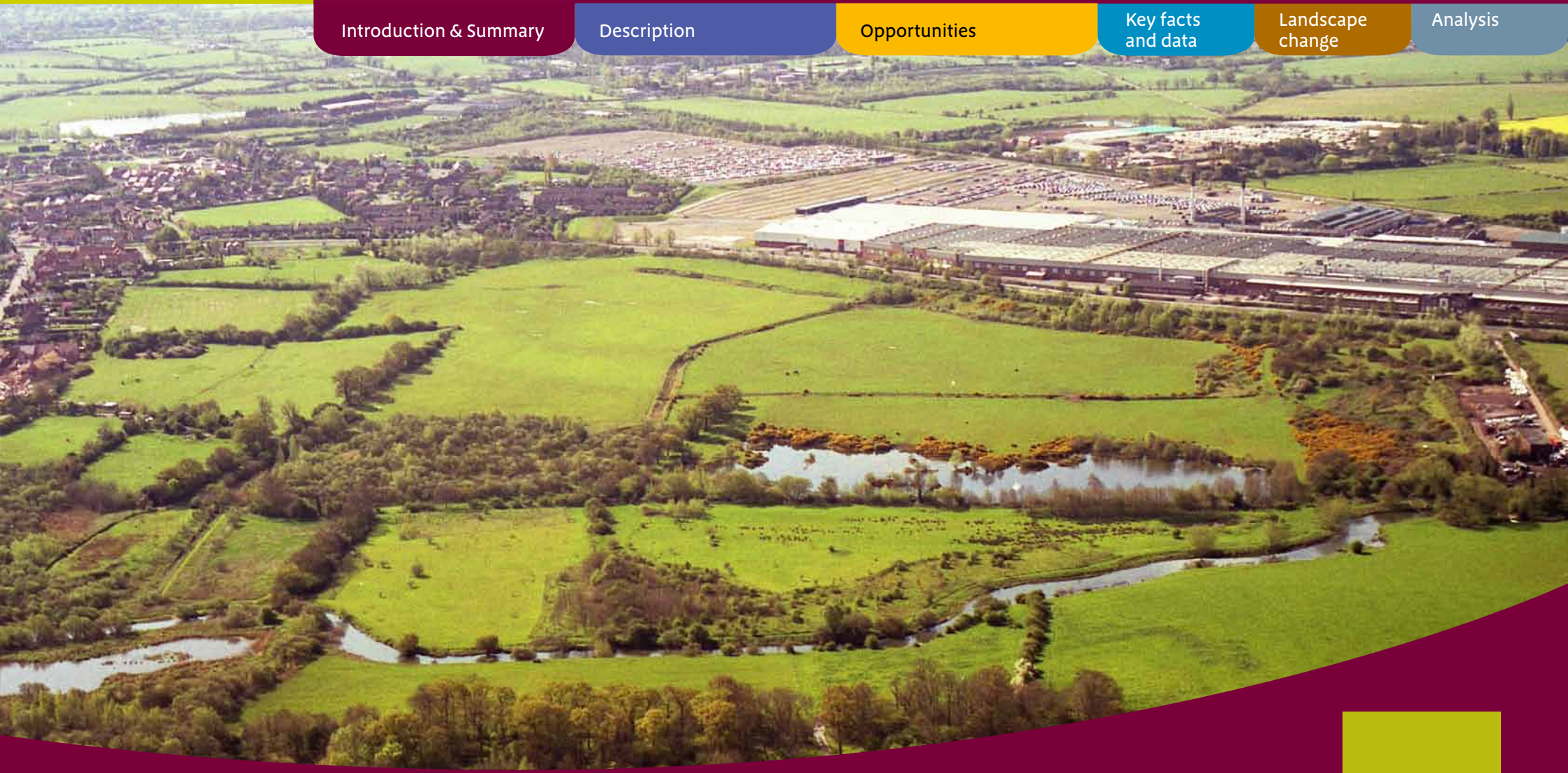
National Character Area profile:

96: Dunsmore and Feldon



NATURAL ENGLAND

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Introduction

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

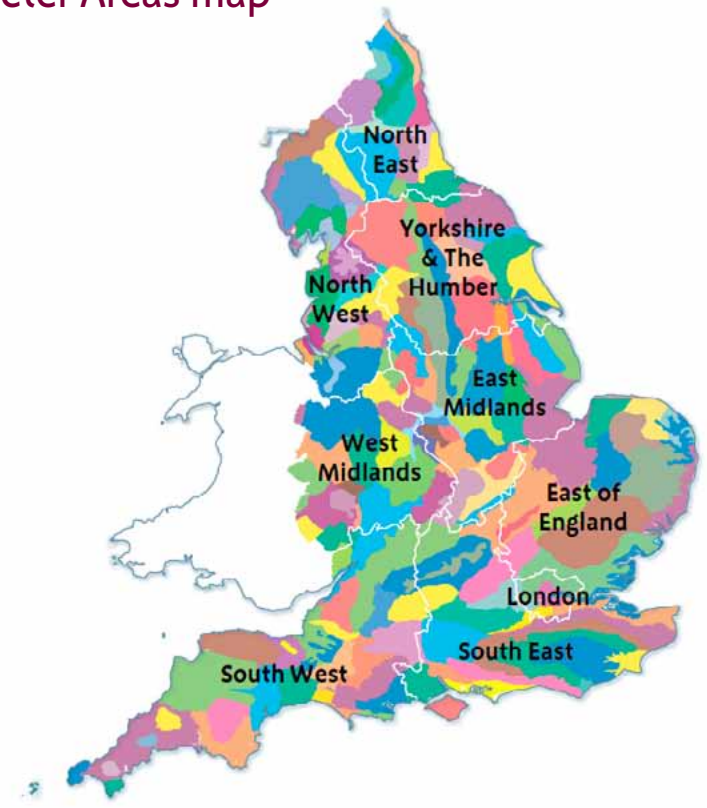
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and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

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

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

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

National Character Areas map



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

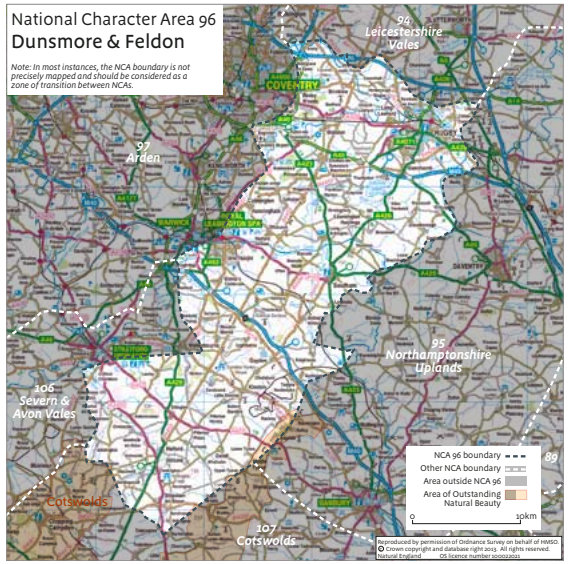
Summary

Dunsmore and Feldon is predominantly a rural, agricultural landscape, crossed by numerous small rivers and tributaries and varying between a more open character in the Feldon area and a wooded character in Dunsmore. The name Feldon refers to the old English term feld meaning 'open cleared land' and expresses the contrast, in medieval times, with the more wooded Arden area to the north-west. The area is mainly within Warwickshire, with the southern boundary delineated by the steep limestone escarpment of the Cotswolds, and the northern boundary by the Leicestershire Vales. To the west lie the well-wooded pastures of Arden, together with the Severn and Avon Vales, while the undulating pastures and low hills of the Northamptonshire Uplands form the eastern border.

It is an important food producing area and the agricultural expanse of large arable fields, improved pasture and small villages forms a transitional landscape between the surrounding National Character Areas (NCAs). The land to the north comprises the wedge-shaped area of low ridges and valleys lying between Leamington Spa, Coventry and Rugby, and is known as Dunsmore. This still retains a character of historic heathland and woodlands such as the Princethorpe Woodlands which are the most important cluster of ancient woodlands in Warwickshire and an outstanding example of a large area of semi-natural habitat. The woods sometimes create a sense of confinement in the generally open landscape. The fringes of the plateaux are all similar in character but have open views framed by low hills and settlements.

In the south the landform becomes more undulating with low hill tops, clay vales, sparse woodland and hedgerows, now largely denuded of the large elm trees that once grew in abundance. This area is known as the Feldon and comprises most of the south-eastern part of Warwickshire. It is a rural landscape strongly influenced by post-medieval enclosures of former strip fields, heavy clay soil and frequent small, compact villages. This NCA is drained by the rivers Avon and Leam flowing in a south-westerly direction. Flood meadows, characterised by great burnet and meadow foxtail, occur on the regularly flooded alluvial soils. There is an important water resource at Draycote Reservoir which has the capacity to provide drinking water and recreation for the local area.

Coventry, which sits on the border of Dunsmore and Feldon and Arden, exerts a huge influence, especially in the north of the area. The other main settlements in Dunsmore and Feldon are Rugby and Leamington Spa. Seven per cent of this area is classed as urban. To the south, the area becomes more rural and undulating as it merges into the Cotswolds in the neighbouring NCA. One per cent of this area falls within the Cotswolds Area of Outstanding Natural Beauty.



Click map to enlarge; click again to reduce.

The historic character of this area is very important, in particular its ancient woodlands, enclosed fields, veteran trees, landscaped parklands and areas of archaeological interest, including deserted villages and numerous sites of remnant ridge and furrow. The Fosse Way Roman military road passes through the area and has influenced patterns of settlement in this NCA. Earthwork remains of medieval settlements and associated field systems at Radwell, Tysoe and Napton on the Hill are three of the most coherent medieval township landscapes in existence in England.

The area is facing key challenges around how to protect and enhance its assets and recreational resource while accommodating the pressure for sustainable modern growth and development and the needs of the communities who live there.

Settlement is more nucleated around the plateau fringes, typically comprising loose clusters of dwellings in brick.

Statements of Environmental Opportunity

SEO 1: Protect and appropriately manage the historic character, settlement pattern and features of Dunsmore and Feldon, in particular its areas of archaeological and heritage interest, including the deserted settlements and ridge-and-furrow sites, ancient woodlands, veteran trees, farmsteads, country houses and landscaped parklands, and enhance the educational, access and recreational experience for urban and rural communities.

SEO 2: Protect and appropriately manage Draycote Reservoir and the important network of natural and manmade rivers, streams, ponds, canals and other wetland habitats for their important role in water provision and water quality, for the species they support and for their contribution to recreation, sense of place and geodiversity.

SEO 3: Protect and manage the mosaic of habitats including woodlands, hedgerows and heathlands, particularly ancient and semi-natural woodlands, together with sustainable management of agricultural land, and new planting of woodland and heathland, where appropriate, to ensure continued provision of food, to extend the timber and biomass resource and to contribute to pollination, biodiversity and carbon storage, and for the benefits to soil and water management.

SEO 4: Protect and manage the landscape character, high tranquillity levels and the historic settlement character to enhance sense of place and of history and to promote recreational opportunities; and ensure that new development is sensitively located and designed, integrate green infrastructure links into development, encourage new woodland planting to soften urban fringe developments and promote recreational assets such as the National Cycle Routes.

In this area it will be beneficial to work with conservation groups, landowners and local authorities to bring woodlands into active, sensitive management. This will help to restore and enhance biodiversity, retain the wooded character and potentially increase biomass.

Description

Physical and functional links to other National Character Areas

This is a transitional National Character Area (NCA), moving from the wooded landscape of Arden in the north to the more agricultural and market garden lands of the Severn and Avon Vales in the south-west. It is mainly bordered by rural and agricultural landscape, although there are some large urban areas in neighbouring NCAs. To the west and on the border of Dunsmore and Feldon lie the city of Coventry and the well-wooded landscape of Arden. To the north and north-east lie the open agricultural lands of the Mease/Sence Lowlands and the Leicestershire Vales. To the east are the undulating pastures and low hills of the Northamptonshire Uplands. To the south-west of the area and linked by the M40 are the Severn and Avon vales, and on the southern edge the area is defined by the steep escarpment of the Cotswolds Area of Outstanding Natural Beauty, with Edge Hill, which is the highest point in this NCA, being a prominent landmark.

The Fosse Way Roman road which joins Lincoln to Exeter cuts through the area, dividing it in half from the north to a south-westerly direction and linking it with several NCAs such as the Leicestershire Vales, the Cotswolds and Severn and Avon Vales.

The Avon catchment drains into the River Severn and Bristol Channel via the River Avon and its tributaries (for example, the Leam and the Sowe), thereby functionally and ecologically linking several NCAs in the counties of Northamptonshire, Leicestershire, Warwickshire, Worcestershire and

Leamington Spa with Ford Foundry Works and part of River Avon and Grand Union Canal.

Gloucestershire. The Avon joins the Severn at Tewkesbury in the Severn and Avon Vales NCA. Draycote Reservoir provides drinking water for communities in the Arden NCA as well as within Dunsmore and Feldon.

Across the area some long views are possible but tend to be curtailed by the flat landform, hedgerows and hedgerow trees. The best views across this NCA into Arden in the north and the Cotswolds in the south are from Edge Hill.

Several motorways in the area provide transportation corridors through the landscape, such as the M40 which connects Arden with Dunsmore and Feldon and beyond through the Northamptonshire Uplands, the Chilterns and on into London. The Grand Union Canal follows a similar route. The M45 starts in this area and travels through the Northamptonshire Uplands to join the M1 and through into the Northamptonshire Vales.

Long-distance walking routes, such as the Millennium Way, link from north to south across this area into Arden NCA and the Cotswolds NCA. There are networks of rights of way linking the urban areas of Coventry and Rugby into this more rural area.

Distinct areas

- Dunsmore
- Feldon

Draycote Reservoir provides local drinking water and is a valuable recreational and biodiversity resource.

Key characteristics

- The sense of a predominantly quiet, rural landscape is heightened by its close proximity to several urban areas, with a gently undulating landscape of low hills, heathland plateaux and clay vales separated by the occasional upstanding escarpment.
- The underlying lower Lias clays and Mercia mudstones are similar throughout Dunsmore and Feldon but the Quaternary 'superficial' deposits are what mark the change in character between Dunsmore and Feldon.
- Light sandy soils associated with the west (Dunsmore) supporting mixed farming and some intensive arable with fertile alkaline soils to the east (Feldon) supporting grazed pasture.
- Generally low woodland cover across the area, although there are areas of well-wooded character and ancient woodlands, especially in the north, providing habitats for bluebells, molluscs and fritillary butterflies; these woodlands are linked with landscaped parklands and hedgerow trees.
- Remnants of the formerly extensive Dunsmore Heath, preserving characteristic heathland archaeology, can still be found in woodland clearings. Natural regeneration on sand and gravel soils also occurs along roadside verges, although bracken is often abundant.
- Narrow, meandering river valleys with pollarded willows, streamside alders and patches of scrub supporting dipper, kingfisher, otter and Atlantic stream crayfish.
- Canals, including the Grand Union Canal, and Draycote Reservoir provide important riparian habitats and a well-used recreational resource.
- Mainly large fields, with regular or rectilinear shapes, although some smaller fields also feature. Numerous areas of remnant ridge-and-furrow and earthwork remains of medieval settlements as found at Lower Tysoe, Radwell and Napton on the Hill.
- Predominantly nucleated settlement pattern with a low density of isolated farmsteads and some field barns sitting within a landscape of piecemeal and planned enclosure of the open fields which extended from the villages over large parts of this area. Many villages have recently expanded but the traditional buildings, constructed of red brick or Lias limestone, still retain their blue brick or ironstone details.
- The busy roads and large industrial units on the outskirts of the main settlements of Leamington Spa, Coventry and Rugby exert an urban influence on the surrounding area.
- Limestone quarrying for the cement industry was formerly a feature in the centre and south of the area, and disused quarries are now prominent elements in the landscape. The rock exposures and spoil heaps are of geological importance, as well as having interesting limestone grassland communities.

The busy roads and large industrial units on the outskirts of the main settlements exert an urban influence on the surrounding area.

Narrow, meandering river valley habitats support species such as the dipper.

Dunsmore and Feldon today

The geology of the area imposes a strong character on the landscape today. Dunsmore owes its character to an extensive spread of Pleistocene gravel overlying the Jurassic and Triassic mudstone and limestone bedrock. The underlying mudstones created poorly drained soils. However, it is perhaps glacial outwash gravels derived from the Anglian ice sheet which have had the greater effect. These gravels are so infertile that for centuries this was an area of poor heathland, remnants of which survive today. Both the litter from the heath species and the impeded drainage allowed iron to be mobilised, resulting in widespread induration of the gravels with iron oxides, adding to the problems of poor drainage. This resistant soil is, in some measure, responsible for the escarpment which defines the margins of the Dunsmore Plateau, which rises to 120 m above sea level. Feldon is dominated by a succession of clays and limestone-rich strata, all dipping to the south-east, which produce a landscape of undulating clay vales separated by the occasional upstanding escarpment, notably that of the Penarth Group (including the White Lias). The spine of Feldon is attributable to the outcrop of the hard porcellanous limestone of the White Lias (the Langport Member of the Lilstock Formation). This produces an escarpment, stretching from the Stour Valley in the south to the River Leam, which commonly rises some 40 m above the adjacent lowlands. In the south-east, the gently undulating, often poorly drained, clay lowlands are formed dominantly by interbedded limestones and mudstones of the Blue Lias Formation which have provided the raw material for the large-scale Rugby cement industry.

Light sandy soils are characteristic of much of the area of Dunsmore with heavier neutral clay loams around the tributaries of the Avon and Leam. Heavy clay soils lie within a broad vale bounded to the north-east by the rising ground of the High Cross plateau within the Leicestershire Vales. The landcover is primarily agricultural with extensive arable and improved pasture. The Lower Lias clays which underlie the bulk of Feldon produce fertile alkaline soils. Such soils are well suited to the mixed farming and pasture grassland management which has long supported the tradition of corn production and stock rearing in the area.

The large-scale Rugby Cement works are a dominant feature in the north-eastern corner of this NCA. Much of the raw materials come from the interbedded limestones and mudstones of the Blue Lias Formation found in the area.

Dunsmore is primarily a planned landscape of large fields and small villages; the predominant pattern is piecemeal enclosure of the formerly extensive common arable fields. Ridge and furrow, reflecting the former dominance of open field arable cultivation, survives in numerous places and is especially important in areas such as Lower Tysoe and Radwell, below Edge Hill, and further to the north-east around Napton on the Hill. In these areas the extensive surviving patterns give a real impression of the former nature and extent of the medieval townships. Many of the remaining limestone exposures and spoil heaps of the quarrying areas in central Feldon have developed limestone grassland communities of high diversity and nature conservation value. These areas support rare varieties of fly, bee, wasp, beetle and butterfly.

Woodlands are frequent in the north of the area, mostly of oak and birch on the acid sandy soils, becoming more diverse on the more neutral clay soils. Ancient woodlands have survived extensively, especially in the western part, and are associated with the glacial plateaux. Dominated by oak and birch, often with an acidic or neutral ground flora, the latter typically host extensive populations of bluebells. Ash, holly, hazel and aspen are locally abundant, as is alder on wetter sites. Small-leaved lime and wild service can also be found. Bracken is abundant on the sandy soils. Neutral marshland species, such as sedges and rushes, occur in clearings on the clays. The Princethorpe Woodlands include at least 24 sites of wildlife interest. Of these there are 20 woodlands covering 618 ha and representing more than 10 per cent of the whole of Warwickshire's ancient woodland. The local Biodiversity Action Plan for Warwickshire, Coventry and Solihull identifies the Princethorpe Woodlands as "the most important cluster of ancient woodlands in Warwickshire" and "an outstanding example of a large area of semi-natural habitat". The woodlands alone are home to 34 of the 35 butterfly species found in Warwickshire and are important for dormouse, wood white butterfly, dingy skipper butterfly and small-leaved lime.

The southern Feldon area is predominantly an open landscape and is sparsely wooded, although woodland is more frequent in the Lias limestone area and especially on the western flank and occasional steep scarps. The hedgerows are now largely denuded of the large elm trees which once grew in abundance but were lost as a result of Dutch elm disease.

The area is drained by the rivers Avon and Leam flowing in a general south-westerly direction. The river valleys have a poorly defined flood plain and there is often intensively managed arable land up to the river's edge. The Leam Valley is wider and has a broad spread of terrace gravels stretching upstream to just beyond the junction with the Itchen. During the winter months the River Leam is pumped at Eathorpe to provide water for Draycote Reservoir. The reservoir provides drinking water for the communities within the NCA; it is named after the nearby hamlet of Draycote and provides a valuable recreational resource for fishing, walking, cycling, windsurfing and sailing. It also supports varied birdlife with dunlin, yellow wagtail and wheatear all being spotted there. A good example of species-rich hay meadows and pasture can also be found nearby at Draycote Meadows Site of Special Scientific Interest (SSSI) nature reserve. It contains plants typical of unimproved grasslands, such as green winged orchid, lady's bedstraw, adder's tongue, moonwort and 20 species of grasses.

Settlement of the plateau farmlands is sparse, comprising scattered farmsteads and isolated red brick-built barns, reflecting the late enclosure from heathland and waste. Isolated field barns are a particular feature. Settlement is more nucleated around the plateau fringes, typically comprising loose clusters of dwellings in brick. Many of the villages, such as Ryton-on-Dunsmore, Wolston and Long Lawford, have expanded considerably with the addition of much modern residential development. The parkland landscape in the north of the area and in western Feldon has a scattered settlement pattern of farmsteads and groups of

estate cottages as well as a number of large country houses and mansions. Red brick and limestone are the main building materials of the small nucleated villages. Limestone is common towards the south, near the Jurassic limestone escarpment of the Cotswolds. In contrast, red brick buildings with blue brick edging and tile roofs are a feature of many villages in the west and centre of Feldon. Buildings in the central part of the area make use of Liassic limestones, often of distinctive bluish-grey hue in contrast to the yellows of the Jurassic stone, with ironstone edging conspicuous in areas such as Shipston. Reddish-brown ironstone is the main building material near the western fringe of the Northamptonshire Uplands. A distinctive feature of Leamington Spa are the many buildings of Regency style, in terraces or crescents, with white-painted stucco facades, doorways framed by two columns, elegant wrought-iron balconies and bow windows.

From the villages a relatively small number of roads radiate out in straight and regular fashion. One of the straightest roads, running through the middle of this NCA, is the Fosse Way, a Roman road that is still in use. The area is intersected by four motorways; the M45, M6 and M69 are mainly confined to the north of the area, while the M40 cuts through the more rural south. The Grand Union, Oxford and Coventry canals run through the area. The Grand Union Canal links London to Birmingham. Commercial traffic on the canal, including the movement of aggregates from this NCA, finally ceased in the 1990s and leisure traffic took over. It is now an important recreational resource for the area along with Draycote Reservoir and the Millennium Way, the 160-kilometre long-distance trail which runs through the area.

The urban and industrial development of the southern fringe of Coventry falls within this NCA and Rugby, with its sprawling suburbs, dominates the eastern part of the area. Cement works and quarries, such as those at Southam, are also notable features.

A distinctive feature of Leamington Spa are the many buildings of Regency style, in terraces or crescents, with white painted stucco facades, elegant wrought-iron balconies and bow windows.

This NCA is steeped in history; this is evident in the landscape today, from the historic parklands such as those at Alscot and Ettington to the preserved ridge and furrow and the deserted medieval settlements such as Caldecote and Wolfhamcote where the parish church survives standing isolated in the middle of a field.

The landscape through time

The western half of the area is underlain by rocks of the Triassic age (248–205 million years old) deposited under desert conditions, while the eastern half of the area is underlain by rocks of Jurassic age (205–142 million years old). These were deposited as layers of mud and sand in the warm, tropical shallow sea which covered much of central England at this time. The oldest part of the Jurassic succession is termed the Lias and comprises clays, limestones and sands. The clays of the Lias tend to form lower-lying ground and give rise to heavy clay soils. In this NCA, a 40 m band of limestone, the Marlstone Rock, represents the Middle Lias, and forms the escarpment of Edge Hill. In Dunsmore, it is the overlaying Quaternary 'superficial' deposits that mark a difference in character with Feldon. The significant amounts of gravel and sand present produce the light sandy soils and heathland that were characteristic of the area. At Wolston a remarkable series of gravels, till (boulder clay) and lake sediments have been exposed through gravel extraction. The sediments present here have been well studied and demonstrate a significant period of environmental change during a glacial period of the Quaternary. An important structural dislocation, the Princethorpe Fault, separates Feldon from the Dunsmore area to the north-east. As a result of this, to the north of the fault the White Lias (or Lilstock Formation) limestones occur some 6 km further to the west than they do to the south.

This area has been inhabited since prehistoric times, with the arrival of the first people half a million years ago. There is evidence of Palaeolithic settlement at a temporary camp site at Waverley Wood Farm Pit, near Leamington Spa. The hunter-gatherer way of life was gradually being replaced by simple farming. Neolithic or new stone-age people raised sheep, pigs and cattle, and grew cereal crops. They used fire and stone axes to make clearings in the woodland

The Princethorpe woodlands have been identified locally as 'the most important cluster of ancient woodlands in Warwickshire' and 'an outstanding example of a large area of semi-natural habitat'.

where they could build farms and lay out fields. A flint arrowhead from this period has been recovered from Wolston.

The archaeology of land use and settlement from the Bronze Age attests to an intensification of production, especially on the lighter, more easily worked soils of the plateau summits and along the fertile main river valleys. By 1500 BC much of the woodland had been cleared and settled, leading to the formation of heathland in Dunsmore and elsewhere.

For the first few decades following the Roman invasion of Britain in 43 AD, the area found itself at the frontier of Roman rule. The Fosse Way Roman road was

constructed, marking the western frontier of the Roman Empire in Britain for several decades. A great Roman supply and training base was set up at Lunt Fort, Baginton, the site of which can be visited today.

The extensive Dunsmore Heath appears to have been an area of traditional heathland converted for use for intercommoning with parishes, forming a radial pattern from the highest point so that each had a share of rough pasture, meadowland and arable land as they extended down towards the more fertile clays of the river valleys. The fertile farmland of the Feldon was already closely settled by the late Iron Age and it was one of the most densely populated and prosperous parts of the Midlands by the 11th century. Open field agriculture and village-based settlement were widespread by this period. Arable strips were farmed in two- or three-field systems. Livestock were grazed on the fallow fields and on the infertile heath and waste, with hay provided by the flood plain meadows. Each small township had its own field system, and remnants of the ridge and furrow of that period survive and can be seen in the present landscape.

Depopulation began early in some areas, probably under the influence of the local 13th-century monastic settlements, but accelerated sharply in the 14th and 15th centuries owing to a combination of the Black Death, poor summers and dwindling agricultural returns. Land began to fall into large private estates and was steadily amalgamated, enclosed and converted from cultivation to pasture. Extensive areas of grazing for the wool trade dominated the landscape, and in some parts the enclosure of strip fields took place to enable the farming of arable and pasture by individual farmers. Depopulation was particularly marked in the northern part of the area, where traces of numerous shrunken and deserted settlements can still be found, as well as in the Leam Valley.

With the decline of the wool trade in the mid-16th century, a second stage of enclosure began and many of the largest fields were subdivided for lease as smaller holdings. The great majority of isolated farmsteads formed as part of the piecemeal enclosure of open fields, between the 16th and early 19th centuries, with some on sites of medieval hamlets and villages. Earthworks reflecting former villages and shrunken ends of settlements are a common characteristic of the area (for example, the nationally important survival of coherent medieval township landscapes at Radwell, Tysoe and Napton on the Hill). Enclosure was completed during the 18th and 19th centuries, with characteristic large rectilinear fields marking out the few areas of open field agriculture that persisted beyond the late medieval period. Most of the open heathland was also enclosed at this time and has a similar enclosure pattern of long, straight hedgerows of hawthorn and blackthorn with frequent hedgerow trees. Numerous large mansions and country estates such as Compton Verney, with its 'Capability' Brown-designed landscape, were also developed during this time.

Until about 1800, the town of Leamington Spa, originally known as Leamington Priors, was a tiny village. The value of the mineral springs was known in the middle ages, but it was not until 1784 that the small village began rediscovering its saline springs and started building baths around some of them. With the spread of the town's popularity, and the granting with a 'Royal' prefix in 1838 by Queen Victoria, Leamington Priors was renamed Royal Leamington Spa. Queen Victoria had visited the town as a Princess in 1830 and as Queen in 1858. Coventry, although not in the area, has had a great impact with its expansion during the Industrial Revolution and in the 20th century which has led to steady encroachment and urbanisation of the surrounding land, with many outlying villages in this NCA being engulfed. Dunchurch was a flourishing market town in the 17th and 18th centuries, benefiting from its position on the

main London–Coventry road across Dunsmore Heath. With the coming of the railways it was overtaken by Rugby as a market centre but still remains a large village today. Limestone quarrying for the cement industry flourished in the central part of the area, causing localised impact which is still evident today.

From 1959 through to the 1990s there was an ongoing programme of motorway building in this NCA linking Birmingham to London via the M6, M45 and M40. More recently, small-scale woodland planting has increased in the area fuelled by the desire of landowners and farmers as part of farm diversification, shooting, shelter and screening. Pressure to accommodate growth also continues today with the greatest pressure in the semi-rural areas around Rugby and Leamington Spa, much of which is within greenbelt land.

Ecosystem services

Dunsmore and Feldon 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 Dunsmore and Feldon NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food production:** The light sandy soils in the west support mixed farming with some commercial-scale arable. In the east the fertile alkaline soils are well suited to pasture grassland management. Arable farming benefits from the fertile soils, mainly Grade 2 and Grade 3, which together make up nearly 90 per cent of the area. A third of the area is lowland grazing with a similar amount used for cereal farming.

Lady's bedstraw (dark yellow) similar to that which can be found at Draycote Meadows SSSI is a good example of species-rich hay meadows and pasture.

- **Water availability:** There are three main rivers, the Avon, Stour and Leam, and the last is pumped at Eathorpe to provide water for Draycote Reservoir, which covers more than 2.4 km^2 and holds up to 23,000,000 m^3 of water. The reservoir provides drinking water for Leamington Spa and the rest of the local population within the NCA. All of the rivers have water 'not available' for licensing status owing to over-abstraction. The Environment Agency has been working with Severn Trent Water to renew the licence agreement for Draycote Water.

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

- **Regulating water quality:** There is potential for this to be a key service when diffuse pollution, which remains a serious problem in many rivers, is addressed. Water quality in the area has improved in recent decades but, with the exception of the eastern sub-catchment of Radford Brook, none of the area meets the requirement of good ecological status. The main contaminants to be addressed across the whole catchment in order to meet the required good ecological status are phosphates, pesticides and sedimentation. Pollutants in the waterbodies are of particular concern within the Leam catchment as the River Leam and Draycote Reservoir are used as sources of drinking water for the local population.

Cultural services (inspiration, education and wellbeing)

- **Sense of history:** The area has a strong sense of history, from the ancient woodlands and remnant heathlands to the evidence for land use and settlement in its distinctive patterns of routeways, enclosures and settlement, and its architecture. Many now rare areas of ridge and furrow show the location of medieval open fields. Earthwork remains of medieval settlements and associated field systems at Radwell, Tysoe and Napton on the Hill are three of the most coherent medieval township landscapes in existence in England. Large country houses set in mature parkland are a recurring feature. The canals and the old Roman road, the Fosse Way, are indications of the important access routes through this area. There are some fine Georgian buildings in the centre of Leamington Spa, an indication of the rising fortune of the town as the spa waters became more popular.

- **Geodiversity:** Limestone and ironstone quarries and spoil heaps are scattered across the area but with a concentration linked to the cement industry found in three areas – between Harbury and Bishop's Itchington, around Southam Quarry (which is active and expanding) and west of Rugby. Some sites contain small geological SSSI or Local Geological Sites which are usually on small sections of the quarry face. Gravel and sand are also extracted in the area, such as at the large Ryton Pools. This is a country park located partially on landfill plus an active landfill site and expanding quarry. Smaller satellite sand pits can also be found, such as The Dell and Lawford Heath on the Dunsmore plateau. Only one stone quarry is in operation, which currently extracts ironstone near Edge Hill.

There is an opportunity to conserve and enhance Draycote Reservoir along with the rivers and canals of the area for locals and visitors to enjoy.

Statements of Environmental Opportunity

SEO 1: Protect and appropriately manage the historic character, settlement pattern and features of Dunsmore and Feldon, in particular its areas of archaeological and heritage interest, including the deserted settlements and ridge-and-furrow sites, ancient woodlands, veteran trees, farmsteads, country houses and landscaped parklands, and enhance the educational, access and recreational experience for urban and rural communities.

For example by:

- Using and understanding the area's traditional and historic architecture, and its distinct patterns of village-based settlement, manor houses and farmsteads to inform appropriate conservation and use of historic buildings, and to plan for and inspire any environmentally beneficial new development which makes a positive contribution to local character.
- Working with the Cotswolds Area of Outstanding Natural Beauty (AONB) and ensuring the use of the Cotswolds Conservation Board's Landscape Strategy and Guidelines and other guidance adopted by the Board.
- Working with the planning system and local groups to encourage the use of traditional building materials for construction, extension and repair work, linking this with specialised timber production from the local woodlands, for example cruck frames and the use of local building stone.
- Working with local groups, statutory agencies and non-governmental organisations to conserve and enhance the condition of the area's geological history with special regard to the geological Sites of Special Scientific Interest and Local Geological Sites.
- Protecting and maintaining the ridge-and-furrow earthworks evident around isolated villages and narrow river margins with good soil and land management.
- Conserving features of heritage interest by working with farmers and other landowners to minimise damaging cultivation practices, for example preventing arable ploughing within areas of ridge-and-furrow and settlement earthworks.
- Using agri-environment schemes to restore parklands by re-creating unimproved pasture from more recent arable cultivation, planting replacement trees of appropriate species and conserving veteran parkland trees by protecting them from damage.
- Using agri-environment agreements to repair traditional farm buildings including field barns.
- Raising awareness of these assets for locals and visitors, ensuring that they are enhanced for recreational and educational purposes.
- Promoting the recreational and educational opportunities afforded by the network of rights of way and improved access to the open countryside from towns, which could have a beneficial effect on people's health and wellbeing and provide solutions for sustainable transport.
- Improving opportunities for the enjoyment and understanding of the landscape and its valuable historic and natural features so that people can experience escapism and inspiration, while conserving its qualities.
- Protecting the important Registered Parks and Gardens and historic centres such as Leamington Spa and seeking to increase the opportunities for people to enjoy and deepen their understanding of the natural and historic environment and to take action to improve it.

SEO 2: Protect and appropriately manage Draycote Reservoir and the important network of natural and manmade rivers, streams, ponds, canals and other wetland habitats for their important role in water provision and water quality, for the species they support and for their contribution to recreation, sense of place and geodiversity.

For example by:

- Using the River Leam Catchment Plan to appropriately manage the River Leam in order to support and protect its biodiversity and ensure good water quality.
- Promoting the River Leam Catchment Plan and agri-environment schemes to farmers and landowners.
- Extending agreements with farmers to minimise the effects of diffuse pollution from commercial agriculture by adopting buffer strip management, particularly along the River Leam, to help to improve water quality.
- Working with statutory agencies and voluntary groups to manage the canals so that the benefits for biodiversity and recreation are maximised.
- Working with the water companies, statutory agencies and other stakeholders to ensure that Draycote Reservoir is managed to enable it to provide good-quality drinking water as well as maintaining and enhancing its biodiversity and capacity for different types of recreation.
- Providing buffer strips of semi-natural vegetation around the reservoirs, and increasing the quantity of reedbeds to naturally filter the water.
- Seeking opportunities to extend and enhance areas of wetland habitat such as wet meadows and wet woodland, particularly in flood plains and along rivers and streams, and managing them in favourable condition for declining species such as water vole and otter.
- Conserving and enhancing the recreational value of the rivers, canals and Draycote Reservoir for locals and visitors to enjoy.
- Enhancing the river corridor value by flood plain grassland and wetland creation and tree planting along banks where connectivity has been lost owing to removal for past agricultural and flood defence activities. This improved linear connectivity with important intersecting hedgerows and woodlands can aid species movement and restore the wooded sinuous feature as a part of the character of the area.
- Encouraging farmers and landowners to manage and extend their hedgerows so that run-off is significantly slowed down, flooding is reduced and a sense of place is reinforced.
- Restoring and creating ponds to re-establish the network of this habitat and to support the great crested newt population.

SEO 3: Protect and manage the mosaic of habitats including woodlands, hedgerows and heathlands, particularly ancient and semi-natural woodlands, together with sustainable management of agricultural land, and new planting of woodland and heathland, where appropriate, to ensure continued provision of food, to extend the timber and biomass resource and to contribute to pollination, biodiversity and carbon storage, and for the benefits to soil and water management.

For example by:

- Maintaining, restoring and creating semi-natural habitats – heathland and lowland acid grassland (particularly on the Dunsmore plateau), new planting of woodland, especially in the well-wooded areas in the north of the National Character Area (NCA), parkland, lowland meadows and lowland calcareous grassland, particularly adjacent to existing areas of habitat, to strengthen and extend the habitat network and so that resilience to climate change impacts is improved.
- Exploring the potential to re-create heathland (and other Biodiversity Action Plan habitats that are beneficial to pollinating invertebrates), by increasing its quality and extent, and by strengthening the interconnectivity of habitat networks.
- Working with conservation groups, landowners and local authorities to bring woodlands into active sensitive management and re-introducing coppicing to restore and enhance the biodiversity value of these neglected woodlands, retain their wooded character and potentially increase biomass production from existing areas of woodland; and buffering existing woodlands and encouraging natural regeneration in adjacent areas to increase the area of woodland habitat, while ensuring that native provenance is retained.
- Creating new woodlands on the urban edges of Coventry, Leamington Spa and Rugby, following existing patterns to screen urban development, enhance recreational opportunities and improve green infrastructure.
- Seeking opportunities to plant energy crops of native species to increase biomass production while maintaining the overall open character of the landscape and open views from woodland through to the wider countryside.
- Increasing woodland and maintaining heathland in good condition to benefit carbon storage in soils.
- Ensuring that future management is informed by the need to retain features of heritage interest, and the potential for new discoveries relating to historic woodland and pre-woodland land management such as settlement earthworks.
- Ensuring that any new woodland planting is generally appropriate, making a contribution to increasing the overall woodland coverage in the region and integrating new development into the landscape, as well as boosting carbon storage.
- Managing the heathland remnants in favourable condition to encourage the greatest diversity of plants that will attract pollinating invertebrates.
- Working with the Cotswolds AONB to ensure that their Landscape Strategy and Guidelines and other guidance adopted by the Board for the Cotswolds are taken into account.
- Working with farmers to manage arable cropping patterns in order to encourage rarer arable plants, farmland birds and mammals and create grass margins around arable fields while maintaining food production.
- Increasing woodland and shelterbelts, restoring 'gappy' hedgerows in poor condition to act as windbreaks, bind the soil to reduce soil erosion and reinforce landscape character, and to support foraging and nesting of birds, bats and other wildlife.
- Conserving species-rich hedgerows, wood banks and field margins to restore biodiversity and to enhance connectivity between woodlands and other habitats.

SEO 4: Protect and manage the landscape character, high tranquillity levels and the historic settlement character to enhance sense of place and of history and to promote recreational opportunities; and ensure that new development is sensitively located and designed, integrate green infrastructure links into development, encourage new woodland planting to soften urban fringe developments and promote recreational assets such as the National Cycle Routes.

For example by:

- Planning of new woodlands around settlement fringes to help to integrate new development into the landscape and absorb the scale of urban edge development, particularly in the urban fringes of Coventry and Rugby.
- Exploiting opportunities presented by the undeveloped nature of the West Midlands Green Belt and its juxtaposition with large urban populations to secure green infrastructure features, especially accessible semi-natural green spaces, linear routes and landscape enhancements to be delivered as part of wider infrastructure enhancement in relation to the continued growth of Coventry, Rugby and Leamington Spa.
- Enhancing the interconnectivity of high-quality green or semi-natural spaces and linear routes and the opportunity for multifunctional benefits to accrue from those spaces; and creating permissive access routes for all abilities to link with the public rights of way network and local routes, open access sites or additional circular routes for all levels of user to points of interest such as river/watersides, historic sites and environmental features, and near to population centres (Coventry, Rugby and Leamington Spa).
- Integrating co-ordinated provision of green infrastructure into any development so that it offers the local community opportunities to enjoy their local green space and to take action to improve it. This will have benefits for the health and wellbeing of those living in the NCA, as well as providing benefits to biodiversity.
- Ensuring that any new developments incorporate well-designed green infrastructure, to include improved access and recreational opportunities for local communities and visitors, providing them with a range of benefits, including health and economic benefits, afforded by access to good-quality green spaces.
- Managing the post-industrial cement and quarry sites in the Princethorpe/Bubbenhall/Ryton complex to deliver habitat and access benefits.
- Conserving more remote areas from development by working to ensure that traditional settlement patterns are retained and maintaining relatively high levels of tranquillity beyond the M40; and managing the expansion of the transport network, ensuring that improvements are carefully planned to provide positive landscape benefits.

Supporting document 1: Key facts and data

Total area: 70,597 ha

1. Landscape and nature conservation designations

The Dunsmore and Feldon NCA contains 658 ha of the Cotswolds Area of Outstanding Natural Beauty which is 1 per cent of the NCA.

The management plan for the protected landscape can be found at: www.cotswoldsaonb.org.uk

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	% of NCA
International	n/a	n/a	n/a	n/a
European	Special Protection Area (SPA)	n/a	n/a	n/a
	Special Area of Conservation (SAC)	n/a	n/a	n/a
National	National Nature Reserve (NNR)	n/a	n/a	n/a
National	Site of Special Scientific Interest (SSSI)	A total of 20 sites wholly or partly within the NCA	471	<1

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 376 local sites in Dunsmore and Feldon covering 5,665 ha which is 8 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

A breakdown of SSSI condition as of March 2011 is as follows:

SSSI condition category	Area (ha)	% of SSSI land in category condition
Unfavourable declining	<1	<1
Favourable	315	67
Unfavourable no change	32	7
Unfavourable recovering	124	26

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 34 m above sea level to a maximum of 217 m. The mean average elevation is 87 m above sea level. The highest point in the NCA is Edge Hill near Ratley.

Source: Natural England 2010

2.2 Landform and process

Dunsmore comprises the wedge-shaped area of low ridges and valleys lying between Leamington Spa, Coventry and Rugby. The core is former heathland associated with the low plateau of glacial deposits running from Cubbington to Hillmorton.

The Feldon is closely associated with a broad belt of Lower Lias clays which form a gently rolling tableland some 100 m to 150 m AOD.

Source: Dunsmore and Feldon Countryside Character Area Description

2.3 Bedrock geology

The Dunsmore area is at the junction of the Mercia Mudstones and Lower Lias clays. In the Feldon area the Lias platform is marked to the west by an escarpment, formed by White Lias Limestone. The steep Cotswold escarpment of the Jurassic Limestone defines the south and south-eastern boundary.

Source: Dunsmore and Feldon Countryside Character Area Description

2.4 Superficial deposits

The glacial deposits form a series of low plateaux and ridges. The superficial deposits impose a character on Dunsmore – the area between Stretton-on-Dunsmore and Rugby stretching south-westwards towards Leamington – which makes it markedly different from the Feldon to the south-west. A remarkable series of gravels, till (boulder clay) and lake sediments have been exposed through gravel extraction at Wolston, just to the east of Coventry. The sediments present here have been well-studied and demonstrate a significant period of environmental change during a glacial period of the Quaternary. Indeed, the sequence of sediments exposed at Wolston has been so important that the penultimate glacial stage of the Quaternary in Britain has been named as the Wolstonian.

Source: Dunsmore and Feldon Countryside Character Area Description.

2.5 Designated geological sites

Designation	Number of sites
Geological Site of Special Scientific Interest (SSSI)	5
Mixed interest SSSI	0

There are 25 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

Light, sandy soils are characteristic of the Dunsmore area. Clay-floored valleys have heavier, neutral clay-loams. The northern part of Dunsmore lies in an area of heavy clay soils. The Lower Lias clays underlie the bulk of Feldon and produce fertile, alkaline soils.

Source: Dunsmore and Feldon 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	0	0
Grade 2	6,074	9
Grade 3	56,551	80
Grade 4	4,114	6
Grade 5	193	<1
Non-agricultural	660	1
Urban	3,005	4

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 Avon	32
Grand Union Canal	32
River Leam	28
River Stour	23
Oxford Canal	12
Coventry Canal	6
River Swift	1
River Sowe	1

Source: Natural England (2010)

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

This NCA is drained by the rivers Avon and Leam flowing in a south-westerly direction. The northern part of the area is drained by the Smite Brook, a tributory of the Sowe. The tributaries of the Stour, Dene, Itchen and Leam drain at right angles to the main rivers, producing a trellised drainage pattern. Draycote Water is a reservoir and country park near the village of Dunchurch. It covers more than 240 ha (2.4 km^2) and holds up to 5,000 million imperial gallons (23 million m^3) of water.

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 70,597 ha, or 100 per cent of 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 3,847 ha of woodland (5.4 per cent of the total area), of which 1,262 ha (2 per cent of NCA) is ancient woodland.

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

4.2 Distribution and size of woodland and trees in the landscape

There is a general lack of woodland cover across the area, although there is a well-wooded character in Dunsmore. A small area with a parkland character can be found in the north of Dunsmore, it is well-wooded with large and small blocks of woodland, tall hedgerows and wooded belts. Woodlands are more frequent in the Dunsmore area, mostly acid oak-birch on the sandy soils. Ancient woodlands

have survived in the west. Feldon is sparsely wooded but with a band of ancient woodland present running from Alderminster to Long Itchington.

Source: Dunsmore and Feldon Countryside Character Area Description

4.3 Woodland types

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

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

Woodland type	Area (ha)	% of NCA
Broadleaved	3,340	5
Coniferous	276	<1
Mixed	58	<1
Other	173	<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	728	1
Ancient re-planted woodland (PAWS)	534	1

Source: Natural England (2004)

5. Boundary features and patterns

5.1 Boundary features

Large geometric fields are typically bounded by straight hedgerows with hedgerow trees.

Source: Dunsmore and Feldon.Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

Many areas of ridge and furrow show the location of medieval open fields, especially important in areas such as Lower Tysoe and Radwell, below Edge Hill, and further north-east around Napton on the Hill. Fields are usually large, with regular or rectilinear shapes, although there are some smaller fields.

Source: Dunsmore and Feldon 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

In 2009 there were 227 lowland grazing livestock holdings (31 per cent), 214 cereal farms (29 per cent) and 63 mixed farms (9 per cent). Trends between 2000 and 2009 show a decrease in the total number of holdings from 792 to 733. Trends also show a significant decrease in dairy farms (down from 48 to 23, a decrease of 52 per cent), and mixed farming (down from 88 to 63, a decrease of 28 per cent). Lowland grazing livestock has remained the consistent, decreasing by just 1 per cent during the period.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Farms of size 5 to 20 ha are the most common, accounting for 28 per cent of holdings, followed by farms of over 100 ha accounting for 23 per cent of holdings. Trends between 2000 and 2009 show a decrease in the numbers of all farm sizes except for farms of 5 to 20 ha. This category made up 28 per cent of the total in 2009, up from 25 per cent in 2000.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

2009: Total farm area = 53,558 ha; owned land = 37,657 ha
2000: Total farm area = 54,721 ha; owned land = 39,323 ha

Source: Agricultural Census, Defra (2010)

6.4 Land use

The dominant land use is grass and uncropped land, accounting for 24,069 ha (45 per cent of farmed area). This is followed by cereals, 19,434 ha or 36 per cent. Oilseed and other arable crops account for much of the remainder, approximately 7 per cent of each.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

In 2009 sheep were the most numerous livestock type (a total of 118,300 animals) followed by cattle (25,100) and pigs (4,400). There was been a decrease in overall numbers between 2000 and 2009; pigs (29 per cent), sheep (24 per cent) and cattle (11 per cent).

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The figures suggest that many holdings are run by principal farmers. They comprise some 68 per cent of the total work force. The total workforce decreased by 11 per cent between 2000 (1,689) and 2009 (1,502). There was a decrease of 37 per cent in the number of full-time employees, and an increase of 31 per cent in part-time employees between 2000 and 2009. The number of salaried managers increased by 27 per cent.

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

Woodland is sparsely distributed throughout the NCA but there are local concentrations. Acid grassland and heathland are both of very localised and of limited occurrence and were formerly characteristic of sand and gravel deposits to the east of Coventry. Reservoirs have ornithological interest as well as associated marginal habitats of interest. Flood meadows, characterised by great burnet and meadow foxtail, occur on the regularly flooded alluvial soils. In addition the NCA contains important arable habitats. These support nationally important assemblages of arable birds.

Source: Midlands Clay Pastures. Natural Area Profile, Natural England (2012)

7.2 UK Biodiversity Action Plan (BAP) 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.

UK BAP priority habitat	Area (ha)	% of NCA
Broadleaved mixed and yew woodland (broad habitat)	2,071	3
Coastal flood plain and grazing marsh	459	1
Lowland meadows	107	<1
Reedbeds	99	<1
Fens	65	<1
Lowland calcareous grassland	41	1

Source: Natural England (2011)

- Maps showing locations of UK BAP 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 UK BAP Priority Habitats are available at: http://magic.defra.gov.uk/website/magic/ – select 'Habitat Inventories'
- Maps showing locations of S41 species are available at: http://data.nbn.org.uk/

8. Settlement and development patterns

8.1 Settlement pattern

The Fosse Way military Roman road influenced patterns of settlement in this NCA. There is a nucleated settlement pattern of villages, with occasional outlying farms. In some areas there is a strong urban influence, particularly near to the urban centres of Leamington Spa, Coventry and Rugby. Rates of change to urban areas, and share of build outside urban and fringe areas, are moderately high. Development is particularly notable in the peri-urban zone around Rugby, and at Leamington Spa, where the urban fringe has expanded into the peri-urban.

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

8.2 Main settlements

The main settlements in Dunsmore and Feldon are Rugby and Leamington Spa. The total estimated population for this NCA (derived from ONS 2001 census data) is: 180,834.

Source: Dunsmore and Feldon Countryside Character Area description; Countryside Quality Counts (2003), Natural England (2012)

8.3 Local vernacular and building materials

Buildings are often constructed of red brick, sometimes with blue brick or ironstone details. In places buildings are constructed of Lias limestone.

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

9. Key historic sites and features

9.1 Origin of historic features

Many areas of ridge and furrow show the location of medieval open fields. Large country houses set in mature parkland are a recurring feature. Earthwork remains of medieval settlements and associated field systems as at Radwell, Tysoe and Napton on the Hill; three of the most coherent medieval township landscapes in existence in England.

Source: Countryside Quality Counts Draft Historic Profile, Countryside Character Area description

9.2 Designated historic assets

This NCA has the following historic designations:

- 13 Registered Parks and Gardens covering 1,063 ha
- 1 Registered Battlefield covering 1,054 ha
- 49 Scheduled Monuments
- 1,793 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, 795 ha, is classified as being publically accessible.
- There are 886 km of public rights of way at a density of 1.3 km per km2.
- There are no National Trails within Dunsmore and Feldon 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	0	0
Country Parks	177	<1
CROW Access Land (Section 4 and 16)	44	<1
CROW Section 15	1	<1
Village Greens	31	<1
Doorstep Greens	3	<1
Forestry Commission Walkers Welcome Grants	178	<1
Local Nature Reserves (LNR)	163	<1
Millennium Greens	1	<1
Accessible National Nature Reserves (NNR)	0	0
Agri-environment Scheme Access	23	<1
Woods for People	560	<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 highest scores for tranquillity are in the very rural areas of the NCA. The lowest scores for tranquillity are in and around the conurbations especially Royal Leamington Spa and Rugby.

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

Tranquillity	Tranquillity Score
Highest value within NCA	+32
Lowest value within NCA	-104
Mean value within NCA	-10

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 most of the disturbed areas are found around the conurbations to the north and west of the NCA and along the road corridors of the M40, M45 and A45 road network. South of the M40 is relatively undisturbed.

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

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	26	43	57	31
Undisturbed	71	53	38	33
Urban	3	4	5	2

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are a significant decrease of 32.7 per cent in the proportion of undisturbed or intruded land matched by increases in urban and disturbed land.

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

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)
- BAP 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

- Recently there has been significant creation of new woodland by individual landowners as part of farm diversification; game shooting, shelter and screening. Principally these are broadleaved or mixed woodlands and generally are of small scale (less than 10 ha).
- Around a tenth of the ancient woodland was destroyed between 1925 and 1988, and a further two-fifths converted to plantation (Warwickshire AWI 1989).
- Neglect, through a cessation of coppicing, has been an equally significant factor in the loss of woodland biodiversity since the mid-1900s. The Warwickshire Habitat Biodiversity Audit (HBA) (1996–2002) suggests that the area of woodland has increased over recent years through the creation of new plantations. Some of these new woods are being specifically targeted at achieving biodiversity gains, while further woods have been planted for timber production, landscaping and other benefits.
- Isolation of woodlands has left them unable to sustain some woodland species populations.
- There is a lack of mature and over mature trees in many secondary, plantation and new woodlands that is leading to very limited deadwood habitats
- Inappropriate development bordering key woodlands is having a negative impact on woodland condition.

More recently woodland has been used across the area for screening new development.

Boundary features

- The prolonged and continued loss of hedgerows that has occurred over the last 50 years has left many habitats, such as woodlands, and some species isolated.
- There has been the removal of hedgerows because of agricultural intensification leading to the creation of larger fields. Urban development, for example housing and roads, has also lead to losses.

- There has been a decline in the practice of hedge laying, resulting in gaps and loss of structure.

- The loss of mature trees within hedgerows was acute following the major Dutch elm disease epidemic of the 1970s and semi-mature elms succumb to re-infestation, and as oak and ash succumb belatedly to the drought summers of the 1990s.

- The practice of annual trimming of hedgerows, often without tagging and retaining trees in the hedgerows, is reducing their biodiversity value and leading to gappy hedgerows and loss of hedgerows.

Agriculture

- Trends show a significant decrease in the number of dairy farms and mixed farming, down by over a half. The number of lowland grazing livestock farms has remained similar.

- There has been a general decrease, by around a quarter, of the overall numbers of pigs, sheep and cattle between 2000 and 2009.

- There have been high numbers of conversions of redundant farm buildings to residential and holiday use in recent years and not all have been sensitively designed and in keeping with landscape character.

Settlement and development

- New residential development, particularly around the historic villages, has not always been in keeping with the character of the settlements.

- Rates of change to urban, and share of build outside urban and urban fringe areas, are moderately high. Development is particularly notable in the peri-urban zone around Rugby, and at Leamington Spa, where the urban fringe has expanded into the peri-urban.

There has been much new residential development, particularly in and around the historic villages.

Semi-natural habitat

- The most extensive annual Countryside Stewardship agreements in 2003 were for lowland pastures on neutral/acid soils and regeneration of grassland and semi-natural vegetation.

- There was limited or no uptake of Countryside Stewardship for heathland. Given the size of this character area the condition and extent of the semi-natural resource probably remains degraded.

- Ancient woodland is an important habitat for this area (See Trees and woodlands information).

Historic features

- Ridge and furrow and other historical earthworks have and continue to be lost as a result of ploughing, reseeding and conversion to arable.

- In 1918 about 4 per cent of the NCA was historic parkland. In terms of the share of the resource the area was ranked 42 nationally. By 1995 it is estimated that two-thirds had been lost. About a third of the remaining parkland is covered by a Historic Parkland Grant.

- Two-thirds of historic listed farm buildings remain unconverted, and only about 80 per cent are intact structurally. Thus important aspects of the historic landscape probably remain neglected.

Coast and rivers

- Water quality in the area has improved in recent decades but diffuse pollution remains a serious problem in many rivers. The main issues to be addressed across the whole catchment in order to meet the requirement for 'good ecological status' are phosphates, pesticides and sedimentation. Although more detailed investigation is underway it would appear that the majority of these pollutants stem from diffuse sources across the catchment (runoff from industrial, agricultural and domestic land), although point sources (sewage treatment works or pipe discharges) are also a contributing factor.

- Pollutants in the waterbodies are of particular concern within the Leam catchment as the River Leam and Draycote Water are used to supply drinking water to the local population.

- Most rivers in the county have been heavily modified by re-sectioning, and in some cases straightening, to reduce the incidence of flooding of farmland and to allow for land drainage.

Minerals

- Quarrying for limestone and clay is carried out within this NCA supporting the cement industry centred on Rugby. Established management has increased and some of the active quarries have land informally set aside for nature conservation for example at Southam and Edge Hill.

- Habitat creation – a number of important schemes are in progress or at the planning stage. At Rugby Works, plans for a new quarry include final restoration to wildlife habitat. The ongoingextension of Southam Quarry may create opportunities for substantial habitat creation in future years while at Edge Hill Quarry preparation is being made for establishing a wildlife site within the main quarry.

- Ufton Fields Local Nature Reserve (LNR) and Newbold Quarry Country Park LNR are disused quarries and are good examples of alternative uses for those sites both for conservation and their potential recreational use.

Drivers of change

Climate change

- Climate trends suggest increased rainfall, periods of drought and more frequent storm events that could impact on the larger urban areas and settlements in the flood plains.

- Rising temperatures may increase species migration and southern-biased insects such as the painted lady butterfly, clouded yellow and hummingbird hawkmoth may expand northwards, colonising Dunsmore and Feldon for the first time, or simply becoming more frequent. A warmer climate may influence local bird fauna, with increasing sightings of little egret, yellow-legged gull and Cetti's warbler.

- The disconnection between emergence of insects and nesting of birds is a key issue impacting on population levels of some species, and for migratory birds, and bats emerging from hibernation.

- A potential increase in summer droughts could severely disrupt plant growth and insect life cycles and dry autumns severely reduce the fruiting of fungi. These may impact on the wider food chain, affecting a variety of birds and mammals. Drought summers would result in wetlands drying up prematurely, affecting various birds, insects and reptiles, and allowing birch and scrub to invade and shade out valuable open swamp. The woodlands might lose their internal humidity too early which could have an effect on food chains reliant on woodland plants, woodland insects, damp soil, fungi and damp decaying wood. The potential for longer drier summers could also cause grasslands to dry up too early, affecting summer flowering and seeding of plants, and the insects and birds reliant on these. It may reduce the number of insects and other invertebrates in soils, and the creatures that depend on these. Rivers and streams may have flows severely reduced or even interrupted, which could impact on many aquatic species.

- Longer dry spells may dry out clay soils which are then more susceptible to risk of flooding, leaching of soil nutrients and reduction in the filtering capacity of soils in winter as the cracks and fissures will allow more rapid movement of water,

- A changing climate, in particular summer droughts, is likely to increase the vulnerability of the ancient woodland and heathland, with veteran trees increasingly vulnerable to damage, pest and disease. Heathland will become more vulnerable to bracken intrusion, drought and fire.

Other key drivers

- The Princethorpe Woodlands Living Landscape Partnership, active since 2006, has more than 15 organisations working together to enhance biodiversity and promote active woodland management. Several landowners are also engaged in hedgerow restoration work. Future projects are being developed to progress implementation of the partnership aims.

- There is likely to be an increased demand for food production as a result of a national drive for greater self-sufficiency in food.

- Continued development pressure in and around the Rugby and Leamington Spa conurbations and outlying historic towns present opportunities for good, sustainable design reflecting local settlement patterns, incorporating green infrastructure and using local character to inform design and the use of materials.

- New transport infrastructure including railways. There may be an opportunity to manage proposals to ensure best outcomes for the environment.

- Pressure for more water abstraction as development increases may put the supply from existing reservoirs under pressure.

- Population change and increased affluence is leading to a increase in the number of developments and property improvements which have an urbanising impact on some of the rural settlements and dwellings. They could present opportunities for enhancing the character of settlements through the use of improved design standards.

- Mineral extraction will continue but this could bring opportunities for nature conservation as more quarry companies actively look to set aside areas for biodiversity and through post-extraction habitat creation.

- Due to the growing percentage of woodland cover in the area the risk increases for the spread of disease for example Chalara dieback of ash trees.

- Human population in Warwickshire is set to rise by more than 22 per cent by 2035 (2010 Based Sub-national Population Projections, Warwickshire Observatory) this will impact significantly on the area with increased demand for development, transport infrastructure, access and recreation provision.

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.

Statement of Environmental Opportunity	Ecosystem service: Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place / Inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Protect and appropriately manage the historic character, settlement pattern and features of Dunsmore and Feldon, in particular its areas of archaeological and heritage interest, including the deserted settlements and ridge-and-furrow sites, ancient woodlands, veteran trees, farmsteads, country houses and landscaped parklands, and enhance the educational, access and recreational experience for urban and rural communities.	↘ *	↗ **	↔ **	↗ *	↗ **	↗ **	↗ **	↗ **	↗ **	↗ **	↗ *	↗ *		↑ ***	↑ ***	↗ **	↑ *	↗ **	↔ *
SEO 2: Protect and appropriately manage Draycote Reservoir and the important network of natural and manmade rivers, streams, ponds, canals and other wetland habitats for their important role in water provision and water quality, for the species they support and for their contribution to recreation, sense of place and geodiversity.	↔ *	↗ **	↑ **	↔ *	↗ *	↗ **	↑ ***	↑ ***	↗ **	↗ **	↗ *	↗ *		↑ **	↑ **	↗ *	↑ **	↑ **	↔ *
SEO 3: Protect and manage the mosaic of habitats including woodlands, hedgerows and heathlands, particularly ancient and semi-natural woodlands, together with sustainable management of agricultural land, and new planting of woodland and heathland, where appropriate, to ensure continued provision of food, to extend the timber and biomass resource and to contribute to pollination, biodiversity and carbon storage, and for the benefits to soil and water management.	↔ *	↗ **	↑ **	↔ *	↗ *	↗ **	↑ ***	↑ ***	↗ **	↗ **	↗ **	↗ **		↑ ***	↑ ***	↗ **	↑ **	↑ **	↗ *
SEO 4: Protect and manage the landscape character, high tranquillity levels and the historic settlement character to enhance sense of place and sense of history and to promote recreational opportunities; and ensure that new development is sensitively located and designed, integrate green infrastructure links into development, encourage new woodland planting to soften urban fringe developments and promote recreational assets such as the National Cycle Routes.	↗ *	↗ **	↗ **	↗ *	↗ **	↗ **	↑ **	↗ **	↗ **	↗ **	↗ *	↗ *		↑ ***	↑ ***	↗ **	↑ ***	↑ ***	↗ *

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
An open, gently undulating landscape with localised low hills and plateaux.	■ The area is underlain by lower Lias clays and Mercia mudstones. In Dunsmore, litter from the heath species and the impeded drainage allowed iron to be mobilised resulting in widespread induration of the gravels with iron oxides adding to the problems of poor drainage. This resistant soil is, in some measure, responsible for the escarpment which defines the margins of the Dunsmore plateau which rises to 120 m above sea level. Feldon is dominated by a succession of clays and limestone-rich strata, all dipping to the south-east, which produce a landscape of undulating clay vales separated by the occasional upstanding escarpment, ■ Low ridges and valleys form the core of the area, with a low plateau of glacial deposits in the north of the area, which was formally heathland.
Geology and light sandy soils.	■ The underlying lower Lias clays and Mercia mudstones determine both the land form and land use of the area. Occasionally used as building materials the local geology contributes directly to the sense of place. ■ The light sandy soils associated with the west (Dunsmore) support mixed farming and some intensive arable with fertile alkaline soils to the east (Feldon) supporting grazed pasture.
Woodland cover is generally found in the north where there are some large woods and areas of ancient woodland. Otherwise, woodland is limited to landscaped parks and scattered hedgerow trees.	■ In central and southern areas the NCA is generally not well-wooded and overall the woodland cover is only 5 per cent of the area. Woodland cover is increasing particularly around the Princethorpe Woods area. Mature hedgerow oaks, ancient woodlands and parkland give the northern edge a well-wooded character. ■ Ancient woodland dominated by oak and birch is particularly extensive to the south and east of Coventry and provides habitats for molluscs, fritillary butterflies and a range of birds such as the nightingale and redstart. ■ The woodlands have both acidic and neutral plant communities while ash, holly, hazel and aspen woodland is found on the wetter soils. ■ To the south woodlands are smaller, less common and mostly found around the parklands scattered throughout the area. ■ Near to the Cotswolds, limestone woodlands dominated by ash, field maple, some oak and with hazel and hawthorn understoreys are more common.

Landscape attribute	Justification for selection
Traditional heathland character still evident in woodland clearings and along roadsides.	■ Remnants of the formerly extensive Dunsmore Heath, preserving characteristic heathland archaeology, can still be found in woodland clearings. Natural regeneration on sand and gravel soils also occurs alongside roadside verges, although bracken is often abundant. ■ Although none of the open heathlands survive today, the late enclosure pattern of large geometric fields and the abundance of 'heath' names make its former presence readily apparent.
Narrow, meandering river valleys with pollarded willows, streamside alders and patches of scrub. Draycote Reservoir is a significant feature in the centre of the area.	■ Narrow rivers have arable land at their edges, although in places remnant flood meadows, bankside pollards, patches of scrub and reedbeds provide additional interest. ■ Dipper, kingfisher, otter and Atlantic stream crayfish are a few of the species that are supported by these habitats. ■ Marshland, dominated by sedges and rushes, occurs on the more clay dominated soils. ■ Draycote Reservoir provides drinking water for the communities within this NCA and provides a valuable recreational resource for fishing, walking, cycling, windsurfing and sailing. It also supports varied birdlife with dunlin, yellow wagtails and wheatear all being spotted here.
Historic field patterns, areas of ridge and furrow and deserted settlements and isolated field barns, all demonstrate the longstanding agricultural land use of the area. Historic assets also include landscape designed parklands and fine examples of country houses, and the Grand Union Canal.	■ A small area with a parkland character occurs in the north. It is an enclosed estate landscape which is very well wooded, with large and small blocks of woodland, tall hedgerows and wooded belts, often within and around the edges of the parks. ■ Large country houses and mansions are well represented such as Compton Verny and Alscot Estate. ■ Small townships with their own field system can be distinguished by the remnants of ridge and furrow that survives and can be seen in the present landscape particularly between Napton on the Hill and Shuckburgh. ■ The Grand Union, Oxford and Coventry canals run through the area. The Grand Union Canal links London to Birmingham and was completed in 1929 to move aggregates out of the area.
Strong urban influence, particularly near to the urban centres of Leamington Spa, Coventry and Rugby.	■ The urban areas only form 4 per cent of the area but as the NCA is relatively small its character is influenced over large areas by the long and diffuse edges of the main settlements and larger towns, especially Coventry and Rugby. ■ The area of Dunsmore between Leamington Spa, Coventry and Rugby falls within the West Midlands Green Belt and so has remained largely undeveloped and the original nucleated settlement pattern of villages, with occasional outlying farms remains. The Green Belt around the urban area provides opportunity to access undeveloped spaces and link these outlying areas with green infrastructure resources within built-up areas ■ Busy roads, the M6, M45 and M40 motorways, and large industrial buildings as well as new residential development have become features on the edges of these large settlements and continue to transform the character of the area.

Landscape opportunities

- Protect from damage and appropriately manage the area's historic landscape features such as its ancient woodland (oak and birch in the north and field maple and oak in the south), the Grand Union, Oxford and Coventry canals, the landscaped parkland estates and their veteran trees and fine country houses, areas of ridge and furrow, deserted settlements and characteristic hawthorn hedgerow boundaries.
- Protect the rivers Avon, Leam, and Stour with their associated streams tributaries as important landscape and nature conservation features.
- Plan to accommodate development pressure from the expansion of Coventry, Rugby and Leamington by designing a network of multi-functional green infrastructure which respects the surrounding landscape character and which provides for links into the wider countryside and increased opportunities for people, nature and wildlife.
- Plan for improved management of parkland areas and their associated features and habitats. Ensure local landscape character is respected and enhanced. Maintain and restore habitats, especially heathland and grassland, in accordance with biodiversity action plans and heritage conservation management plans.
- Manage watercourses to enhance wildlife value, while restoring associated wetland habitats and grazing flood plains.
- Manage through environmental stewardship, the restoration of hedgerows forming a predominantly regular field pattern, and replace hedgerow trees.
- Manage and conserve all ancient semi-natural and broadleaved woodland, taking appropriate opportunities to increase small-scale woodland coverage where this enhances landscape character and maintains wider, open views which are characteristic in parts of this area.

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 beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Fertile soils Water availability Arable and cereal crops	Light, sandy soils in the west support mixed farming with some larger scale arable. In the east the fertile alkaline soils are well suited to pasture grassland management. Arable farming benefits from the fertile soils mainly Grade 2 and Grade 3 which together make up nearly 90 per cent of the area. A third of the area is lowland grazing with a similar amount of area used for cereal farming.	Local	Arable farming can provide multiple benefits in maintaining the level of food production and for potentially enhancing biodiversity and preserving the historic landscape character. Intensively farmed soils tend to be vulnerable to compaction and erosion, so it will be important to maintain high levels of soil organic content and water infiltration to ensure soils remain productive. Modern agricultural techniques such as precision farming could be used to increase yields while allowing semi-natural habitats to be maintained within the farmed environment. Archaeological features providing evidence of past agricultural practices and settlement pattern are vulnerable to damage as a result of cultivation.	Work with farmers to maintain their food production at existing levels while managing arable cropping patterns to encourage rarer arable plants, farmland birds and mammals and create grass margins around arable fields. To keep the soils productive there is a need to increase grazing and sward diversity to increase the deposition of organic matter. Manage soils to allow continued sustainable agricultural production by increasing soil organic content and water infiltration, for example through the use of grass buffers along watercourses and inclusion of fallow in crop rotation. Use modern agricultural practices to increase yields while conserving biodiversity and protecting archaeological features.	**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 beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Areas of existing woodlands Parkland areas with woodland Soils	Woodland covers around 5 per cent of this NCA around half of which is ancient woodland associated with the glacial plateau. As the area has a low overall hectarage of woodland, and much of this is ancient woodland unsuitable for timber, current timber provision is low. Woodlands are acid oak- birch woods on the sandy soils becoming more diverse on the neutral clay soils. The area of woodland has increased through the creation of new plantations. Some of these new woods are being specifically targeted at achieving biodiversity gains, while further woods have been planted specifically for timber production, landscaping and other benefits. A number of parkland areas contain significant proportions of woodland	Local	The management of mature woodland is increasing, as is the area of new woodlands.These are mainly broadleaved woods so there will be a local source of timber in the future which will bring benefits for biodiversity, water quality, soil quality, and reduced soil erosion and increased availability for recreation. Better management of the historical woodland within parkland areas could lead to the more efficient and sustainable harvesting of timber using techniques such as coppicing. 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. This also supports the regulation of soil erosion, soil quality, climate and water quality. By reintroducing coppicing there will be an increase in timber available in the area and spin-off benefits for biodiversity with healthier and more diverse stock. Timber provision can also be increased by creating more woodland in areas such as Princethorpe.	Bring woodlands into active management and re-introduce coppicing to increase timber provision. Work with partners or schemes, such as the Princethorpe Woodland Living Landscape Partnership, to create more woodland and increase and extend timber provision, biodiversity and recreation provision.	**Timber provision** **Climate regulation** **Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Regulating water flow** **Biomass energy** **Recreation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	Rivers Canals Draycote Reservoir	There are three main rivers the Avon, Leam and Stour. There are three canals, Grand Union, Oxford and Coventry. The River Leam is pumped at Eathorpe to provide water for Draycote Reservoir. It covers more than 2.4 km^2 and holds up to 23,000,000 m^3 of water. It provides drinking water for the settlement of Leamington Spa and the rest of the local population within the NCA.	Regional	All of the rivers have „water not available for licensing"status due to over abstraction. The Environment Agency has been working with Severn Trent Water to renew the licence agreement for Draycote Water.[4] More pressure will be placed upon this already fragile resource with the potential growth and expansion of Rugby, Coventry and Leamington Spa. Pollutants in the waterbodies are also of particular concern within the Leam catchment, as water from the River Leam and Draycote Reservoir is used as drinking water for the local population. If polluted usage will be limited but if action is taken to reduce the pollutants more water will be available which will also have benefits for biodiversity.	Appropriately manage the rivers Avon, Leam and Stour and Draycote Reservoir to protect and enhance the main water sources within the area. Maintain and protect the canals as supplementary water and recreation sources. Work in collaboration with riparian land owners and managers, potentially through the Catchment Sensitive Farming Scheme to manage watercourses to prevent diffuse pollution entering them and allow water table levels to rise where appropriate. Encourage crop selection and farming methods that will reduce water use and support water conservation.	**Water availability** **Regulating water quality** **Biodiversity** **Recreation** **Sense of place / inspiration** **Regulating soil erosion**

[4] *Warwickshire Avon Abstraction Licensing Strategy,* Environment Agency (2013; URL: http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_2604_7a244e.pdf)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Genetic diversity	Orchards	Orchards are very rare in this area but unusual cultivars are preserved at Garden Organic at Ryton, and include the Warwickshire Drooper (a plum), Wyken Pippin (an apple) and Shakespeare Pear.	Local	Maintaining rare fruit species is important for maintaining genetic diversity, sense of place and encouraging biodiversity. Traditional orchards can have significant ecological value. The spring blossom is vital for insects such as bees, butterflies and hoverflies. It can vastly increase the carrying capacity of a landscape for these species which can benefit the pollination of other plants and crops and boost numbers of beneficial insect predator of pests such as aphids. The flower buds, leaf buds and fruit can be important for birds such as bullfinch, and winter thrushes such as fieldfare and redwing.	Support both existing and new sites where locally distinctive fruit varieties are preserved for local food production, sense of place and biodiversity.	**Genetic diversity** **Food provision** **Biodiversity** **Sense of place/ inspiration** **Sense of history**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biomass energy	Fertile soils Existing woodlands	The fertile soils could potentially accommodate increased yields of short rotation coppice (SRC) and miscanthus. The existing woodland cover is currently 5 per cent of the area around half of which is ancient woodland which needs managing but is less suitable to large-scale biomass.	Local	This NCA could potentially accommodate both SRC and miscanthus. Energy crop planting in appropriate locations and scales could enhance landscape character, for example screening new development along urban fringes especially around Rugby and Leamington Spa. There are limited tree numbers across most of the area but there is scope to extend the number. This is already happening around the Princethorpe area. This could have benefits for biodiversity and maintaining healthy soils. When managing the woodlands in this NCA 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.	Seek opportunities to plant energy crops close to existing areas of woodland to increase biomass production while maintaining the overall open character of the landscape and open views from woodland through to the wider countryside. Explore the potential to plant SRC to screen and absorb new development ensuring that parklands and historic remanants of ridge and furrow are protected. Bring unmanaged areas of woodland back into management to increase biomass production from existing areas of woodland. Ensure good soil management to increase biomass opportunities for example by increasing organic matter inputs.	**Sense of place** **Biomass energy** **Climate regulation** **Regulating soil erosion** **Regulating soil quality** **Biodiversity** **Timber provision**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Soils Existing woodlands New woodland planting Heathland Wet woodland Grazing marsh Pasture	Higher carbon storage occurs in soils under areas of flood plain grazing marsh, heathland and areas of woodland cover in the NCA.	Local	While, at present only four per cent of Dunsmore and Feldon is covered by mature woodland, significant areas of new woodland have been created by individual landowners and organisations like the Wildlife Trust and the Woodland Trust. This will mature to make a large contribution to climate regulation, both through carbon sequestration and storage in soils as it improves soil structure. A range of woodland management techniques are required, including non-intervention; dead wood is an important component of semi-natural woodlands as it maintains stores of carbon and for biodiversity as well as nutrient cycling and soil formation which supports the regulation of soil erosion, soil quality and water quality. Carbon storage in mineral soils can be raised by improving soil structure, steadily increasing organic matter inputs to cultivated soils, and by reducing the frequency/area of cultivation while avoiding potential impacts on other ecosystem services for example water quality (diffuse pollution). Soil carbon and soil carbon storage will be higher under areas of woodland, permanent pasture and heathland.	Increase woodland and maintain heathland in good condition to benefit carbon storage in soils. Increase woodland planting to provide carbon sequestration. Increase woodland management (such as coppicing and pollarding) to increase both sequestration rates and the resilience of woodlands to climate change. Ensure that any new woodland planting is generally appropriate, making a contribution to increasing the overall woodland coverage in the area and integrating new development into the landscape, as well as boosting carbon storage. Encourage the maintenance of permanent pasture to increase soil carbon storage, with a subsequent improvement in soil quality. Encourage minimum tillage to limit the release of carbon.	**Climate regulation** **Recreation** **Biodiversity** **Sense of place/ inspiration** **Regulating soil quality**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Rivers, streams, canals and reservoirs Woodlands and hedgerows Buffer strips along watercourses and field boundaries Soils	Water quality in the area has improved in recent decades but diffuse pollution remains a serious problem in many rivers. With the exception of the eastern sub-catchment of Radford Brook, none of the area meets the requirement of good ecological status. Two-thirds of the area meets moderate ecological status with the remaining third poor or bad quality. The pollutants that need to be addressed across the whole catchment in order to meet the requirement for good ecological status are phosphates, pesticides and sedimentation. Although more detailed investigation is underway, it would appear that the majority of these pollutants stem from diffuse sources across the catchment (run-off from industrial, agricultural and domestic land), although point sources (sewage treatment works or pipe discharges) are also a contributing factor.5 Pollutants in the waterbodies are of particular concern within the Leam catchment as the River Leam and Draycote Water are used to supply drinking water to the local population.	Regional	Pollutants affect water quality within the River Leam and its tributaries; there are high levels of pesticides, phosphates and sediment within the water. These arise from a range of sources, including domestic, agricultural and industrial sources. Water quality would be improved by slowing the pathway of run-off by using buffer strip management; this could have significant impacts on regulating soil erosion and subsequent sedimentation, biodiversity and soil quality which in turn will enhance water quality. Water quality can be enhanced by ensuring that Draycote Reservoir is kept in good condition, semi-natural vegetation used as buffer strips and reedbeds would increase biodiversity and naturally filter the water enhancing the quality.	Appropriately manage the River Leam to support and protect its biodiversity and ensure good water quality. Promote the River Leam Catchment Plan to domestic, agricultural and industrial stakeholders. Promote the Catchment Sensitive Farming Scheme[6] to farmers and landowners. Extend agreements with farmers to; reduce nutrient and pesticide losses to water from agricultural holdings; apply best practise storage, handling and use of pesticides to reduce their 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; and limit the pathways for pesticides and nutrients to enter rivers. Manage the canals, Draycote Reservoir and other standing water in good condition. **Continued over...**	**Regulating water quality** **Biodiversity** **Water availability** **Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Regulating water flow** **Sense of place / inspiration** **Recreation**

[6] *Upper Avon and River Leam Catchment Sensitive Farming* , Natural England (URL: www.naturalengland.org.uk/Images/CSF5-I_tcm6-30821.pdf)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality continued					**...continued from previous** 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. Seek opportunities to extend and enhance areas of wetland habitat such as wet meadows and wet woodland particularly in flood plains and along rivers and streams and manage in favourable condition for declining species such as water vole and otter, and to filter water entering rivers. Encourage farmers and landowners to manage and extend their hedgerows so that run-off is significantly slowed to improve water quality, reduce flooding and reinforce sense of place.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow (flooding)	Rivers and streams Soils Flood plain pasture Grazing marsh and wetland habitats Riparian vegetation including wet woodland	The NCA lies within the River Severn catchment. The Environment Agency flood risk map indicates that there is a high level risk of flooding around Coventry and Leamington Spa but a relatively low level of flood risk in the more rural areas.[7] There is a risk of surface water flooding in this area. In this NCA a lot of the river channels have been highly modified thereby increasing the flow of the rivers.	Regional	Removing most of the in-stream habitat has largely prevented regular flooding of farmland but has destroyed the mechanisms which enable natural rivers to reduce the impact of increased water flow. Rivers are much more deeply incised than would be natural. This has limited the range of in-stream habitats present and almost completely eliminated flood plain wetlands. The suggested approach to flood risk management includes investigating land use changes which will reduce run-off rates. This may also lessen soil erosion from cultivated land. Increased volumes of water might be accommodated in specific areas where wetlands could be developed to store floodwater with associated habitat improvement and creation.	Work together with the Environment Agency and other stakeholders to implement the River Severn Catchment Flood Management Plan. Increase riparian vegetation along watercourse banks. Where feasible re-naturalise the rivers and restore to their original courses so that in-stream habitats can develop and help to regulate water flow. Promote opportunities through schemes such as catchment sensitive farming to manage soils to regulate quality and erosion. Look for opportunities to create, extend and manage wetland areas.	**Regulating water flow** **Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Biodiversity** **Sense of place / inspiration** **Geodiversity**

[7] *River Severn Catchment Flood Management Plan*, Environment Agency (URL: www.environment-agency.gov.uk/research/planning/33624.aspx)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Soils Woodlands Hedgerows Areas of semi-natural habitat	Much of the area is covered with light sandy soils. The river valleys have heavier, neutral clay loams. In the south the Lower Lias clays produce alkaline soils with impeded drainage. Woodland cover and semi-natural habitat, although each only covering 5 per cent of the area, provides important organic matter to help maintain and improve soil quality. This NCA has seen the loss of many hedgerows however, those that remain are important to maintaining soil quality.	Local	Soils are easily damaged when wet and therefore it is important to minimise compaction which will tend to exacerbate problems associated with increased velocity of run-off. These soils may have limited potential for increased organic matter levels by management interventions.	Encourage best farming practices such as reduced machinery operations on more vulnerable soils and during protracted wet periods, encourage permanent leys to improve soil structure, minimise cultivation, and steadily increase cover of woodland and hedgerows. Measures to maintain good soil structure should be employed at a landscape scale including; growing cover crops to increase rates of organic matter within the soil, increasing the use of fallow cropping within arable rotations and retaining over-winter stubble.	**Regulating soil quality** **Regulating soil erosion** **Regulating water quality** **Biodiversity** **Water availability** **Food provision** **Timber provision** **Sense of place/ inspiration** **Geodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Soils Woodlands Hedgerows Pasture Semi-natural habitats	The majority of the soils in this NCA are at enhanced risk of soil erosion especially on moderately or steeply sloping land where cultivated or bare soil is exposed. This is exacerbated where organic matter levels are low after continuous arable cultivation or soils are compacted. There is widespread risk of wind erosion where soils are cultivated and left bare especially in spring. Semi-natural habitats including woodlands (each accounting for around 5 per cent of the area) and hedgerows increase water infiltration, impede cross-land flows and provide shelter from wind erosion.	Local	IIt is important to retain the quality, structure and condition of the fertile soils in this NCA to support the mixed farming in this NCA. The soils are easily compacted by machinery if accessed when wet, increasing the risk of erosion by surface water run-off. The potential for soil erosion is exacerbated where soils are left exposed and where organic matter levels are low following certain cycles of arable cultivation. Increasing regulation of soil erosion would require an expansion of the existing service by taking small areas of land out of production in high risk areas to reduce compaction, trap sediment, bind the soil and improve soil health. This approach would lower food production very slightly in the short term but could offer benefits such as reducing sedimentation in rivers, helping store limited amounts of carbon and help maintain fertility in the longer term. Woodlands, dense hedgerows and buffer strips across slopes and alongside watercourses can reduce the velocity of water as it flows across farmland, potentially reducing soil erosion and safeguarding soil quality.	Encourage the uptake of measures outlined in the River Leam Catchment Sensitive Farming Scheme[8] to enable farmers and landowners to implement some of the opportunities detailed below. Increase woodland and shelter belts, restore (gappy)" hedgerows in poor condition to act as windbreaks and bind the soil. Increase the condition of riparian habitats beside both small and major watercourses, reintroducing a strong network of habitats, including wet woodland and wet grassland. These riparian habitats will capture increased volumes of migrating sediments before it can enter the rivers and streams. Create grass margins and consider planting short rotation coppice and miscanthus to provide wind cover in the open parts of this area.	**Regulating soil erosion** **Biodiversity** **Regulating water quality** **Water availability** **Regulating water flow** **Regulating soil quality** **Food provision** **Sense of place / inspiration** **Biomass energy** **Geodiversity**

[8] *Upper Avon and River Leam Catchment Sensitive Farming*, Natural England (URL: www.naturalengland.org.uk/Images/CSF5-I_tcm6-30821.pdf)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Species-rich hedgerows Species-rich hay meadows Arable margins Lowland heathland	Half of the area is arable land with large fields. This, combined with a lack of active management, led to a significant loss of hedgerows and field margins within the landscape. Hedgerows provide good corridors and habitats for pollinators. Although there are no remaining areas of open heathland, remnants, particularly on road verges are important as they provide good connectivity between habitats and can help facilitate pollination. Heathland, grassland and meadows plus other semi-natural vegetation all support a variety of pollinators which are essential to maintaining habitats and agricultural production.	Local	Pockets of species-rich hedgerows, managed to maintain a diverse range of flora which flower over a prolonged period of time provide the best sources and networks for pollinating invertebrates to move through and between food crops, although the crops in this NCA are not reliant on insect pollination. Heathland will support a diverse range of pollinating invertebrates and, where it is adjacent to certain food crops, can assist with pollination. It is possible that the population of pollinators has fallen, with some species becoming isolated in pockets, due to the increase of commercial scale farming, the changing climate or use of chemicals, but the causes are unclear.	Increase sward diversity and manage sites with a view to allowing wildflowers to flower and seed. Manage hedgerows and verges to enhance and maintain a diverse range of flowering species, age and structure. Manage the remnants of heathland in favourable condition to encourage the greatest diversity of plants that will attract pollinating invertebrates. Explore the potential to re-create heathland (and other BAP habitats that are beneficial to pollinating invertebrates), increasing its quality and extent, and strengthening the interconnectivity of habitat networks.	**Pollination** **Biodiversity** **Sense of place / inspiration** **Regulating soil erosion** **Regulating soil quality** **Climate regulation** **Food provision**
Pest regulation	Woodland Hedgerows Arable margins Heathland margins	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 pests.	Local	Fragmentation and poor connectivity in the network of habitats may limit the movement and effectiveness of predatory species.	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.	**Pest regulation** **Sense of place/ inspiration** **Pollination** **Biodiversity** **Food provision**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place / inspiration	Gently undulating landform with a diverse underlying geology leading to an open southern area and a more enclosed, wooded northern section Ancient woodland Remnants of the formerly extensive Dunsmore Heath Medieval field patterns	Area underlain by mudstones and limestones, and superficial deposits shape the differences in character between Dunsmore and Feldon. Woodland covers 5 per cent of this NCA mainly concentrated in the north, contributing to the difference in sense of place between Dunsmore and Feldon. The ancient woodland provides a sense of place and continuity with the neighbouring Arden NCA. Most of the medieval field patterns can be found between Mapton and Shuckburgh.	Local	Around a tenth of the ancient woodland was destroyed between 1925 and 1988, and a further two-fifths was converted to plantation (Warwickshire Ancient Woodland Inventory, 1989). Management to maintain locally distinctive features and elements is also likely to increase sense of history. Conserving and enhancing the distinct landscape character is likely to benefit biodiversity by enhancing or expanding the range of habitats, such as woodlands and riverine habitats. Pressure on the distinctiveness of the area and sense of place comes from expanding urban areas at the periphery and increased infrastructure development.	Manage and protect the ancient woodland resource of the area. Manage the expansion of the urban areas and transport network to ensure improvements are carefully planned to provide positive recreational, environmental and landscape enhancement. Protect the area"s distinctive character by maintaining and restoring the pattern of pasture, hedgerows and woodland, parkland and river valleys. Protect and manage woodlands, particularly ancient and semi-natural woodlands, together with new planting of woodland in rural areas that will extend the woodland resource. Plan planting of new woodlands around settlement fringes to help integrate new development into the landscape and absorb the scale of urban edge development and enhance recreational opportunity, particularly in the urban fringes of Coventry and Rugby. **Continued over...**	**Sense of place/ inspiration** **Recreation** **Sense of history** **Biodiversity** **Recreation** **Tranquillity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of place / inspiration continued					**...continued from previous.** Maintain, restore and create semi-natural habitats – heathland and lowland acid grassland (particularly on the Dunsmore plateau), woodland, parkland, lowland meadows and lowland calcareous grassland, particularly adjacent to existing areas of habitat, so that resilience to climate change impacts is improved. Preserve existing field patterns which are an enduring record of past enclosures.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Ridge-and-furrow earthworks Deserted medieval villages Large country houses and designed parkland Canals Small nucleated red brick villages often with decorative ironstone or Lias limestone detailing	Many areas of ridge and furrow show the location of medieval open fields. Large country houses set in mature parkland are a recurring feature. Earthwork remains of medieval settlements and associated field systems as at Radwell, Tysoe and Napton on the Hill – three of the most coherent medieval township landscapes in existence in England.	Regional	Many of the historic assets such as the ridge and furrow are potentially at risk from cultivation. By 1995 it was estimated that two-thirds of the historic parkland had been lost. The impact of development could lead to the expansion of the smaller villages that might be out of keeping with local character. Positively managing and enhancing these assets could increase recreation opportunities and reinforce both sense of history and place.	Protect and maintain the ridge-and-furrow earthworks evident around isolated villages and narrow river margins with good soil and land management practices. Preserve the existing settlement pattern of small, nucleated villages. Maintain and protect historic buildings and landmarks which strongly reflect the traditional character of the area including manor houses. Promote the large estates, wooded parklands and country houses of the NCA which contribute so strongly to its sense of place and history Use traditional building materials and local vernacular styles for construction, extension and repair work. Protect and promote important heritage sites.	**Sense of history** **Sense of place/ inspiration** **Recreation** **Biodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	Rural open landscape of Feldon	Most of the disturbed areas are found around the conurbations to the north and west of the NCA and along the road corridors of the M40, M45 and A45 road network. South of the M40 is relatively undisturbed.[9]	Local	The decline in tranquillity has resulted largely from increased traffic on the main roads of the NCA, not least the M40. M45. M6, A45. The rural landscape of Feldon is particularly important in conveying a sense of tranquillity.	Conserve more remote areas by working to ensure that development reflects traditional settlement patterns and levels, maintaining relative high levels of tranquillity beyond the M40. Manage the expansion of the transport network to ensure improvements are carefully planned to provide positive environmental and landscape benefits	**Tranquillity** **Sense of place/ inspiration**
Recreation	Public rights of way National Cycle Routes Parks Draycote Reservoir Canals Rivers Manor houses Disused quarries	There are 886 km of public rights of way at a density of 1.3 km2. One per cent of the NCA is classified as being publically accessible. Draycote Reservoir provides a recreational resource for birdwatching, fishing, walking, cycling, windsurfing and sailing. There are three canals in the area but most often accessed for recreation is the Grand Union Canal, the longest canal in the UK. Many of the manor houses such as Compton Verney can be found in the south (Feldon). Ufton Fields Local Nature Reserve (LNR) and Newbold Quarry Country Park LNR, provide good examples of alternative uses for disused quarries found across the area as sites used for both conservation and recreation.	Local	Awareness of the recreational resources in the area is low. It is likely that recreational opportunity could be increased without significant effects on other services particularly by increasing the green infrastructure linking the urban areas with the wider countryside. Sympathetic planning and management of sites such as disused quarries, LNRs and 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.	Maintain and extend public access routes within the NCA, linking where possible with existing routes. Promote the recreational and educational opportunities afforded by the network of rights of way and improved access to the open countryside from towns, which could have a beneficial effect on people's health and wellbeing and provide solutions to demands for more sustainable transport. Promote the use of the existing network of rights of way within the NCA and its links with the National Cycle Routes. Promote and add to recreation provision by implementing the local green infrastructure strategy. **Continued over...**	**Recreation** **Sense of place / inspiration** **Sense of history** **Biodiversity** **Regulating water quality** **Climate regulation**

[9] CPRE Tranquillity Data 2010 (ULR: www.cpre.org.uk/what-we-do/countryside/tranquil-places/in-depth/item/1688-how-we-mapped-tranquillity)

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation continued					**...continued from previous.** Continue to work with stakeholders to manage visitor access to, around and on Draycote Reservoir. Raise the profile of the canals and their towpaths as sites for informal recreation such as walking. Maintain the manor houses within the NCA and promote them as visitor attractions. Work with stakeholders and quarry companies to ensure that restoration of quarry sites provide recreational benefits as well as biodiversity gains.	

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	20 SSSI 376 local sites Biodiversity network, particularly within the Cotswold Area of Outstanding Natural Beauty Woodlands Ponds Draycote Reservoir Arable land	Twenty SSSI fall wholly or partly within the NCA with two-thirds of them in favourable condition. Eight per cent of the area is identified as local sites of importance. The woodlands and reservoirs host some notable wildlife such as dunlin, yellow wagtails and wheatear. Woodland is sparsely distributed through the NCA but there are local concentrations. Acid grassland and heathland are both localised and of infrequent occurrence but were formerly characteristic of sand and gravel deposits to the east of Coventry. Reservoirs have ornithological interest as well as associated marginal habitats of interest. Flood meadows, characterised by great burnet and meadow foxtail, occur on the regularly flooded alluvial soils. In addition the NCA contains important arable habitats. These support nationally important assemblages of arable birds. The Dunsmore and Feldon NCA contains 658 ha of the Cotswolds Area of Outstanding Natural Beauty which is 1 per cent of the NCA. It is a small but very important part of the NCA as it provides a strong connection for biodiversity into and out of the area.	Local	As well as improving biodiversity by managing and extending the area of notable habitats the soil quality, water quality and carbon storage should improve and public access may be extended. In recent years, alien species such as rhododendron have begun to encroach into the area. Ponds were once a more common component of the landscape supporting a range of aquatic species such as great created newt. The loss of elm trees to Dutch elm disease and ancient trees in the country parks and parkland due to old age is diminishing the character of the area.	Maintain the favourable condition of SSSI and get sites in unfavourable condition into good condition. Conserve the longevity of ancient trees, and replace the stock of ageing trees in the country parks, parklands and hedgerows. Support appropriate connection and expansion of areas of heath, woodland and permanent pasture. This has benefits for biodiversity networks, as well as facilitating the build-up of soil carbon, improving soil quality and benefiting climate regulation. Where possible create new ponds and restore degraded ponds. Work with farmers/landowners to create conditions suitable for arable birds. Support the implementation of the AONB management plan.	**Biodiversity** **Sense of place/ inspiration** **Regulating water quality** **Regulating soil erosion** **Recreation** **Climate regulation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Geology Soils	There are 5 geological SSSI in the area. They were all designated for their Quaternary interest. All but one of the SSSI are in favourable condition. There are 25 Local Geological Sites within the NCA, only five of those sites are in good or good steady condition. The lower Lias clays underlie the bulk of Feldon and produce fertile, alkaline soils but these can have impeded drainage. Good quality soils with most of the area considered to be Grade 2 or 3 agricultural land.	Local	With only 5 SSSI and 25 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. The geological resource also provides a history of how past climate change has impacted on the environment, rocks and soils of this area; this could be used to help anticipate future climate change scenarios. It is important to retain the quality, structure and condition of the fertile soils in this NCA.	Protect and enhance the local geological sites and bring them into good condition. Support the Local Geodiversity Action Plan particularly opportunities to increase access to and interpretation of geological exposures. Use the geological resources to study previous climate change to support future adaptation. Support good soil and land management particularly to help stabilize the geological sites and bring them into better condition.	**Geodiversity** **Sense of place/ inspiration** **Biodiversity** **Recreation** **Regulating water quality** **Regulating soil quality**

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