> <p>Encourage best farming practices to improve soil structure.</p> <p>Where appropriate, work with partners to steadily increase the cover of woodland and network of hedgerows.</p>	<p>Regulating soil quality</p> <p>Regulating soil erosion</p> <p>Regulating water quality</p> <p>Regulating water flow</p> <p>Biodiversity</p> <p>Water availability</p> <p>Food provision</p> <p>Sense of place/ inspiration</p> <p>Geodiversity</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Regulating soil erosion	Soils Woodlands Hedgerows Pasture Semi-natural habitats	<p>The majority of the soils in this NCA are at risk of erosion. The soils in the NCA fall broadly into three categories with regard to erosion characteristics:</p> <ul style="list-style-type: none"> ■ Soils with impeded drainage. ■ Freely draining soils. ■ Seasonally wet/flood plain soils. <p>The freely draining soils, covering approximately a third of the NCA include the freely draining slightly acid but base-rich soils; freely draining lime-rich loamy soils and; freely draining slightly acid loamy soils. There is potential for wind erosion on some coarse textured cultivated variants of the freely draining slightly acid loamy soils.</p> <p>Semi-natural habitats including woodlands (accounting for around four per cent of the area), hedgerows and permanent pasture within the farmed landscape provide areas of higher soil stability.</p>	Regional	<p>The lime-rich loamy and clayey soils with impeded drainage are easily compacted by machinery or livestock if accessed when wet, increasing the risks of soil erosion by surface water run-off, especially on steeper slopes.</p> <p>Increasing the network of semi-natural habitats would increase the area of land maintained under stable conditions, reducing the risk of soil erosion and also strengthen the opportunities for the movement of species, increase landscape features that contribute to sense of place and to tranquillity.</p> <p>Well-timed cultivations, when feasible, and access onto land by low-pressure machinery and stock to prevent compaction and poaching would contribute to regulating soil erosion and improve soil quality.</p> <p>Maintaining good structural condition and enhancing organic matter will improve soil structure, root penetration and water infiltration.</p>	<p>Work with partners across the NCA to increase woodland and shelter belts and restore hedgerows in poor condition to act as wind breaks and to bind soil in proximity.</p> <p>Increase the condition of riparian habitats beside both small and major watercourses, reintroducing a strong network of habitats.</p> <p>Work with landowners to encourage well-timed cultivations and access onto land by machinery and stock to prevent compaction and poaching.</p>	<p>Regulating soil erosion</p> <p>Biodiversity</p> <p>Regulating water quality</p> <p>Water availability</p> <p>Regulating water flow</p> <p>Regulating soil quality</p> <p>Food provision</p> <p>Sense of place/ inspiration</p> <p>Biomass energy</p> <p>Geodiversity</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Pollination	Hedgerows	Habitats in the NCA such as the 3,100 ha of grazing marsh and small areas of lowland meadow are likely to support a variety of pollinators and nectar sources.	Local	<p>Extended networks of species-rich hedgerows, lowland meadow and grazing marsh will help to maintain a diverse range of flora which flower over a prolonged period of time and provide a good habitat for pollinating invertebrates to move through and between food crops. It will also aid biodiversity and help to retain more 'rural' areas within the NCA.</p> <p>Arable farming has risen slightly in this NCA and the contribution of pollination services to commercial food production could be an important service in the area.</p> <p>An increase to the populations of pollinators may facilitate an increase in the types of crops that could be commercially grown in the future.</p>	<p>Promote good management of hedgerows to ensure they provide a good network of habitat which supports viable populations of pollinating invertebrates capable of moving through and between food crops.</p> <p>Work together with farmers and landowners to increase the population of pollinators enabling a more diverse range of crops to be grown in the future expanding the range of food provision thus increasing resilience to the effects of climate change.</p> <p>Seek opportunities to increase the area of semi-natural habitat, where appropriate, such as grazing marsh and lowland meadow and through the use of floristically diverse margins to arable fields in the farmed environment.</p>	<p>Pollination</p> <p>Food provision</p> <p>Biodiversity</p> <p>Sense of place/ inspiration</p> <p>Regulating soil erosion</p> <p>Regulating soil quality</p> <p>Climate regulation</p>
	Arable					
	Grazing marsh					
	Lowland meadow					
Pest regulation	Woodland	Many of the well-established semi-natural habitats in this area support a variety of predatory species, such as beetles, which can contribute to the regulation of populations of invertebrates like aphids which can be regarded as a pest species when they affect food crops.	Local	<p>Semi-natural habitats and hedgerows proximal to areas of commercial agriculture may support species of predators which can help regulate populations of pests that adversely affect food crops.</p> <p>Fragmentation and poor connectivity in the network of habitats may limit the movement and effectiveness of predatory species.</p>	<p>Enhance and expand the network of semi-natural habitats that aid the movement of predatory species and bring benefits for pest regulation within food crops, as well as pollination and biodiversity.</p>	<p>Pest regulation</p> <p>Food provision</p> <p>Pollination</p> <p>Biodiversity</p> <p>Sense of place/ inspiration</p>
	Hedgerows					
	Arable margins					

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Sense of place/ inspiration	Clay vales	Sense of place is provided by a series of low lying, gentle clay vales and river valleys including the rivers Nene and Welland and their tributaries.	Regional	Management to maintain locally distinctive features and elements is likely to increase sense of history.	Manage and protect the locally distinctive and visually prominent features and elements of the area.	Sense of place/ inspiration Recreation Sense of history Biodiversity Tranquillity
	River valleys	The limited (4 per cent of the NCA) woodland cover that does exist has a significant impact on the landscape.		Conserving and enhancing the distinct, but in places, changing landscape character is likely to benefit biodiversity by enhancing the range of habitats, such as woodlands, open waterbody and wetland habitats.	Protect the area's distinctive character by maintaining and restoring the pattern of pasture, hedgerows, woodland, parkland and river valleys where appropriate.	
	Riverside trees and woodlands	The hedgerow resource In some areas has been neglected due to lack of management or over-management, and has led to the decline of the overall structure of the landscape and an increase in the visual dominance of urban influences.		Development is bringing about a change in the landscape making the topography and landform which are defining elements of the landscape, less legible. The open nature of the landscape means it is particularly vulnerable to large, visually intrusive development, which can compete with the strong pattern of settlement with historic and visually prominent focal points at their cores, most notably church spires and towers.	Protect and manage woodlands, particularly ancient and semi-natural woodlands.	
	Hedgerows and enclosures	There has been substantial development of large edge-of town buildings and new roads, notably the M1 and A14, which can be intrusive in what is often a very open landscape. Urban expansion, in particular along the Nene Valley, will continue to reinforce the 20th-century character of the landscape, adding commercial and recreational features alongside housing.		The changing character of the valley floors from open flood meadows and pasture to post-extraction open waterbodies and wetlands is creating a new landscape with many opportunities and associations.	Encourage the use of local stone in new buildings and restoration.	
	Attractive village and town centres	The extraction of aggregates along the Nene Valley especially has resulted in a 'new' landscape of open waterbodies and wetlands.			Support the creation of new landscapes following aggregate extraction that provide multi benefits for people and wildlife.	
	Church spires and towers				Encourage the use of green infrastructure planning that is based on and reinforces existing landscape character and integrates new development into the area without challenging the existing strong pattern of settlement and enclosure.	
	Local stone in buildings					
Large waterbodies						

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Sense of history	<p>Cropmarks, earthworks and other below ground archaeological remains</p> <p>Villages with dominant church spires and towers</p> <p>Canals</p> <p>Medieval open field system</p> <p>Historic country houses and parklands</p>	<p>Significant and substantial archaeological remains have been recovered through the process of aggregate winning in the main valleys and may point to substantial and important historic evidence existing across the area.</p> <p>In 1918 about three per cent of the area was historic parkland. By 1995 it is estimated that nearly half of the 1918 area had been lost. About a third of the remaining parkland is covered by a Historic Parkland Grant, and a tenth is included in an agri-environmental scheme. About three quarters of historic, listed farm buildings remain unconverted. Most are intact structurally.</p>	Regional	<p>Many of the historic assets such as the ridge and furrow earthworks and other buried archaeological remains are potentially at risk from deep and repeated cultivation.</p> <p>The impact of development could lead to the expansion of the smaller villages that might be out of keeping with local character and diminish their heritage significance and value.</p> <p>Parkland within the area may continue to be at risk due to the encroachment of suburban development, fragmentation of ownership and pressure for arable production.</p> <p>Managing and enhancing these assets could increase recreation and sense of history and place.</p>	<p>Protect and maintain the remaining ridge and furrow encouraging the adoption of best practice soil and land management.</p> <p>Maintain and protect historic setting and visibility of distinctive buildings and landmarks which strongly reflect the traditional character of the area including country houses and churches.</p> <p>Use traditional, local building materials for construction, extension and repair work.</p> <p>The careful planning of new development should seek to enhance the setting and conservation value of heritage assets throughout the area.</p>	<p>Sense of history</p> <p>Sense of place/ inspiration</p> <p>Recreation</p> <p>Biodiversity</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Tranquillity	Rural areas Waterbodies and rivers Parkland and woodland	<p>Tranquillity levels have declined. Undisturbed areas have decreased from just over 59 per cent in the 1960s to just 29 per cent in 2007. The largest areas of remaining tranquillity lie to the south-west and east of Market Harborough, away from the main transport corridors and major settlements.</p> <p>A sense of tranquillity is likely to be particularly associated with the small pockets of woodland largely on valley sides and ridges, the riparian and wetland landscapes of the valley floors and particularly the more secluded and more remote, narrower valley of the Welland and the major parkland estates found throughout the area.</p>	Local	<p>Tranquillity has been reduced as a result of urban expansion, road improvements and increased traffic levels, with the Vales crossed by a large number of trunk roads, not least the routes of the M1, A45, A6 and A14.</p> <p>Pressures on tranquillity come with more development around Northampton, Wellingborough and Market Harborough.</p> <p>In this low-lying, open landscape light pollution is a particularly intrusive element, mainly from major edge-of-town developments and along transport routes.</p>	<p>Maintain the quiet rural character of the area where it persists by carefully managing development, particularly in secluded valleys, smaller settlements and along the network of winding green lanes will help conserve some areas of tranquillity.</p> <p>Conserve more remote areas from development by working to ensure traditional settlement patterns are retained and maintain relative high levels of tranquillity.</p> <p>Identify the sources of high levels of light and noise pollution and seek to mitigate the effects by careful landscape planning, or directly seek to reduce lighting levels where appropriate.</p>	<p>Tranquillity</p> <p>Sense of place/ inspiration</p> <p>Biodiversity</p> <p>Sense of history</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Recreation	<p>Rights of way network</p> <p>Country parks</p> <p>Gravel extraction sites</p>	<p>Recreation is supported by the area's 1,178 km rights of way network (with a density of 1.3 km per km²) as well as a small area of open access land totalling just over 14 ha (0.01 per cent of the NCA).</p> <p>Opportunities for recreation have been provided in more than 50 pocket parks in Northamptonshire in partial compensation for the lack of accessible countryside and common land.</p> <p>Stanwick Lakes is a very large wildlife and water-based recreation site which has been recognised as an award winning green infrastructure development. The Sywell Reservoir and Country Park is also a popular local attraction.</p> <p>Other areas of recreational interest include Ecton Brook Linear Park which has picnic areas along its length, Irchester Country Park and the Stoke Albany and East Carlton Countryside Park and Heritage Centre.</p> <p>Many of the country parks are formed from the disused gravel extraction sites.</p> <p>There are a significant number of large parks and open spaces within the major towns, for example Abington Park, the Racecourse, Hunsbury Hill (also a notable iron-age hill fort) and Bradlaugh Fields in Northampton.</p> <p>Northamptonshire has been a forerunner in developing green infrastructure and considerable accessible greenspace has been incorporated into development around the main towns.</p>	Regional	<p>It is likely that recreational opportunities could be increased without significant effects on other services particularly by further increasing the provision of green infrastructure linking Northampton with the wider countryside and by encouraging the further management and restoration of old gravel workings to wetlands.</p> <p>Sympathetic planning and management of sites such as the country parks should seek to lessen any negative effects of increased recreation on tranquillity and biodiversity and would offer local communities and visitors' opportunities to engage with the natural environment.</p>	<p>Maintain and extend public access routes within the NCA, linking where possible with existing routes such as the Nene Way.</p> <p>Promote the recreational and educational opportunities afforded by the network of rights of way and improved access to the open countryside from Northampton, which could have a beneficial effect on people's health and well-being and provide solutions for sustainable transport.</p> <p>Promote and add to recreational opportunities by implementing the local green infrastructure strategy.</p> <p>Encourage the management and restoration of quarry wetlands and the creation of new wetland habitats.</p>	<p>Recreation</p> <p>Sense of place/ inspiration</p> <p>Sense of history</p> <p>Biodiversity</p> <p>Regulating water quality</p> <p>Climate regulation</p>

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities	
Biodiversity	SSSI	Just less than 5 per cent of the NCA area is priority habitat including 3,132 ha of flood plain grazing marsh, 462 ha of wet woodland, 230 ha of lowland meadows and smaller areas of reedbed, undetermined grassland, lowland calcareous grassland, fens and of lowland mixed deciduous woodland.	National	Pressures on the biodiversity resource include the effects of pollutants in the river systems and the reservoirs that also affect water quality and quantity. There are also the impacts of climate change that may cause fluctuation of water levels and water temperature, drought, and migration of species Development may reduce areas of biodiversity or conversely provide opportunities through green infrastructure to increase biodiversity networks. Projects such as the Nature Improvement Area, Welland Valley Partnership and the River Ise, revitalise and also aim to re-connect and re-create biodiversity networks.	Continue to work with and encourage partners to get SSSI into favourable condition.	Biodiversity	
	Local sites						Encourage local management and planning for local wildlife sites.
	Reservoirs				Conserve the longevity of ancient trees, and identify suitable specimens to replace the stock of ageing ancient trees in the country parks and hedgerows.	Regulating water quality	
	Rivers						Work with partners and projects, such as the Nature Improvement Area, to build appropriate networks of habitats across the area to strengthen biodiversity, sense of place and assist in the regulation of soil erosion, soil quality and water quality.
	Woodlands	Recreation					
	Flood plain grazing marsh				Climate regulation		
	lowland meadows						
	Reedbeds						
Hedgerows							
	More than 4 per cent of the area is identified as Local Wildlife Sites.						

Service	Assets/ attributes: main contributors to service	State	Main	Analysis	Opportunities	Principal service offered by opportunities
Geodiversity	<p>Geology</p> <p>Soils</p> <p>Aggregates</p>	<p>There are 6 geological SSSI in the area and 22 Local Geological Sites.</p> <p>The area is underlain by fertile and versatile soils and three quarters of the area is recognised as Grade 3 agricultural land.</p> <p>To the east of the Northamptonshire Clay Wolds, the younger, harder rocks of the Inferior Oolite Group extend south-west to north-east through Northampton juxtaposed with outcrops of the Great Oolite Group along the Nene.</p> <p>Deposits of clay, sand and gravel are scattered throughout the NCA. Along the valley of the Nene there are deposits of sands and gravel that provide evidence of past processes, climate and human activities in the landscape. These deposits have been commercially worked for aggregate in many locations, revealing that evidence, and the working of these has in places had a significant landscape impact.</p>	Regional	<p>With only 6 SSSI and 22 local sites it is important to protect and enhance the features which are of geological interest. This could have additional benefits for biodiversity and recreation as well as soil and water quality.</p> <p>The geological resource provides us with a record of past environmental change, helping us to understand and plan for future environmental change and the impacts it may have on landscapes and biodiversity.</p> <p>The character of local towns and villages can be retained through using the geological resource as a building material to ensure that sense of place is maintained.</p> <p>It is important to retain the quality, structure and condition of the fertile soils in this NCA for the retention of the geomorphological processes and features and for maintaining food production.</p>	<p>Conserve, manage and promote the nationally and locally important geological SSSI and Local Geological Sites.</p> <p>Support the Local Geodiversity Action Plan particularly opportunities to increase access to and interpretation of geological exposures.</p> <p>Use traditional building materials for construction, extension and repair work.</p> <p>Use the geological resource to provide educational opportunities to understand past environmental change and support future climate change adaptation.</p>	<p>Geodiversity</p> <p>Sense of place/ inspiration</p> <p>Biodiversity</p> <p>Recreation</p> <p>Regulating water quality</p> <p>Regulating soil quality</p>

Photo credits

Front cover: This winter's view towards Summer Leys Local Nature Reserve clearly depicts the field and tree pattern of the Northamptonshire Vales.

© Adam Kwolek/Natural England

Page 4, : © Kokai/creativecommons.org/licenses/by-sa/2.0/*

Page 5: © Tim Heaton/creativecommons.org/licenses/by-sa/2.0/*

Page 6: © Dyvroeth, wikki media commons site

Page 7: © Iain Simpson

Page 9, 14, 16, 17, 25 & 30: © Adam Kwolek/Natural England

Page 10: © Bethany Ascott/creativecommons.org/licenses/by-sa/2.0/*

Page 11: © Copyright Andrew Abbott /creativecommons.org/licenses/by-sa/2.0/*

Page 12, 21 & 26: © David Burton/Natural England

* To view a copy of the licence/s, visit creativecommons.org/licenses/by-sa/2.0/ or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.



Natural England is here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.

Catalogue Code: NE527

ISBN: 978-1-78367-087-1

Should an alternative format of this publication be required, please contact our enquiries line for more information: 0845 600 3078 or email enquiries@naturalengland.org.uk

www.naturalengland.org.uk

This note/report/publication is published by Natural England under the Open Government Licence - OGLv2.0 for public sector information. You are encouraged to use, and reuse, information subject to certain conditions.

For details of the licence visit www.naturalengland.org.uk/copyright

Natural England images are only available for non commercial purposes. If any other information such as maps or data cannot be used commercially this will be made clear within the note/report/publication.

© **Natural England 2014**