

South Downs

Integrated Landscape Character Assessment:

Technical Report



**South Downs Integrated Landscape
Character Assessment**

**Prepared for the South Downs Joint
Committee, in partnership with the
Countryside Agency, English
Heritage, Hampshire County
Council, West Sussex County
Council and East Hampshire District
Council**

by

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Linda Tartaglia-Kershaw	Hampshire County Council
Alison Tingley	South Downs Joint Committee
Martin Small	South Downs Joint Committee
David Thompson	Countryside Agency
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THE SOUTH DOWNS LANDSCAPE CHARACTER SUMMARY

Landscape Character

The South Downs is a landscape of national importance. The character and qualities that create the outstanding landscape and special sense of place are identified through this assessment. In summary, the key integrating themes describing the South Downs are:

- **VARIETY AND CONTRAST:** An extremely diverse and complex landscape, even within the uniformity of the chalk – resulting in considerable local variation reflecting physical influences combined with historic and economic processes. Within this, a strong sense of locality reflected in local landscape names, dialect and traditions. A landscape of contrast and juxtaposition - contrast of spectacular white chalk cliffs with the seascape, perception of remoteness in close proximity to urban areas, openness and enclosure, expansiveness and intimacy. These are overlaid with a contrast of colours and texture – created by the land cover mix of crops, grassland, woodland and heath.
- **DISTINCTIVE FORM:** Dominated and unified by the central spine of chalk, but including adjacent distinctive Greensand and Wealden landscapes which contrast with, and complement, the chalk. The dramatic northern escarpment ‘wall’ is a dominant backdrop in views from the low lying Weald, with the sequence of ridges across the chalk creating a strong sculptural landform and dramatic skylines and skyscapes. The complex landform is indented with dry valleys and coombes, incised by chalk rivers in the west, and distinctive wide U shaped valleys, to the east.
- **TIME-DEPTH:** A strongly historic landscape with visible links to the past and sense of time-depth including prehistoric ritual and settlement sites - flint mines, burial mounds and visually dominant hillforts; abandoned field systems surviving as earthworks on the high downland, but extensive below ground elsewhere testify to centuries of cultivation and use by farming communities from the Neolithic to the present day.
- **BIODIVERSITY:** An outstanding biodiversity resource, reflecting the varied geology and history of use and management; supporting a wide range of habitat types, including extensive, ecologically rich chalk grassland and associated downland habitats, significant areas of beech hanger woodland, floodplain grassland, as well as ancient woodland, heathland, chalk streams and coastal habitats.
- **SPECIAL PERCEPTUAL QUALITIES:** A strong sense of space, remoteness and quietness – a special quality in the South East of England. Perceived as an isolated ‘island’ set apart from the busier surrounding landscape; yet conversely a tamed and managed landscape in which farming, notably grazing, is integral to character. An inspiring landscape – long a source of artistic and literary inspiration, especially for Londoners – including Kipling, Bloomsbury Set, Elgar, William Cobbet, WH Hudson, Richard Jeffries, Gilbert White, Edward Thomas, Hilaire Beloc. Today, the area is perceived as an accessible landscape – but retains an experience of wilderness.
- **BUILDINGS AND SETTLEMENT:** A distinctive pattern of settlement with isolated farmsteads set within a medieval wooded landscape in the Weald; medieval villages on the Greensand, springline villages along the scarp foot and a concentration of settlement in the dip slope valleys of the downs. Geological diversity reflected in the building types, which are

closely linked to the local landscape – flint on chalk, and sandstone/timber on the Greensand and the Weald. Local distinctiveness within this general pattern such as the mathematical tiles of Lewes and the distinct livery and style of estate villages.

- **VIEWS:** Expansive with big open skies, strong skylines and sense of elevation, with views down onto and across the surrounding landscape and seascape, contrasting with areas of enclosure, seclusion and intimacy. A distinct weather/microclimate; special qualities of shadow and light - picked out on the open chalk downland and scarps, with contrast of dappled light and shade in the more wooded areas to the west.

Summary Of Forces For Change

DEVELOPMENT SQUEEZE – the South Downs is a relatively narrow protected landscape, particularly to the east, with the expanding coastal plain development to the south and more developed landscapes of the Low Weald to the north. Only a very narrow area of high quality landscape remains – just a perception of remoteness and tranquillity, but this perception is an important element to conserve. Changes beyond the designated boundary, such as night time glow of urban development and effect of increased water abstraction all contribute to change within the South Downs. The large expansion of residential development planned for the South East is likely to result in further changes to the distinctive landscape of the South Downs.

CHANGING AGRICULTURE – essentially a tamed and managed landscape, with grazing integral to its character. This character is vulnerable to the impact of global markets/competition and notably a recent decline in grazing. In some areas, lack of management and ‘set aside’ is creating a landscape that is at odds with the managed character. In recent years the South Downs has also witnessed an increase in small holdings and alternative farm enterprises – ‘hobby’ or lifestyle farms; these can bring positive environmental change for example through grazing, although evidence for subdivision and creation of paddocks and clutter is evident in some landscape types, particularly the river valleys and on the Greensand and Weald. In the past changes in agriculture has resulted in loss of many key habitats and archaeological sites. The decline in rural skills required to maintain landscape features is also a concern.

TRAFFIC – is an issue, particularly on the roads that run north south across the South Downs connecting the coast to the hinterland. Traffic pressures arise from population growth, increasing recreational use, plus greater flows of through traffic between the coast and the rest of the South-East and London. The result is to the introduction of movement and noise into an essentially still, quiet landscape, with effects on the special qualities of remoteness and tranquillity, erosion of rural character, plus the creation of a more ubiquitous highway environment.

RECREATION PRESSURES – an accessible landscape retaining a sense of wilderness but with increasing recreational and active, sports use – scrambling along drove roads, hang-gliding, paragliding etc. The South Downs is accessible to a large surrounding population – with growing urban areas on the edge of the designated landscape plus 10 million people within an hours drive. There is consequent demand for infrastructure and facilities, increasing recreational car traffic within the Downs. This results in changes to existing key recreation sites (overcrowding and erosion) and overall, cumulative effects on the special qualities of remoteness and ‘wilderness’ that people come to enjoy.

DEVELOPMENT – incremental, small-scale change with gradual erosion of local rural character is a key concern. Within the more remote downland areas, conversion of former farm buildings remains an issue not only in terms of effects to the building fabric and setting, but also by bringing new uses and traffic into the landscape. It is also important that the strong sculptural landform, dramatic skylines and skyscape of the chalk remain free of clutter and viewed against an open

background of sky. Throughout the South Downs, many buildings reflect the locality such as the flint. To reinforce sense of place, it is essential to retain the existing palette of materials and reflect local shapes and detail. Equally, or arguably of greater importance as a force for change is the effect of development beyond the designated area boundary and associated landscape change – visual, traffic, recreational demands and effects on water resources etc.

CLIMATE CHANGE – is a main issue with a need for the landscape to adjust to new environmental constraints with potential changes to characteristic habitats, land uses, water resources and the coastline. In response to climate change and the need to move to renewable energy resources, there may be a pressure for further development/change – with consequent landscape impacts.

EROSION OF ISOLATED, ISLAND QUALITY - The South Downs has a strong ‘island’ quality and sense of separateness/difference from the surrounding landscape. This is both as a result of the upstanding a prominent landform which rises from the Weald and coastal plain, long views out, as well as the very real contrasts between the South Downs and adjacent areas. Such contrasts include the often sharp transition from the adjoining urban landscape on the coastal plain or settled landscapes of the Weald. A tangible sense of remoteness, tranquillity and isolation can be experienced within the South Downs, paradoxically in close proximity to more settled and developed areas on the boundaries. These expanding urban areas, however, are themselves increasingly eroding the isolated quality of the South Downs, both visually with views to development edges, light pollution of dark skies, effects of increasing abstraction on the chalk aquifer, as well as greater demands for leisure and recreation use of the landscape. The rural economy is also increasingly connected with the adjacent urban areas and disconnected from the management of the landscape. The demands of an expanding peripheral population are further manifested in requirement for infrastructure and development such as telecommunication masts on the South Downs, which further blurs the sense of difference and separateness of the landscape.

The South Downs is still perceived as set apart; an ‘island’ separate from the rest of the South East. In reality the South Downs is interrelated and connected both perceptually and physically to its surroundings. It is local, regional, national and wider forces beyond the national park that are driving changes within the South Downs. For these reasons, the South Downs cannot be treated in isolation; it is vital that all local, regional and national policies consider the implications of change beyond the national park boundary on its distinctive character and qualities.

I. INTRODUCTION

- 1.1. The South Downs is a landscape of national significance, long recognised for its distinctive and highly valued character – it comprises some of the most visually dramatic scenery in Southern England - an archetypal chalk landscape imprinted with human history. The exceptional qualities led to its designation in the 1960's as two Areas of Outstanding Natural Beauty (AONB) and more recently designation of the entire area as the South Downs National Park (awaiting a decision on confirmation¹), one of two new national parks in 'lowland England'.
- 1.2. The designated South Downs National Park covers a total area of 1671 km² including parts of three counties (Hampshire, West Sussex and East Sussex), plus the Unitary Authority of Brighton and Hove and eleven district authorities. In essence the landscape comprises a chalk ridge stretching from Beachy Head in the east to Winchester in the west with a dramatic northern escarpment and gentler dip slope towards the coast. Within this simple landform structure there is significant diversity, and including the Greensand shelf at the foot of the downland scarps and the clay hinterland of the Low Weald, creating a very varied and complex landscape character. The Landscape Character Assessment (this report), together with the associated Management Plan aim to secure a positive future for the South Downs landscape.

Purpose of the Report

- 1.3. The South Downs Joint Committee, in partnership with the Countryside Agency, English Heritage, Hampshire County Council, West Sussex County Council and East Hampshire District Council, commissioned Land Use Consultants (LUC) to produce an integrated Landscape Character Assessment (LCA) for the area within the designated South Downs National Park.
- 1.4. The purpose of this study is to produce a comprehensive, fully integrated assessment of all aspects of the landscape character of the South Downs, so that greater understanding of this nationally important landscape and its needs and opportunities can lead to improved management and enjoyment. There is a wealth of published material and work in progress on the South Downs. This project develops a new updated and integrated assessment building on wide range of existing information and combining this with new work by specialists in landscape, archaeology and biodiversity to develop a fully integrated assessment. The results of the study are presented as a report and GIS database.
- 1.5. This is an important study providing an opportunity to apply the principles of characterisation to a new National Park, to ensure that an understanding of landscape character can influence and inform management actions from the outset.

Structure of the Report

- 1.6. The structure of this report is as follows:

¹ The decision from Government on if there is to be a National Park and (if so) the final boundary is not expected until 2006. It should be noted that the boundary of the *designated* South Downs National Park may be different to the *confirmed* South Downs National Park.

Part 1: Context

The first section of the report sets out the context for the study, including a method statement. This is followed by an overview of the physical and human influences, which together have created the landscape of the South Downs that is cherished and valued today.

Part 2: Character of the South Downs Landscape

The main part of the report comprises the detailed landscape character assessment of the designated South Downs National Park. The landscape classification defines 18 generic landscape types, which are sub-divided into 49 individual geographic character areas. A detailed description and evaluation is presented for each of the landscape types and further specific information is provided for each of the character areas.

PART I: CONTEXT

This section presents an overview of the South Downs landscape as an introduction to the detailed character assessment

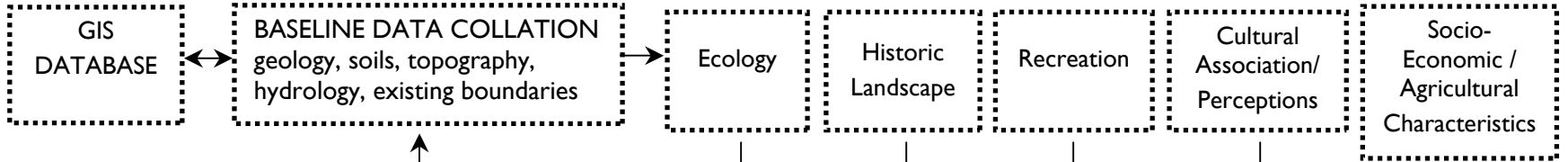
2. SUMMARY METHOD STATEMENT

- 2.1. The study follows the accepted method for landscape character assessment as set out in '*Landscape Character Assessment: Guidance for England and Scotland*' published by The Countryside Agency and Scottish Natural Heritage in 2002, and subsequent topic papers.
- 2.2. This assessment represents best practice and an innovative approach by:
 - providing a clear hierarchy of assessment and links to existing character assessment information at the national and local level;
 - covering the whole of the South Downs area at by detailed scale of 1:25,000 delineating recognisable and clearly identified character areas;
 - presenting a fully integrated study with landscape specialists working closely with specialists in the historic environment, biodiversity and rural land use/socio-economics;
 - allowing for early consultation on the landscape classification and to agree character area names;
 - producing the main study outputs as both a hard copy report and GIS database.
- 2.3. The work was undertaken in two stages: Part A Scoping Exercise; and Part B Production of the Integrated Landscape Character Assessment. The process for undertaking the study is illustrated in **Figure 2.1**.
- 2.4. **Part A: Scoping Exercise:** The initial scoping exercise considered all relevant information, notably existing landscape character assessments and any other landscape plans and strategies that cover all or part of the South Downs area. A detailed scoping report with recommendations for a new integrated LCA and a proposed draft classification was presented to the steering group. This sets the South Downs work within a clear hierarchy and framework relating both to the national landscape character areas and the more detailed AONB, County and District-wide studies. A summary of the findings of this report and proposals for the classification are presented in **Appendix I**.
- 2.5. The draft classification was undertaken using GIS as a tool to overlay many different layers of information (see Appendix I) and was developed in consultation with historic and biodiversity specialists so that the classification was fully integrated from the start. The draft classification was also presented to a wider consultation group of communities of interest and place at a special South Downs Consultation Event at West Dean, June 28th 2005. The consultation process tested and refined the landscape classification and detail provided on key characteristics and defining features. Information obtained provided a clear way forward for the second part of the contract involving preparation of the Integrated Landscape Character Assessment.
- 2.6. **Part B: The Integrated Landscape Character Assessment:** The draft classification was verified through a detailed field survey, with boundaries plotted at 1:25,000 scale. The field survey followed a structured process of information

collection – an example field survey sheet is provided as **Appendix 2**. Detailed information was compiled for each character area, involving an objective written description followed by an evaluation. The evaluation makes judgements on the landscape highlighting key sensitivities and identifying future management needs.

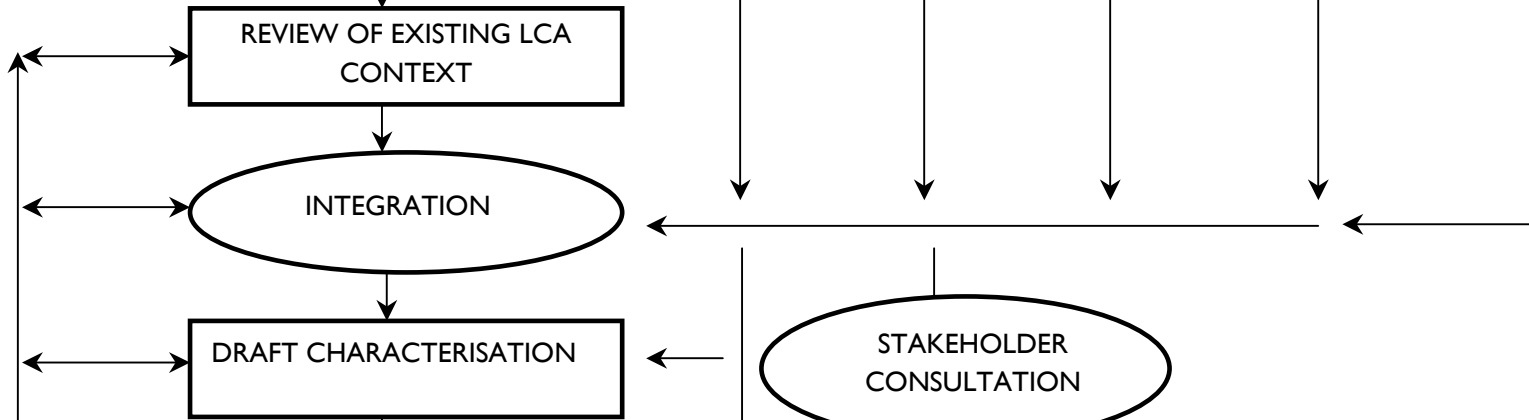
PART A: SCOPING

DATA COLLATION



PART B: PRESENTATION OF INTEGRATED LCA

CHARACTERISATION



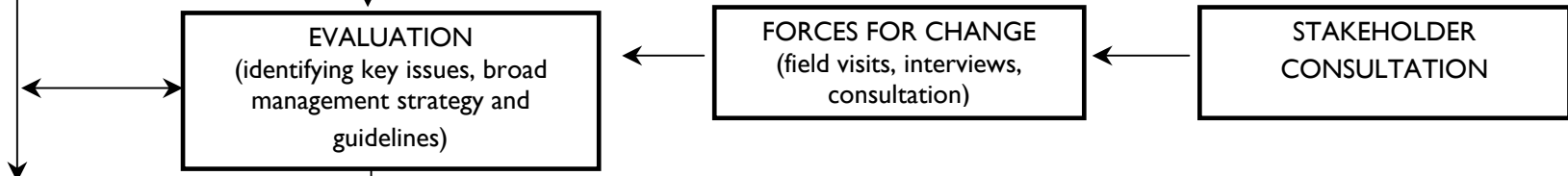
SURVEY



DESCRIPTION



EVALUATION



STUDY OUTPUTS



Figure 2.1: The South Downs Landscape Character Assessment: Process

3. PHYSICAL INFLUENCES

GEOLOGY AND TOPOGRAPHY

- 3.1. The South Downs is dominated by a spine of Chalk that stretches from Winchester in the west to the cliffs of Beachy Head in the east. To the north of the Chalk the older sandy rocks of the Lower Greensand and soft shales of the Wealden Clays are exposed. The Chalk is separated from the Lower Greensand by a belt of low-lying ground marked by the Gault and a 'terrace' of Upper Greensand that lies at the foot of the Chalk scarp. To the south of the chalk the younger Tertiary rocks overlie the Chalk. The solid geology within the designated South Downs National Park boundary is shown in **Figure 3.1**. The different rock formations are considered in chronological order below. The description includes the development of each rock formation, its composition, and its influence on the topography and character of the South Downs. A topographical map is presented in **Figure 3.2**.

Cretaceous Rocks

Wealden Series

- 3.2. The oldest rocks in the South Downs are those of the low lying clays of the Wealden Series that are exposed along the northern boundary of the study area. During the early part of the Cretaceous period, some 140 million years ago, a lake covered the area and it was during this time that the Wealden Clay was laid down. It consists of shales and mudstones with outcrops of siltstones, sandstones, shelly limestones and clay ironstones. Erosion of the softer rocks has created a low lying area or 'basin'. In combinations with the outcrops of harder siltstones, sandstones, shelly limestones and clay ironstones this creates an undulating landform.

Lower Greensand Deposits

- 3.3. Towards the end of the Weald Clay deposition, the salinity of the Weald Lake increased and the lake became a shallow marine bay in which sands were deposited. The sandy rocks also contain chert, ironstone and calcareous deposits. Three lithological divisions of Lower Greensand are exposed within the designated South Downs National Park boundary - the Hythe Beds (a greenish grey sandstone with beds of chert located to the north-east of Petersfield), Sandgate and Bargate Beds (yellow sandstones around Pulborough and Midhurst) and the Folkestone Beds (quartzose sands with seams of pebbles and clay found along the Rother Valley and at Woolmer Forest).
- 3.4. The Hythe Beds are particularly thick along their northern and western limits where they produce a prominent ridge of hills that enclose the Wealden Basin. These resistant cherts and sandy limestones form the high hills and steep escarpments to the north-east of Petersfield. The Sandgate, Bargate and Folkestone Beds are composed of less resistant lithologies and create lower landforms. The Sandgate Beds form rolling relief with well-drained, easily eroded soils which are almost exclusively used for arable farmland. The Folkestone Beds form a slightly elevated, flat-topped plateau which is associated with poor soils and extensive tracts of

heathland. The sands are of economic value and these areas are frequently pitted with quarries.

Gault Formation

- 3.5. The Gault was probably deposited in quiet water of the shallow seas and is composed of soft mudstones and silty mudstones which have weathered to yellow and brown clays. These rocks are exposed at the foot of the Chalk where they create a smooth 'vale' like landform, for example around West Liss. The clays of the Gault formation have been exploited for brick making e.g. the Selborne brickworks.

Upper Greensand Formation

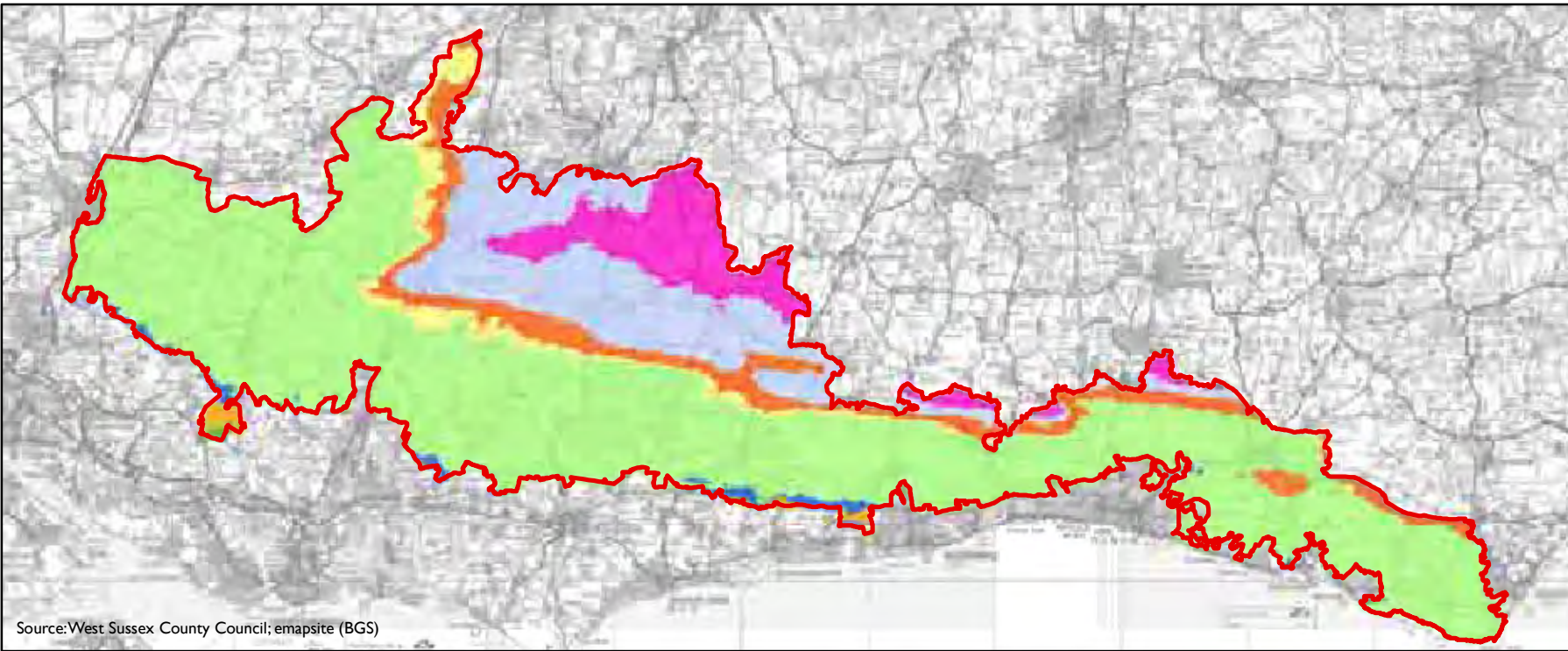
- 3.6. The Upper Greensand formation was deposited near the shorelines of the shallow Wealden sea during the Cretaceous period over 100 million years ago. The rock is composed of a series of sandy beds with small amounts of clay and silt which is more resistant to erosion than the neighbouring Gault. The Upper Greensand is thickest at the western end of the Weald, for example around Selborne, where it is exposed as a 'shelf' or 'terrace' at the foot of the chalk. Outcrops of solid rock are revealed in the sunken roads and lanes which cross the terrace.

Chalk

- 3.7. The South Downs is dominated by and unified by Chalk. The Chalk beds were laid down during the latter part of the Cretaceous period, some 100 million years ago, as a white calcareous mud when much of southern Britain lay under water. The Chalk is a soft, white limestone of organic origin containing microscopic calcareous bodies. Embedded within the Chalk are hard flints which are formed from silica. These flints remain long after the softer chalk has eroded and have been exploited by man as tools and as a building material, with the flint villages, walls and churches being one of the most distinctive features of the South Downs.
- 3.8. The Chalk formation is divided into Lower, Middle and Upper Chalk. The Upper Chalk gives rise to the extensive areas of gently undulating downland that dominates the South Downs landscape with Middle and Lower Chalk cropping out in the scarp slopes and in the bottoms of valleys. The cliffs of Beachy Head provide excellent sections through the Lower, Middle and Upper Chalk.
- 3.9. The striking Chalk escarpment is formed by erosion of the Chalk, partly as a result of the water emitting from springs at the base of the Chalk. The escarpment is remarkably constant in height throughout its length as a result of the lithological uniformity of the Chalk. Variations in landform are therefore due almost entirely to folds and faults in the chalk.
- 3.10. The escarpments and dipslopes of the Chalk are characterised by coombes which are related to local joints in the chalk and were formed by spring sapping and stream erosion probably during and immediately after glaciation when the Chalk was impermeable as a result of permafrost. Spring action and intermittent 'bournes' or 'lavants' after heavy rain have continued to cause modifications in structure. The effect of the Chalk joints on the development of coombes is exemplified by the pattern of dry valleys around Brighton. Some coombes are more complex, for

South Downs Integrated Landscape Character Assessment

Figure 3.1: Simplified Geology



Source: West Sussex County Council; emapsite (BGS)

Key

South Downs Boundary

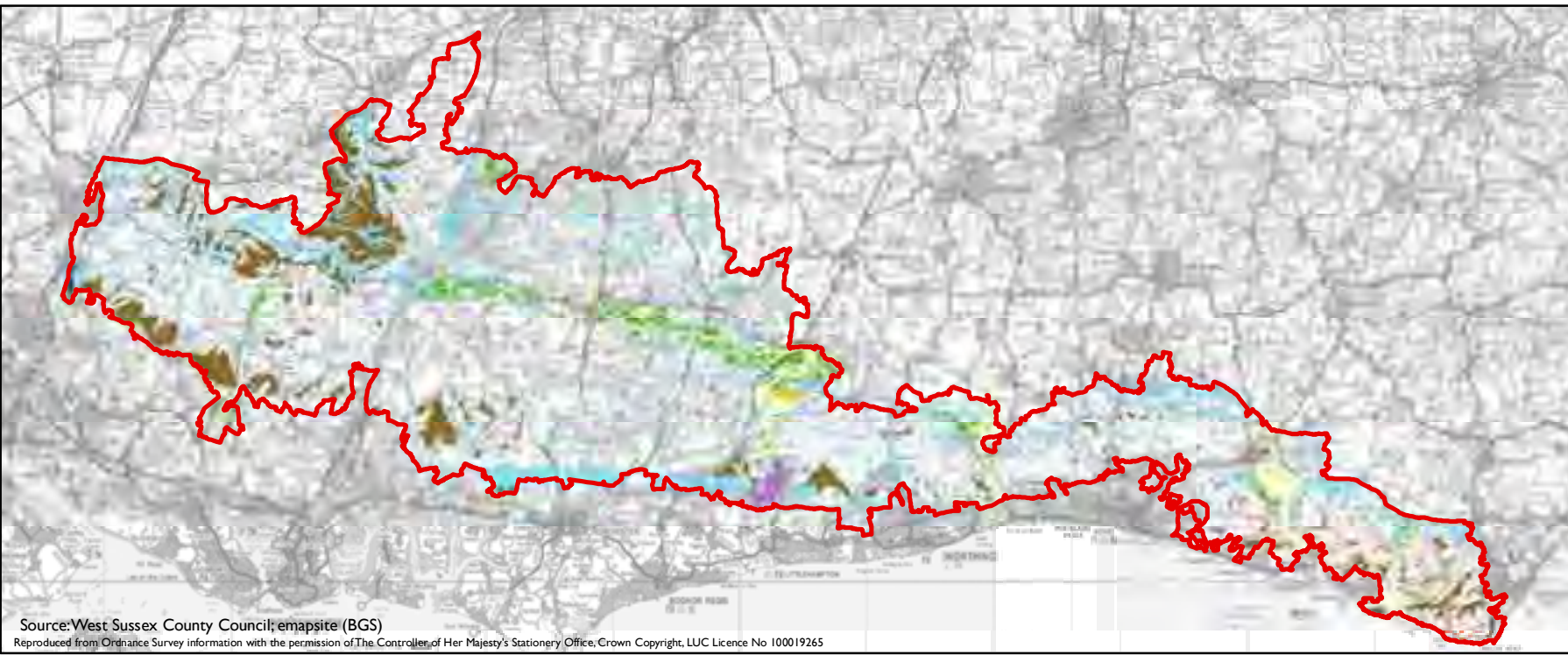
Simplified Solid Geology

Cretaceous Rocks

- Wealden Series
- Lower Greensand Deposits
- Gault Formation
- Upper Greensand Formation
- Chalk

Tertiary Rocks

- Lambeth Group (Woolich and Reading Beds)
- London Clay Formation
- Wittering Formation



Source: West Sussex County Council; emapsite (BGS)

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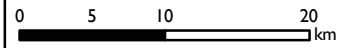
Key

South Downs Boundary

Simplified Drift Geology

- Clay with Embedded Flints
- Peat
- River Terrace Deposits
- Head
- Dry Valley Deposits
- Tufa
- Alluvium
- Raised Marine Deposits

Date Prepared: 15/09/2005




South Downs Integrated Landscape Character Assessment


Figure 3.2: Topography

Key

 South Downs Boundary

Elevation (m)

 0 - 30

 30.1 - 55

 55.1 - 80

 80.1 - 105

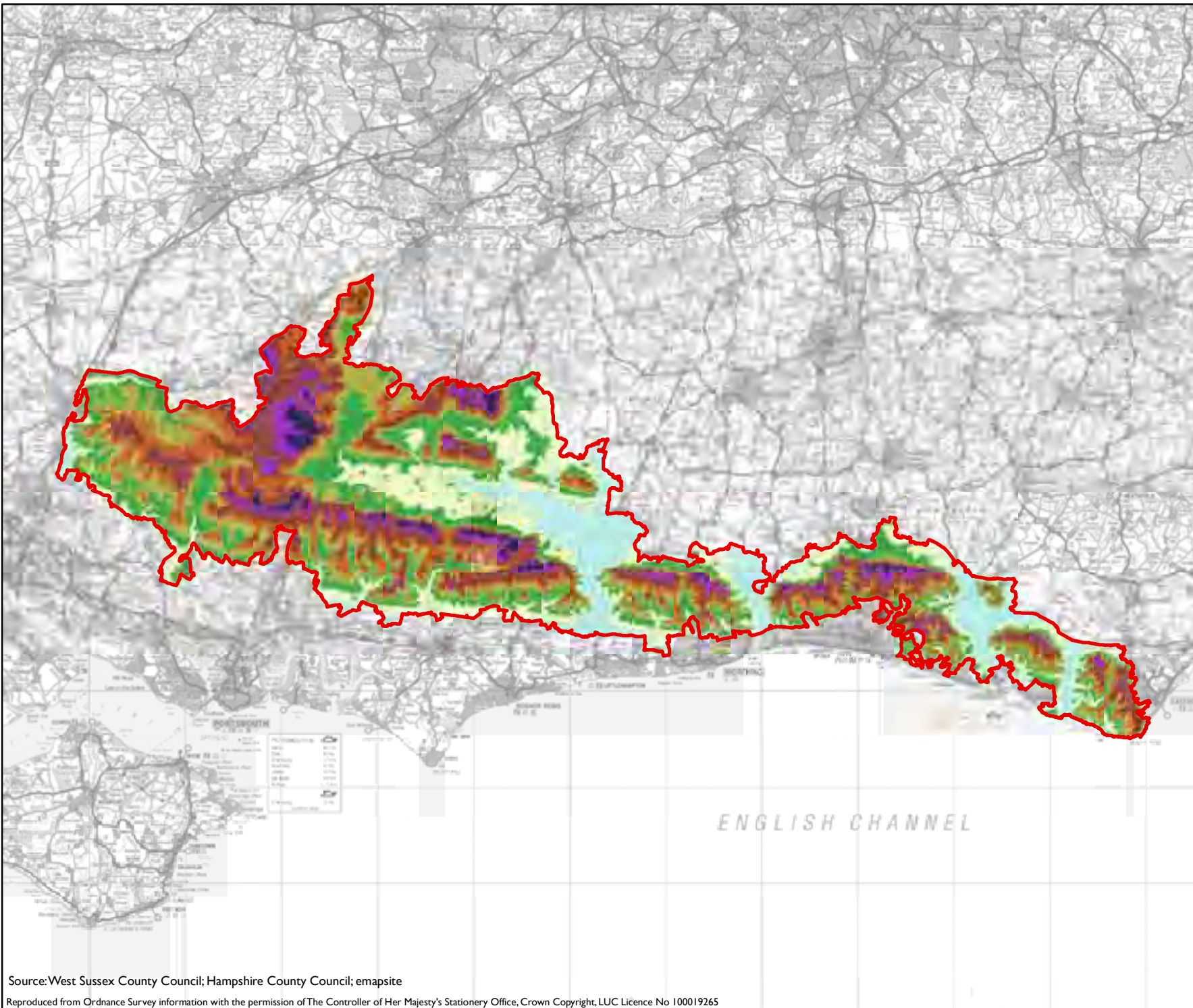
 105.1 - 130

 130.1 - 155

 155.1 - 180

 180.1 - 205

 205.1 - 278



Source: West Sussex County Council; Hampshire County Council; emapsite

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Date Prepared: 15/09/2005

0 5 10 20 km



example Devil's Dyke, which is an 'escarpment' valley where a dip-slope and scarp-face valley intersect.

Tertiary Rocks

- 3.11. By the end of the Cretaceous time the sea had retreated, the chalk was gently folded and exposed to erosional processes. Tertiary rocks represent the marine incursion into the area by shallow seas some 65 million years ago. These are the most recent bedrock deposits found in the South Downs.

Lambeth Group

- 3.12. The Lambeth Group (formerly known as the Woolwich and Reading Beds) are the earliest Tertiary rocks. They consist of brightly mottled clays, silts, sands and gravels that rest on the chalk. The Lambeth Group is seen along the southern boundary of the designated South Downs National Park boundary, to the south of the Chalk, where it gives rise to a gently undulating lowland landscape.

London Clay Formation

- 3.13. The London Clay Formation is a bluish grey clay that occurs in the most southerly part of the South Downs, at West Walk, where it forms a heavily wooded lowland landscape.

Wittering Formation

- 3.14. The Wittering Formation is part of the Bracklesham Group. It is composed of sands and gravels and gives rise to a well drained lowland landscape as seen at Rookesbury Park on the southern extremity of the South Downs.

Geomorphological Processes

- 3.15. After the Tertiary rocks were laid down the landscape and topography was substantially altered by the process of folding and faulting. East west folds form anticlines such as the Winchester Anticline which extends from Winchester almost to Petersfield, the Stockbridge Anticline which ends just west of Stockbridge, the Worthing-Arundel-Chichester Anticline, the Lewes Anticline and the Mount Caburn Anticline. The approximate locations of these anticlines may be seen on geological maps contained in the Hampshire Basin and Adjoining Areas and Wealden District volumes of the British Regional Geology series (published by the Natural Environment Research Council, Institute of Geological Sciences). All the folds face northwards and this produces the distinctive north facing scarps that characterise the area. The area has also been acted on by hydrological processes (see below) that have shaped the landscape resulting in the distinctive wide U shaped valleys and hidden dry valleys, which are so characteristic of the chalk landscape and the narrow gorges and ravines that typify the Greensand.

Drift Geology

- 3.16. The principal types of drift deposits in the study area are illustrated in **Figure 3.1** and summarised below.

Clay-with-flints

- 3.17. Clay-with-flints are accumulations of clay and embedded flints that reach up to 10m depth on the surface of the Chalk. The deposits formerly extended as an almost continuous sheet, much of which is likely to have been eroded. The present day distribution, as mapped by the British Geological Survey, occurs as isolated patches across the chalk. Remnants of clay-with-flints are found on the highest Chalk of the Hampshire Downs as well as on the dip slope along the southern edge of the South Downs. The presence of clay with flint capping creates considerable variation in the chalk landscape with heavier soils frequently supporting areas of woodland and pasture.

River Terrace Deposits and Dry Valley Deposits

- 3.18. Three major glaciations are recognised in Britain which were separated by periods of interglacial warming. During the interglacial periods, sea level rose and the valleys were flooded. When glaciation caused the sea level to fall again, material transported by the water, was deposited on the valley sides. The remnant deposits of these glacial/interglacial fluctuations are still found in terraces along the river valley. River terrace deposits line the valley sides up to 15m from the present valley floors. These are particularly noticeable along the River Rother.
- 3.19. Dry valley deposits are composed of sand and silt, and can be found along the bottom of valleys which have in the past been water filled. When water flowed through the valley, the sand and gravel was transported and deposited along the river's course. Since more recent drops in water levels, the valleys now run dry except for during periods of heavy rainfall. Dry valley deposits are typically found in the valley bottoms of the extensive dry valleys and coombes that characterise the dip slope of the chalk downland.

Alluvium, Raised Marine Deposits and Peat

- 3.20. Alluvium is the modern deposit of rivers, spread by the river during flooding, and occupies the low-lying marshy ground alongside rivers. This type of deposit is particularly prominent in the wide river floodplains of the Arun, Adur, Ouse and Cuckmere. Raised marine deposits are similar to river alluvium, but are spread by the sea rather than river. Raised marine deposits are seen in the lower floodplain of the River Arun. Peat is closely associated with inland alluvium and occurs on low-lying marshy ground, for example at Amberley Wild Brooks.

Head

- 3.21. Head is weathered, broken-up material that has moved downhill by solifluction. It may also refer to downwash deposits that are still forming and is found on plateaux, hill slopes, and valley bottoms, for example in the coombes and valleys within the Chalk, Greensand and Low Weald.

Tufa

- 3.22. Tufa is a porous calcareous rock deposited by springs after having flowed through the chalk strata of the downlands. Tufa depositing flushes occur when the springs deposit the sediment, which they have been carrying through chalk, on the surface. Tufa deposits are particularly notable along the valley of the River Itchen.

HYDROLOGY

- 3.23. The surface of the chalk dip slope is furrowed by extensive branching dry valley systems which are most likely early drainage patterns which retreated as the level of the water table in the chalk fell. These dry valley systems occur throughout the chalk landscapes. Coombes are features of the scarp slope which were formed by spring sapping and stream erosion probably during and immediately after glaciation when the Chalk was impermeable as a result of permafrost.
- 3.24. Folding, faulting, jointing and lithological variations have all played a part in governing the drainage pattern. The chalk valleys of the River Itchen, Meon, Lavant and Ems, all of which support rivers on their lower reaches, follow structural folds in the chalk. The River Rother flows eastwards at the foot of the northern scarp of the Chalk before entering the Arun.
- 3.25. One of the main drainage features in the South Downs is the series of deep valleys, or gaps, in the South Downs which contain the rivers of the Arun, Adur, Ouse, and Cuckmere. These large U shaped valleys were most likely deepened and enlarged by periglacial erosion and contain extensive floodplains.
- 3.26. A line of springs runs around the foot of the Lower Greensand Hills at the junction between it and the Weald Clay. The springs are formed by water which percolates through the sand, but is stopped and forced out where it reaches the impervious clay.
- 3.27. A similar springline is also found along the Greensand shelf at the foot of the scarp slope of the chalk downs.

SOILS AND AGRICULTURAL CAPABILITY

- 3.28. **Figure 3.3** illustrates the distribution of agricultural land quality throughout the study area. This indicates that, in common with most of lowland England and the South East Region, the majority of the area is Grade 3 (“good to moderate quality agricultural land” which is capable of growing a range of arable crops with relatively few restrictions). There are few areas of Grade 2 land (“very good quality agricultural land”) which occur in river valleys where there is a depth of alluvial soil and no areas of Grade 1 land (which occurs in significant areas on the coastal plain south of the study area). Grade 4 land is found mostly on the steeper land with thin chalk soils or heavy clay with flints, occurring across the study area but particularly in the central part of the South Downs, which remains dominated by large areas of woodland.

Sources consulted

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Natural Environment Research Council Institute of Geological Sciences (1960) *British Regional Geology: The Hampshire Basin and Adjoining Areas, Third Edition* by C P Chatwin MSc. (Her Majesty’s Stationery Office, London).

Natural Environment Research Council Institute of Geological Sciences (1965) *British Regional Geology: The Wealden District, Fourth Edition* by R W Gallois BSc. (Her Majesty's Stationery Office, London).

Soil Survey of England and Wales: Soil Map of England and Wales with explanatory text (Scale 1:1000,000)

Soil Survey of England and Wales (1983) Sheet 6 South East (scale 1:250,000)

DEFRA's agricultural land classification

4. HUMAN INFLUENCES AND THE HISTORIC ENVIRONMENT

- 4.1. The landscape of the South Downs as we see it today is the product of an interaction between natural and human processes. The landscape bears the imprint of successive periods of human inhabitation and land use.
- 4.2. This chapter provides a narrative overview of the human history of the South Downs and surrounds, examining the main trends that can be recognised in the development of the modern landscape from earliest prehistory up to the present day, a broad overview of historical settlement patterns, and an introduction to the Historic Landscape Characterisation (HLC) of the South Downs.

OVERVIEW

Palaeolithic (c.500,000BC-c.10,000BC)

- 4.3. The Palaeolithic period was the earliest and longest phase of human history. A number of important discoveries of hominid remains of Lower Palaeolithic date have been made from the Raised Beach deposits that lie at the foot of the dip slope of the Downs, just outside the designated National Park boundary. These include the internationally important site at Boxgrove, comprising deposits and artefacts dateable to c.500,000BC.
- 4.4. The South Downs, although heavily wooded, were an attractive area for exploitation, with the southern combes affording good access to the freshwater and marine resources of the coastal plain, while the northern escarpment provided an ideal vantage point for monitoring animal herds. A number of artefacts of Lower and Middle Palaeolithic date, mainly handaxes, have been found scattered along the gravels of the Wealden river valley systems, particularly the Western Rother and the Arun. These are derived deposits of a secondary nature, removed from their original location by the effects of glaciation and subsequent hillwash, moving material both downslope and downstream, but they do suggest the presence of human groups exploiting the wider downland plateau. The exceptions to this are the scattered pockets of Clay-with-Flint that survive in hollows along the chalk ridge, particularly on the open Ouse-Eastbourne downland. These deposits have been shown elsewhere (the East Kent Downs) to contain in situ Palaeolithic material (although the exact circumstances of deposition are still in dispute). Most of the known Palaeolithic material relates to the blade traditions of the Upper Palaeolithic, prior to the last glaciation.

Mesolithic (c.10,000BC-c.4300BC)

- 4.5. The Mesolithic saw the return of human communities to the South Downs in response to improving post-glacial climatic conditions. The warming climate led to the spread of a succession of woodland types, culminating in a mixed broad-leaved forest dominated by oak but including elm, ash, alder, lime and hazel. Human communities exploited this woodland and the rich resources of the river valleys. Settlements comprised semi-permanent base camps occupied during the winter months and a series of seasonal hunting camps, although evidence for such

settlements is scarce and tends to be restricted to the Greensand (e.g. Selmeston, East Sussex; West Heath, West Sussex, Oakhanger, Hampshire). The bulk of the evidence for this period comprises flint scatters, from which three typologically distinct chronological groupings have been recognised. Evidence for the later Mesolithic period is less forthcoming, although it is likely that small-scale clearance of the woodland, together with a certain level of manipulation of animal populations as part of an increasingly efficient hunting strategy laid the foundations for the adoption of agriculture.

Neolithic (c.4300BC-c.3000BC)

- 4.6. The Neolithic saw the development of agriculture and the first evidence for large-scale communal activity. New ideas relating to the domestication of animals and, probably later, the cultivation of cereals, were adopted by indigenous human communities, together with new technologies such as pottery. Environmental evidence indicates a major phase of woodland clearance taking place at this time, as land was opened up to provide fields and sacred spaces. Evidence for Neolithic settlements is patchy, with a few sites producing pits (e.g. New Barn Down and North Marden, West Sussex), although the proximity of these sites to ceremonial monuments, and the 'ritual' appearance of the fills, may indicate that these are not domestic sites. A much more extensive impression of Neolithic activity is gained from the numerous flint scatters and also the distribution of polished stone axes, both of which are concentrated on the chalk downlands. The absence of Neolithic material from the Greensand is surprising given the fertility of the soils, but this is likely to be the result of Neolithic sites being buried under deep colluvial deposits. Ironically, the soil erosion that caused this process was initiated by large-scale tree clearance during this period.
- 4.7. The most striking evidence for the period exists in the form of ceremonial monuments. The earliest examples comprise earthen long barrows, which are found scattered across the downland, but with concentrations in Hampshire east of Winchester, to the north of Chichester in West Sussex and east of the Ouse valley in East Sussex. These were both communal burial places and foci for social and ritual gatherings, serving to anchor the community in the landscape. Another early ceremonial site was the causewayed enclosure, seven examples of which are known from the Sussex portion of the designated National Park (with an eighth immediately outside at Whitehawk, Brighton). No examples are known from Hampshire. The nature of these sites remains a matter of debate, but activities may well have included excarnation (the exposing of the dead prior to burial), ritual deposition of food and artefacts and use as a meeting place. Ritual activity has also been recognised at a number of flint mines scattered across the South Downs chalk, often surviving as areas pockmarked with former shafts. The remaining class of ceremonial site found in the late Neolithic, the henge, is not present within the designated National Park, although a possible henge has been suggested at Mileoak near Brighton.

Bronze Age (c.3000BC-c.600BC)

- 4.8. The Bronze Age is characterized by the introduction of metals, firstly gold and copper and later bronze. The earliest metals are generally associated with a new type of pottery, Beaker Ware, as well as the construction of a new type of ceremonial site, the round barrow. These monuments heralded a new way of

thinking about society as they represented the burial of individuals rather than the communal burials of the preceding period. This is probably linked with the emergence of social elites. The barrows are found in large numbers across the chalk downland and also on the Greensand, often forming linear cemeteries on ridges.

- 4.9. The Middle Bronze Age (from c.1500BC) saw a dramatic change in emphasis away from the ceremonial and monumental landscape. Large-scale evidence for farming appeared with the creation of field systems defined by earthwork banks and ditches (and probably hedges). Small enclosed settlements of round houses representing farmsteads set within groups of paddocks are found across the chalk downs (mainly in Sussex), several of which have been excavated (e.g. Winnall Down, Hampshire; Blackpatch, West Sussex; Itford Hill, East Sussex), although usually not surviving as upstanding landscape features (unlike the numerous contemporary stone settlements that survive in upland areas such as Wales).
- 4.10. The Late Bronze Age (from c.1000BC) saw further changes with the disappearance of the round barrow burial tradition, the development of a settlement pattern characterised by unenclosed settlements, the creation of major linear earthworks carving the landscape into territories (especially evident in the cross-ridge dykes found on the downland) and the appearance of large defended enclosures (hillforts) (e.g. Harting Beacon, West Sussex). More evidence of settlement in the lowland areas, particularly the Sussex and Hampshire Coastal Plain, is evident, together with hoards of metalwork indicative of burgeoning trade networks. Environmental evidence indicates that woodland clearance had reduced tree cover on the eastern Downs to a level very similar to that of the present day, replacing it with an intensive mixed agricultural system in which sheep were becoming increasingly important. This regime saw the development of large areas of regular planned field systems, often surviving as lynchetted field systems (traditionally known as 'Celtic fields'). The tree cover remained more extensive in the west due to the prevalence of poorer clay soils capping the chalk.

Iron Age (c.600BC-AD43)

- 4.11. The Early and Middle Iron Age (up to c.100BC) saw a continuation of trends developed in the Late Bronze Age, with increasing numbers of open settlements and defended enclosures evident, the latter perhaps representing focal points for a number of different activities rather than purely acting as military citadels or refuges. Hillforts developed during the period, becoming larger and more strongly defended, with concentric rings of ditches and ramparts (multivallations). By the Middle Iron Age, many of the smaller sites had been abandoned, and there appears to have been a move towards a centralisation of power, with large sites (e.g. Cissbury, The Trundle) dominating blocks of downland territory. Little is still known about exactly how these sites functioned, with evidence of pseudo-urban settlement at Danebury (outside the study area) not yet replicated in any significant manner elsewhere.
- 4.12. The Late Iron Age saw the abandonment of many of the hillforts, with a handful of major sites dominating the landscape (e.g. The Trundle and Cissbury, West Sussex). These in turn fell out of use, to be replaced by large-scale open sites of high status in the lowlands, bounded by long stretches of ditches and banks. These so-called oppida are not found within the designated National Park boundary, but exist immediately outside at Chichester (the Chichester Dykes) and Winchester (Oram's

Arbour). Increasing numbers of settlements are known from this period, including increasingly complex ditched enclosures and the distinctive 'banjo enclosures', many of which survive as cropmarks on aerial photographs. Increasing levels of trade with the Continent, both with native communities and with the expanding Roman Empire, brought a range of fine imports into the area, and the period saw the first evidence for centralized pottery production, including wheel-turned vessels based on the Greensand.

Romano-British Period (AD43-c.AD410)

- 4.13. The Roman invasion of AD43 saw little immediate change to the landscape of the South Downs. The military presence in the area was slight, although there is increasing evidence for a Conquest-period (and perhaps earlier) military site at Fishbourne. The area was occupied by the Atrebates tribe, whose largely pro-Roman sympathies spared them the ferocious assault suffered by the tribes further west at the hands of Vespasian's legions. In fact, ordinary life appears to have changed little for the bulk of the population, with the field systems, roundhouses and farmsteads continuing in use, many of which survived until recently as earthwork sites on the downs.
- 4.14. The process of Romanisation is largely evident further up the social scale, where people acquired those elements of the Roman lifestyle 'package' they felt most comfortable with, merging them with elements of their own culture to produce a Romano-British hybrid. This is manifested in the landscape in the appearance of rectangular stone or timber multi-roomed buildings, generally known as villas, and often developing on pre-existing settlement sites. A scatter of these sites is known, clustering along the Greensand (e.g. Wyck, Hampshire and Bignor, West Sussex, the latter on display as a museum) and also in the fertile river valleys penetrating the dip slope of the chalk (e.g. Twyford, Hampshire and Chilgrove, West Sussex), although the wider landscape contexts of these sites is as yet poorly understood. Many of the villa estates appear to have been deliberately located where they could exploit several resource zones (i.e. river valley and downland). Associated with the villa sites are several temples established higher up on the downland itself (e.g. Chanctonbury and Lancing, West Sussex). The villa estates lay within extensive arable field systems, many surviving as terraced earthworks, interspersed with sheepwalk, and further pressure was put on woodland resources by the increased need for fuel, both for domestic use and to supply an increasing number of industrial concerns such as the Alice Holt pottery kilns. The estates subsequently formed the basis of the later landscape, informing the boundaries and internal layouts of the Saxon and Medieval manorial and parochial landscapes.
- 4.15. Although much of the landscape history of the South Downs in the Romano-British period is concerned with continuity, there were also a number of new elements. Two major towns were established at Winchester and Chichester, with a number of smaller nucleated settlements known such as Pulborough and Hassocks. These settlements were linked by a network of new roads, ranging from straight well-engineered trunk routes like Stane Street through to smaller local networks reusing pre-existing prehistoric tracks. Many of these roads now survive as green tracks and holloways in the landscape, with some stretches followed by straight lengths of modern highway (e.g. Stane Street)

Anglo-Saxon Period (ADc.410-AD1066)

- 4.16. The decline of Roman authority created a power vacuum in which the local Romanised elites competed for power. The chaotic situation coincided with movements of people from the Germanic lands to the east (modern Germany and Denmark), who were able to settle in increasing numbers along the eastern and southern seaboard of England. Sussex was settled by people of Saxon origin, initially on the downland block between the Ouse and Cuckmere rivers in East Sussex, while Hampshire was targeted by the Jutes, penetrating via river valleys such as the Meon. Early Saxon settlements are rare, with most evidence for this period derived from cemeteries (e.g. Droxford and Abbots Worthy, Hampshire; Apple Down, West Sussex) although work at Chalton in Hampshire suggests that the earliest settlements were established on the upper reaches of the chalk dip slope, a situation replicated at Bishopstone in East Sussex. By the 9th century, the original settlements had been abandoned, or had shrunk to individual farmsteads, and new daughter settlements were established both in the valleys along the dip slope and as a string of villages along the Greensand, exploiting the spring line at the foot of the scarp slope. These villages were associated with an expanding system of common fields, and had become identified as manorial centres by the time of the Domesday Survey in the late 11th century. Their equidistant spacing possibly reflects an underlying pattern of Romano-British villa estates. From the late 10th century, these estates began to be formalised into a developing system of ecclesiastical parishes, many of which comprised long strips of territory extending from the chalk ridge down into the Weald.
- 4.17. Many of these manors exploited both the downland and the Weald. The downland portions were characterised by their complex and fragmented nature, resulting from competition for this vital resource. Numerous dependent hamlets were dispersed around areas of waste, including wood pasture as well as sheepwalk. Many manors also had outlying parcels of land in the wooded Weald, exploited mainly as summer pasture (pannage) for pigs (reflected in the numerous place-names ending in -fold). These isolated clearings gradually developed into homesteads surrounded by assorted enclosures, small irregular fields carved piecemeal out of the woodland and bounded by thick hedgerows (shaws). A network of parallel trackways developed linking the parent settlements on the Greensand with the Wealden outliers. These early settlements were established in the valleys (in contrast to the downland), with the ridges settled later. Charter evidence suggests permanent settlement by the 8th-9th centuries.
- 4.18. The later Saxon period also saw the return of urban life to the area. The Roman towns lost their urban status and much of their population after the collapse of Roman power. However, by the 10th century a growing network of administrative centres was evident in the landscape, some re-using Roman sites (Chichester and Winchester), while others developed on new sites (Lewes and Steyning). Many of these settlements were associated with royal or aristocratic power, and contained mints. They formed part of a system of defended strongpoints called burhs, with earthwork defences surviving at Burpham near Arundel and, partially, at Lewes, East Sussex.

Medieval Period (AD1066-1485)

- 4.19. The Norman Conquest saw the imposition of a foreign nobility on England. Sussex was divided into a series of Rapes, each comprising a strip of territory linking London with the sea and, therefore, Normandy. Each Rape was granted to one of the Conqueror's most loyal followers and contained one major castle together with several subsidiary castles. Hampshire was organised on a different pattern with up to half the county covered by royal forests. Many of the major manors were retained in royal or ecclesiastical hands, particularly strategic locations like Winchester and Portchester. The urban settlements which developed in the preceding period grew in prosperity and status. Winchester was already the effective capital of England, and the importance of Chichester was heightened by the translation of the bishopric from its original site at Selsey. Smaller market towns, particularly those functioning as administrative centres (e.g. Lewes, East Sussex), grew wealthy on the proceeds of agriculture, particularly the wool trade, and were soon transformed by the construction of well-appointed houses for merchants. A number of monastic orders began establishing priories and, later, friaries in the towns. The medieval street patterns of many of the small towns still dominate the present-day urban landscape.
- 4.20. Medieval settlement on the South Downs comprised in essence nucleated settlements set within common arable, and situated on the fertile Greensand shelf and the dip slope of the chalk. The manors were divided into tithings or townships, and each subsidiary holding had its own field systems, some of which (e.g. Amberley, West Sussex) contained strip cultivation characterised by long narrow unenclosed strips. The system was based around sheep and corn husbandry, with communal sheep flocks grazing up on the downland sheepwalk (tenantry down) by day and brought down on to arable land at night for safety and, more importantly, to provide manure. The arable lands of the eastern Downs (east of the Arun) tended to be unhedged common fields creating a 'prairie'-like landscape, operating a highly developed form of arable farming based around crop rotations within several large fields and continuous cultivation (i.e. no fields left as fallow). Further to the west, on poorer soils derived from the Clay-with-Flints, the fields were smaller, more irregular and hedged. Sheep pastures in the west were of lesser quality, and the land saw a greater degree of multiple use, with hunting parks and wood pasture prominent, the boundary banks of which survive in many woodland areas. Attempts were made to reclaim and enclose the floors of the major river valleys. Some cattle were also reared in the river valleys.
- 4.21. The Weald also saw some arable cultivation in the 13th century, particularly after 1240. Settlement here was of a more dispersed nature, comprising isolated farmsteads set within piecemeal enclosures (assarts). The boundaries of these enclosures survive as thick hedgerows (shaws) derived from linear bands of woodland left unfelled. However, pasture was still the dominant land use within the cleared areas.
- 4.22. Deer parks were common features of the landscape of the western downs, comprising enclosed areas of wooded pasture bounded by earthwork banks and ditches (pales). Parts of the dip slope of the downs in Hampshire lay within the Forest of Bere, while the eastern part of the county fell within Woolmer Forest. The western downs of Sussex fell within the Forests of Stansted and Arundel. These

were areas of varied land-use (including settlements and agricultural land) over which the Crown had hunting rights.

- 4.23. Both downland and Weald experienced a contraction in settlement in the 14th century, the result of a complex series of factors derived from deteriorating climatic conditions. The result was a series of crop failures and increased rates of stock disease (e.g. cattle murrain) that left a weakened and impoverished population vulnerable to threats such as the plague. Many of the downland settlements suffered desertion or shrinkage, surviving only as isolated farms or as archaeological earthwork sites (deserted medieval villages). Much farmland became derelict, and the period saw the beginnings of the enclosure movement as abandoned arable land was bought up by wealthier peasants and enclosed with hedges. The impoverishment of the area at this time is reflected in the absence of any local equivalent to the finely-decorated churches seen in other wool-producing areas (e.g. the Cotswolds). By comparison, the medieval churches of the downland and Weald are small and archaic in nature, reminiscent of those found in other marginal areas.

Post-Medieval Period (AD 1485-present)

- 4.24. The post-medieval period saw the emergence of a modern market economy. Major changes took place as a result of an increasing population and a more flexible land market, including the sale of former monastic land as a result of the Dissolution. The communal aspects of medieval agriculture began to be replaced by farms run by individuals. The eastern downs were still largely based around sheep, although flocks were being reduced due to overgrazing. From 1650 onwards, the sheepwalks began to be ploughed up for arable cultivation, represented by small surviving patches of early enclosure. The increasingly wealthy occupiers of the Greensand began to enclose the common waste. The western downs saw more diversification from an earlier date, with common fields enclosed from as early as the 15th century. The 16th and 17th centuries saw the enclosure of large expanses of common woodland, denying the local communities their traditional rights of exploitation. Much of the stimulus of this was the increasing demand for fuel for Wealden industries, notably ironworking. Improved techniques of water management in the valley bottoms led to the development of water meadows. Most of the arable land had been enclosed piecemeal by the end of the 17th century, resulting in a distinctive landscape of small irregular fields enclosed by planted hedgerows, usually thinner than those of the Wealden enclosures. Many of the smaller farmsteads began to be amalgamated as landowners built up larger estates.
- 4.25. The later 18th century saw the development of 'New Farming'. This saw the heyday of the sheep-corn husbandry system, boosted by the buoyant economy resulting from the Napoleonic Wars. The eastern downs supported a vast sheep flock by 1813. The sheep were partly fed on new fodder crops, resulting in arable encroachment on the downland, and produced regular grid-pattern field systems, often enclosed under Acts of Parliament (parliamentary enclosure) bounded by linear straight hedgerows comprising one or two species, usually hawthorn. Much of the downland arable returned to pasture, often derelict, after 1815. A further period of prosperity followed in the 1840s, lasting for thirty years and often referred to as the period of High Farming. More downland disappeared under the plough, particularly on the areas of Clay-with-Flint. Arable cultivation in the Weald benefited from the introduction of new powerful ploughs, better able to cope with the heavy soils.

- 4.26. The 18th and 19th centuries also saw the development of large landscape parks, particularly in West Sussex where large acreages at Stansted, Petworth, Arundel and Goodwood were redesigned with large expanses of grassland interspersed with extensive tree planting. The initial schemes, dating from the early 18th century, were usually of a formal nature reflecting French, Italian and Dutch influences brought back from the Grand Tour of Europe. These were replaced from the middle of the century by more naturalistic landscapes. Another way in which the great landowners stamped their identity on the landscape was by the adoption of ‘estate liveries’, whereby farm buildings would be constructed to a common style and painted with a consistent colour scheme. Some landowners created estate villages such as Firle in East Sussex.
- 4.27. The onset of the agricultural depression in the 1870s saw a decline in the importance of sheep on the downland. More downland was again lost to the plough, and some small farms on marginal land were abandoned or downgraded to a cluster of farm buildings. The Weald, ironically, suffered less than the downland as the farms were smaller and more adaptable, the farmers often supplementing their incomes from other sources such as hops, fruit and poultry. Fortunes rose during the First World War, when home-grown food was required to replace foreign imports, but the inter-war period saw the onset of another period of depression. Descriptions of the Downs during the 1930s often refer to the derelict overgrown appearance of the land. Much of this land was again reclaimed and converted to arable during the Second World War, but by 1942 the demands of military training became paramount and the arable was abandoned. Some of the downland settlements were abandoned at this time, to be used for battle training (e.g. Stanmer, East Sussex), and the coastal strip at Cuckmere Haven contains an almost intact system of anti-invasion defences. The years following the First World War also saw the planting of large coniferous forestry plantations by the Forestry Commission and private landowners.
- 4.28. The post-war period has seen the landscape of the South Downs transformed. Most of the remaining open downland, together with pre-existing enclosures, was ploughed and fenced-off to create large arable fields. Extensive areas of archaeological features, surviving as earthworks, were destroyed by the plough. Many of the landscape parks were sold off, and the open parkland enclosed for arable cultivation. This situation is now partly in reverse, with environmental and heritage-based grant schemes preserving surviving downland and restoring or sympathetically cultivating arable areas. Recognition of the importance of the landscape through the designation of two AONBs (East Hampshire and Sussex Downs) and the subsequent designation of a new South Downs National Park (awaiting confirmation) and preparation of an overarching Management Plan sets the scene for a further period of positive landscape change in the 21st century.

SETTLEMENT AND BUILDINGS

Rural Settlement Character

- 4.29. The English Heritage Atlas of Rural Settlement in England, records the designated South Downs National Park falling within the South-Eastern Province, and is covered by two Sub-Provinces: Weald and East Wessex. The Weald Sub-Province is described as an area with a high density of dispersion and a scatter of mostly small-medium nucleations. This manifests as isolated farmsteads, with a scatter of later

villages and hamlets, often originating as common-edge settlements. The East Wessex Sub-Province covers the chalk downland and is described as exhibiting a low density of dispersion, with lines of nucleations evident on the fertile soils at the foot of the scarp and dip slopes, where they coincide with the spring-line, and in the river valleys. The nucleated settlements are predominantly large villages and market towns of medieval origin.

Springline Villages

- 4.30. The best land within the designated National Park boundary historically was along the Greensand shelf at the foot of the scarp slope of the Downs, coinciding with the spring line. A line of nucleated villages is found along this shelf, such as Ditchling in East Sussex and Buriton in Hampshire, situated at the centre of a long, thin parish which extends from the chalk ridge down onto the Greensand and continues onto the Wealden clayland, thus giving the settlement access to the widest selection of resources. On the dip slope, villages tended to be established on the drift deposits of the coastal plain, and in the river valleys. The high density of settlement in these areas is particularly marked between Hassocks and Lewes in East Sussex and between Petersfield and Alton in Hampshire where the ribbon-like nature of the parishes is striking. Many of these villages contained farmsteads situated close to the village street. Large numbers of pre-1750 farmhouses survive, often no longer in agricultural use, although the contemporary farm buildings have usually disappeared.

Dispersed Settlement

- 4.31. The predominant settlement type within the Wealden area of the designated National Park is dispersed in nature. The core of this settlement pattern comprises farmsteads of medieval origin, set within a mosaic of irregular fields enclosed in a piecemeal fashion from the woodland (assarts). Subsequently, the establishment of settlements around the fringes of communal waste (i.e. commons) led to the development of irregular semi-nucleated agglomerations of common-edge settlement. A degree of later infill has also modified the pattern.

Downland Villages

- 4.32. Nucleated settlement on the Downs is rare. The Downs in Sussex are largely devoid of such settlement. Several are known on the Downs in Hampshire, although these tend to be very small and nestle in the shelter of valleys (e.g. Kilmeston). Owlesbury is unusual in that it is on top of the hill rather than at the bottom.

Deserted Medieval Villages

- 4.33. Deserted settlements are common on the South Downs. Most are situated in the river valleys (e.g. Tarring Neville, East Sussex) and on the Greensand, and reflect the ebb and flow of settlement. Many of the sites are better termed 'shrunk' or 'shifted' rather than deserted. The downland contains a number of sites that appear to have been totally deserted (e.g. Hangleton, East Sussex) or survive only as an isolated farm (e.g. Balmer, East Sussex; Lomer, Hampshire).

Medieval Market Towns

- 4.34. A number of market towns of medieval origin lie within the designated National Park – Petersfield in Hampshire, Midhurst, Petworth, Arundel and Steyning in West Sussex, and Lewes in East Sussex. Steyning and Lewes originated as towns in the Late Saxon period, while the remainder are largely new foundations of the 11th-12th century, representing planned settlements established either around Norman castles (Midhurst and Arundel) or in locations perceived as economically advantageous (Petersfield and Petworth). The towns were incorporated as boroughs, held markets and fairs and were, and continue to be important centres for the surrounding countryside.

Dispersed Farmsteads

- 4.35. Dispersed farmsteads are the dominant settlement pattern across the chalk downland. Some of the sites are of medieval origin, sometimes representing shrunken hamlets, while others are of later date. Although forming a low density settlement pattern, the farmsteads tend to be very prominent in the landscape, often due to the large threshing barns (often of aisled, timber clad construction) necessary to deal with the grain harvests and the presence of shelter belts of trees. They can also appear quite bleak, as most buildings face into the yard.

Vernacular Building Styles

- 4.36. The geologically diverse nature of the designated National Park is reflected in the variety of building materials utilised. The downland is characterised by the use of flint as a building medium, which can be traced back into the Roman-British (e.g. Bignor Roman villa, West Sussex) and medieval periods (e.g. Hangleton, East Sussex). Often, the flint walling was dressed at the corners and around openings with stone or brick. Further north, the Greensand and the Weald were dependent on timber for construction, usually infilled with daub (a mix of mud, dung, animal hair and chopped straw) and later brick (nogging). Timber buildings were also present on the chalklands and in the river valleys. The timber-framing was mainly box-frame in style (roof trusses carried on a frame composed of posts, tie-beams and wall-plates), although a few cruck-framed buildings (roof carried on long curved timbers stretching from the ridge down to the ground) are known from Hampshire. Use was also made of the local Wealden sandstone, often cut into large regular blocks, and a hard type of chalk called clunch. Brick was used for building from the 16th century onwards, but only became widespread from the 18th century, and mainly in the towns where it became fashionable. Where building in brick was not possible, for reasons of expense or practicality, a type of clay tile was developed which could be hung on to timber-framed buildings to resemble brickwork. These 'mathematical tiles' are particularly common in Lewes, East Sussex.
- 4.37. Roofing materials were mainly thatch and clay tiles. Wooden shingles were sometimes used, often on church belfries and spires. Some higher status buildings (e.g. The Grange, Lewes) were roofed in Horsham stone flags, a localised sandstone which laminates naturally. Such roofs were very heavy and thus had a low pitch to prevent the stones sliding off. The roof timbers were also large to support the weight.

- 4.38. The earliest building types comprised simple small cottages constructed of whatever materials were to hand. The earliest farmsteads were not architecturally distinctive, and the people, livestock and harvested crops occupied buildings largely identical in nature. Often people shared buildings with the livestock, usually (but not always) with a partition in between. These early buildings are reminiscent of the longhouse tradition of the upland regions of Wales and northern England. By the later medieval period, houses had become more sophisticated, with open halls flanked by two-storey private wings. Farm buildings were separate structures, and usually comprised barns and animal stalls. The post-medieval period saw the open halls floored over to give more private accommodation. By the 18th century, the use of timber and stone for domestic building had been replaced by brick.

Historic Farmsteads

- 4.39. Historic farmsteads and their buildings make an important contribution to countryside character. In areas of nucleated settlement most medieval farmsteads are sited in villages, although their farm buildings have often been lost. Farmsteads in areas of dispersed settlement are mostly isolated or located in hamlets. These buildings use local building materials and display great variation in building material relating to underlying geology. The most important period of farm building was between 1750 and 1880 when agricultural productivity was boosted by improved grasses, winter crop feeds and production of good manure by livestock wintered in yards or buildings.

Historic Farmsteads in Hampshire

- 4.40. A project on historic farmsteads and landscape character² has recently been undertaken by Forum Heritage Services, for English Heritage, to establish the feasibility of historic farmstead characterisation as a planning and research tool. The project concentrated on examining a number of pilot areas in Hampshire, including one that fell within the bounds of the designated National Park boundary. The following comments are derived from the project results.
- 4.41. Downland farmsteads are scattered across the landscape, with most concentrated in the villages on the Greensand, but with a low-density pattern of examples dotted around the chalk. Nevertheless, they tend to be large and prominent in the landscape, usually identifiable by their large barns and shelter belts of trees. The village farmsteads are usually of medieval date, and lie on the edge of the settlements, while those on the chalk date from after 1750, apart from a few medieval examples resulting from settlement shrinkage. The farmsteads usually form a loose courtyard plan, with one or more threshing barns, raised granaries and sometimes open-fronted cattle shelters and cartsheds. Regular planned farmsteads are evident from the 19th century. Building materials comprise timber-framing with thatched and tiled roofs, with brick, flint and slate used from the 19th century, and concrete from the late 19th century.
- 4.42. The dipslope of the Downs comprises isolated farmsteads set in a traditionally wood pasture landscape (the Forest of Bere). Farmsteads are set in a landscape of small early enclosed fields and winding lanes, and are mainly of medieval origin. They

² English Heritage (2005) *Historic Farmsteads & Landscape Character in Hampshire*, Pilot Project. Report by Bob Edwards of Forum Heritage Services for English Heritage.

usually form L- and U-shaped complexes, with larger farmsteads forming regular courtyard plans, with large barns, granaries, cattle sheds and pigsties. Building materials comprise timber-framing with thatched and tiled roofs, with brick, flint and slate used from the 19th century, and concrete from the late 19th century.

- 4.43. The Western Weald (Woolmer Forest) comprises a dense scatter of isolated farmsteads of varying sizes, largely of medieval origin, set in a complex landscape of assorted fields and woodland. The farmsteads exhibit a wide variety of forms, often with no discernible pattern or planning, and consist of small barns, granaries and stables. Some later cattle sheds are found on some farmsteads, and a variety of distinctive buildings such as hop kilns. Building materials comprised timber-framing set on malmstone footings, with malmstone used extensively for smaller structures. Brick and some flint were used later. Roofing comprised thatch and tiles.

Historic Farmsteads in Sussex

- 4.44. The historic farmstead study undertaken in Hampshire is currently being rolled out across Sussex.

HISTORIC LANDSCAPE CHARACTER

- 4.45. As part of the background research for the assessment, Archaeology South East undertook a rapid Historic Landscape Characterisation (HLC), incorporating the Hampshire HLC which is already in existence, to create a consistent and compatible HLC across the designated South Downs National Park area. The HLC for the South Downs is presented in **Figure 4.1**. The HLC was an important baseline layer contributing to the definition of a robust landscape classification and developing detailed historic environment information to assist the description and evaluation.
- 4.46. Many of the historic processes examined in this chapter are clearly expressed in the present landscape and, by extension, on the character map. Some of the more significant patterns visible on the map are discussed below.

Enclosures

- 4.47. The pattern of field systems visible on the map reflects the complex and varied history of enclosure within the South Downs. A number of striking patterns are evident, notably the dominance of modern (20th century) field systems across the downland east of the Arun, highly visible in the present landscape by large open fields. Recent enclosure, relating to the 18th and 19th centuries (parliamentary enclosure) tends to be restricted to the west of the Arun, often reflecting the 'gentrification' of the landscape at this period associated with the rise of great landed estates. This enclosure type exists at a variety of scales, but is characterised by regular rectilinear field systems bounded by dead-straight hawthorn hedgerows reflecting the influence of a new profession, the professional surveyor. These areas of recent enclosure often represent small blocks of former commonland, and exist as islands of regularity within an earlier organic landscape. The scarpfoot zone and parts of the low Weald are dominated by early enclosures of medieval date, often sinuous in nature and bounded by thick hedgerows and retaining a medieval character to this day.

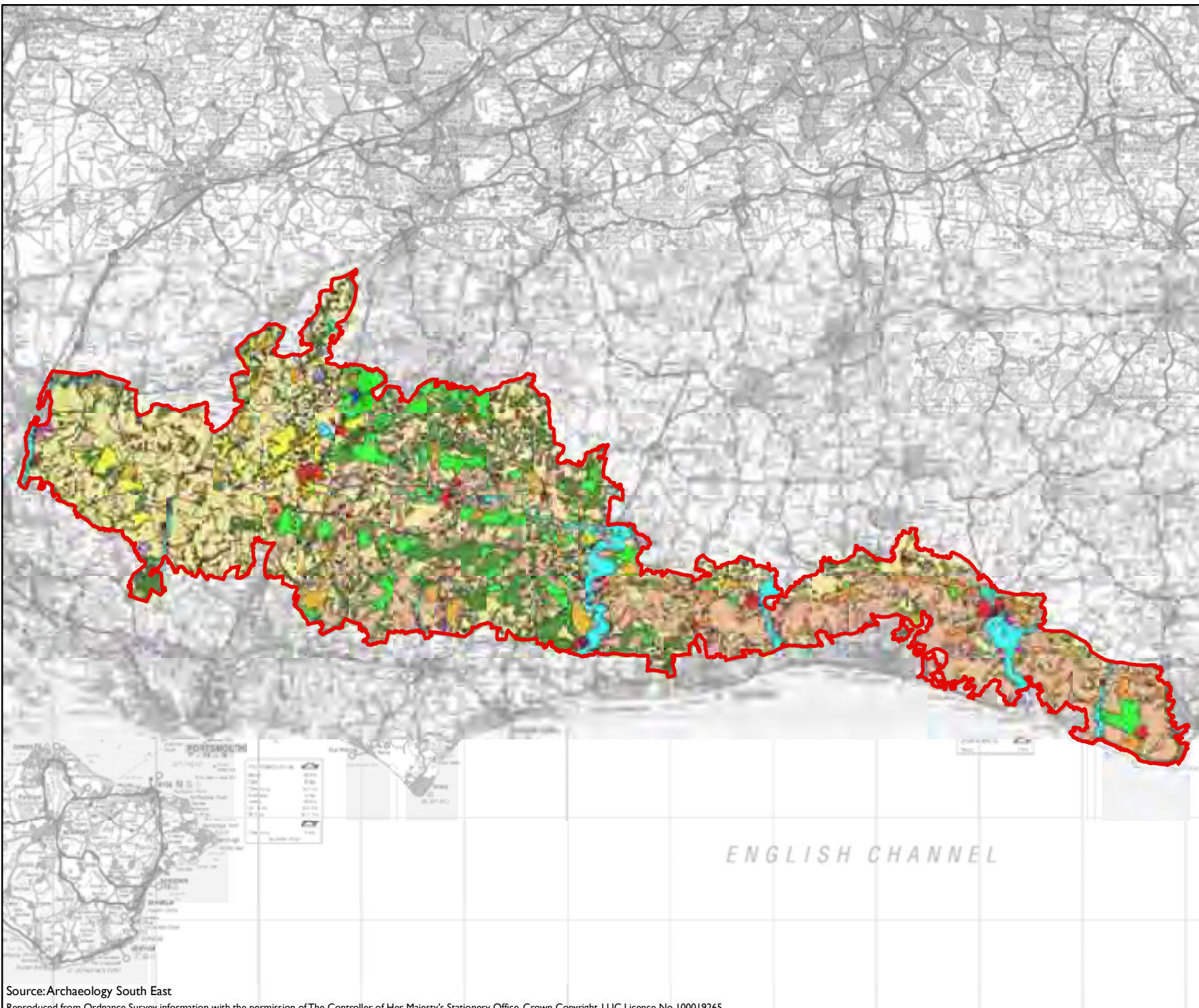
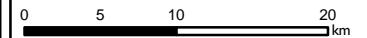
South Downs Integrated Landscape Character Assessment

Figure 4.1: Historic Landscape Classification

Key

- South Downs Boundary
- Fieldsapes**
- 0101-Fieldsapes Assarts
- 0102-Early Enclosures
- 0103- Recent Enclosures
- 0104-Modern Fields
- Woodland**
- 0201- Post 1800 Woodland
- 0202- Pre1800 Woodland
- Horticulture**
- 03-Horticulture
- Unenclosed**
- 04-Unenclosed
- Settlement**
- 0501 - Pre 1800 Settlement
- 0502- Post 1800 Expansion Settlement
- Valley Floor**
- 06-Valley Floor
- Coastal**
- 07-Coastal
- Industry**
- 08-Industry
- Designed Landscapes**
- 09-Designed Landscapes
- Military**
- 10-Military
- Communications**
- 11-Communications
- Water**
- 12-Water
- Recreation**
- 13-Recreation

Date Prepared: 15/09/2005



Source: Archaeology South East

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Woodland

- 4.48. The pattern of woodland is also distinctive. The map shows a great clustering of wooded countryside in the central part of the South Downs. This comprises a mosaic of large and small woodlands of varying dates, but can be divided into two main categories – extensive surviving pre-1800 woodland, much of it of medieval origin, occupying the downland ridge and the Wealden basin, and large post-1800 plantations on the Lower Greensand and the downland. The latter results from two main sources, the regeneration of secondary woodland on the poor marginal soils of the Lower Greensand, utilised as common pasture for much of recorded history, and the creation of plantations on the downland dip slope and scarp for both aesthetic and strategic purposes by the occupants of estates such as Goodwood. The absence of significant amounts of woodland from the eastern and western ends of the map reflects the differing economic and social histories of these areas, concerned to a greater extent with agriculture.

Designed landscapes

- 4.49. The landscape parks shown on the map fall into two groups: those situated on the dip slope of the chalk, and those situated on the fringes of the Wealden basin. The former are located on good agricultural land and tend to be large and impressive in nature, such as Stansted, Goodwood, Arundel and Stanmer. They represent the landed estates of wealthy and important families who could afford to set aside such large expanses of productive agricultural land. The second group are smaller in size and situated on less productive marginal soils such as the Lower Greensand and the Gault and Weald Clays. This category includes important sites such as Parham where the landscape park is situated on the clay, with better farmland to the south. Such sites are indicative of families of lesser means who aspired to the status of park owners but who could not afford the loss of good farmland.
- 4.50. A full, illustrated description of the historic landscape types can be found in **Appendix 3** of this report.
- 4.51. A map showing historic designations is included as **Figure 4.2**.

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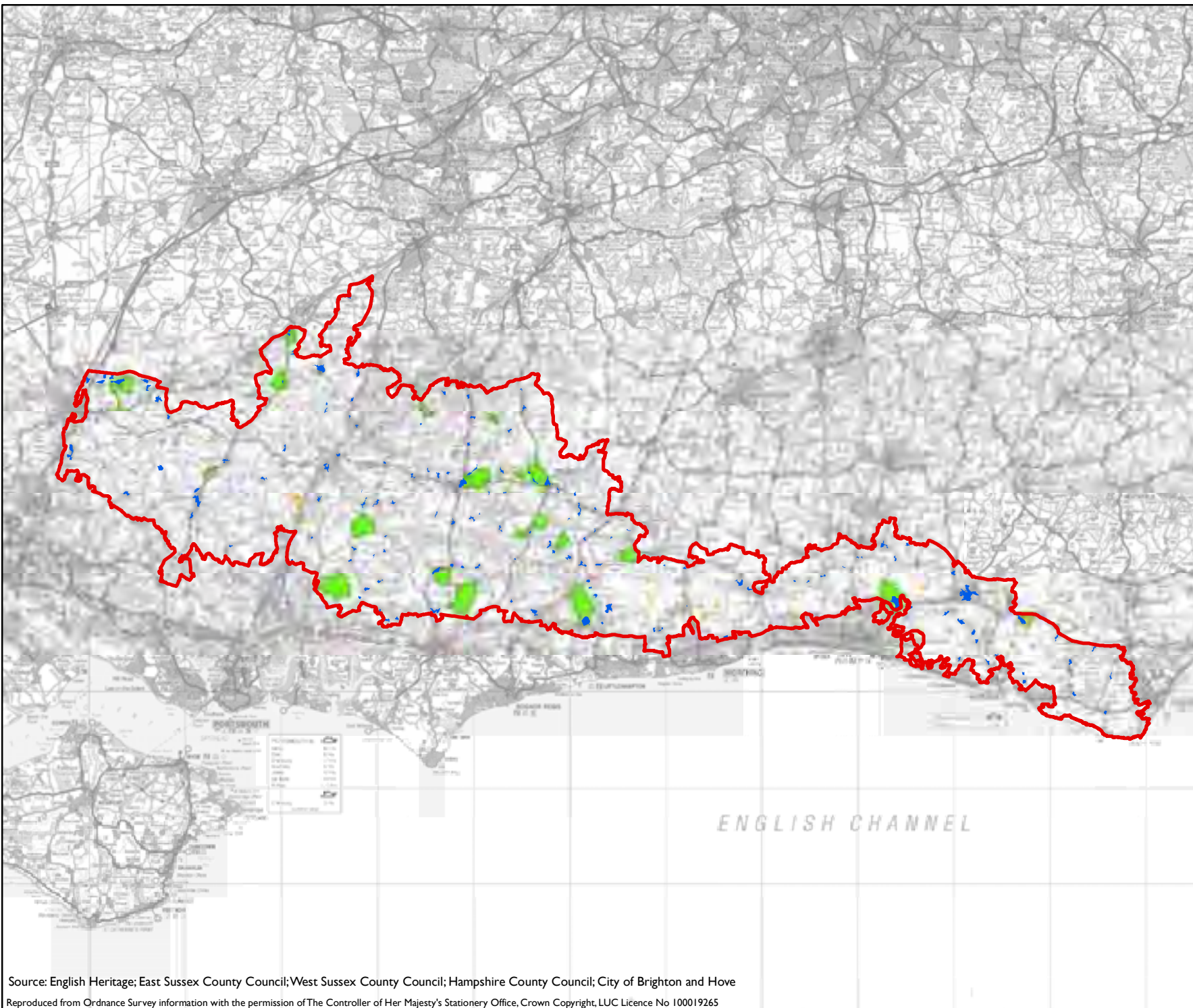
Also: period summary templates maintained by Archaeology South-East.

South Downs Integrated Landscape Character Assessment

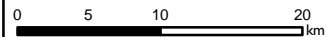
Figure 4.2: Historic Designations

Key

-  South Downs Boundary
-  Scheduled Ancient Monuments
-  Historic Parks and Gardens
-  Conservation Areas



Date Prepared: 15/09/2005



Source: English Heritage; East Sussex County Council; West Sussex County Council; Hampshire County Council; City of Brighton and Hove

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5. BIODIVERSITY

ECOLOGICAL CHARACTER AND BIODIVERSITY

Ecological context

- 5.1. The Natural Areas (NAs) within the South Downs are shown on **Figure 5.1**. NAs are sub-divisions of England identified by English Nature as being unique on the basis of their physical, wildlife, land use and cultural attributes. This approach provides a wider context for conservation action, and offers a framework for setting objectives relevant to nature conservation.
- 5.2. There are 5 NAs within the designated South Downs National Park boundary, highlighting the rich variety of habitat types present in the area. These NAs are the **South Downs** which covers 55.3% of the designated boundary, the **Wealden Greensand** (24.1%), the **Hampshire Downs** (8.9%), the **Low Weald and Pevensey** (8.9%) and the **South Coast Plain and Hampshire Lowlands** (2.8%).
- 5.3. The South Downs NA dominates the designated area as a whole, forming a chalk spur that runs the entire length, beginning near Winchester in the northwest and extending around 100km southeast to end at the coast around Beachy Head. The most dramatic feature is the narrow, steep, mostly northerly-facing scarp, which supports extensive areas of chalk grassland, including chalk heath and scrub of international nature conservation value. The more shallow, south-facing dip slope is more extensively farmed, although some areas of chalk grassland do occur on steeper ridges and combine to create an ecologically important mixed farmland and woodland landscape. The Rivers Arun, Adur, Ouse and Cuckmere cut through the escarpment and give rise to a range of riverside habitats, including floodplain grazing marshes, ditches rich in aquatic plants and reedbeds.
- 5.4. A small area of the Hampshire Downs NA occupies the northwest corner of the South Downs designated boundary. This area forms part of the broad belt of chalk downland that runs through central southern England. In the east of the NA the chalk forms a dramatic escarpment at the western edge of the Weald. The character of the Hampshire Downs has a strong identity, with a great sense of openness and space. It is a large scale landscape of open rolling country with a broad, gently domed undulating plateaux dissected by both steep and shallow valleys numerous distinct hilltops, ridges and scarps.
- 5.5. To the east of the Hampshire Downs is the Wealden Greensand NA, which follows the outcrop of the Upper and Lower Greensand and curves around the western end of the Wealden anticline in West Sussex, East Hampshire, and Surrey. Lowland heath is particularly characteristic of the sandy soils, and a number of ancient woodlands occur.
- 5.6. East of the Wealden Greensand is the Low Weald and Pevensey NA. This forms a narrow fringe along the northern boundary of the NA, and largely coincides with the outcrop of Weald Clay, which forms an elongated horseshoe around the older rocks of the High Weald. It is predominantly a low-lying region dominated by wet, heavy

clay soils. The topography is gently undulating, with steep-sided stream valleys, ridges and plateaux.

- 5.7. A small area of the South Coast Plain and Hampshire Lowlands NA extends into the designated Park boundary from the south. This NA consists of a largely open, often featureless landscape of the coastal plain, including several large coastal inlets and harbours of distinctive individual character. A number of large urban conurbations also occur, for example around Southampton and Portsmouth and stretching along the coast between Littlehampton and Brighton.

Sites with Nature Conservation Designation

- 5.8. A summary of nature conservation designations within the South Downs, including all statutory and non-statutory designations within each County is presented in **Table 5.1**. The distribution of statutory and non-statutory nature conservation sites across the study area is shown in **Figures 5.2(i)** and **5.2(ii)** respectively.
- 5.9. In summary, the study area supports a total of 84 Sites of Special Scientific Interest (SSSIs), representing 6% of the area within the South Downs designated boundary. Of these nationally important sites 9 are National Nature Reserves, with internationally important sites including 13 Special Areas of Conservation (SACs), 2 Special Protection Areas (SPAs) and a single RAMSAR site. The area supports a total of 777 non-statutory County Wildlife Sites (SNCI and SINC), 19 Local Nature Reserves (LNRs), and 1219 woodlands of ancient origin.

Table 5.1: Summary of sites with nature conservation designation within the designated South Downs National Park Boundary³

Designation	Area (ha) and (no.) of designated sites within designated South Downs National Park by County				Total (ha) and (no.) ⁴ of designated sites within the study area	Total % of South Downs
	W Sussex	E Sussex	Hampshire	Brighton and Hove		
RAMSAR	530 (1)	0 (0)	0(0)	0(0)	530 (1)	0.32
SAC	764 (6)	189 (2)	1653 (5)	71 (1)	2678 (13)	1.63
SPA	552 (2)	0 (0)	1160 (1)	0 (0)	1712 (2)	1.04
NNR	222 (2)	137 (3)	461 (4)	21 (1)	840 (9)	0.51
SSSI	4233 (48)	2767 (17)	2781 (21)	71 (1)	9855 (84)	6.00
LNR ⁵	641 (8)	164 (3)	112 (5)	411 (4)	1327 (19)	0.81
SNCI/SINC	6372 (134)	1440 (55)	5152 (550)	393 (38)	13357 (777)	8.13
AW ²	11065 (767)	237 (49)	4016 (524)	81 (9)	15400 (1219)	9.37

Habitats of the South Downs

- 5.10. Digital Phase I Habitat data has been obtained for the entire study area. Due to inconsistencies in the habitat classification categories used within each County, some interpretation has been required to enable comparison between data sets. The

³ Nature conservation sites often possess more than one designation type, and the data provided represents the total area of each designation within the study area.

⁴ Some sites straddle county boundaries, and so the total count may be lower than the combined total of the counties.

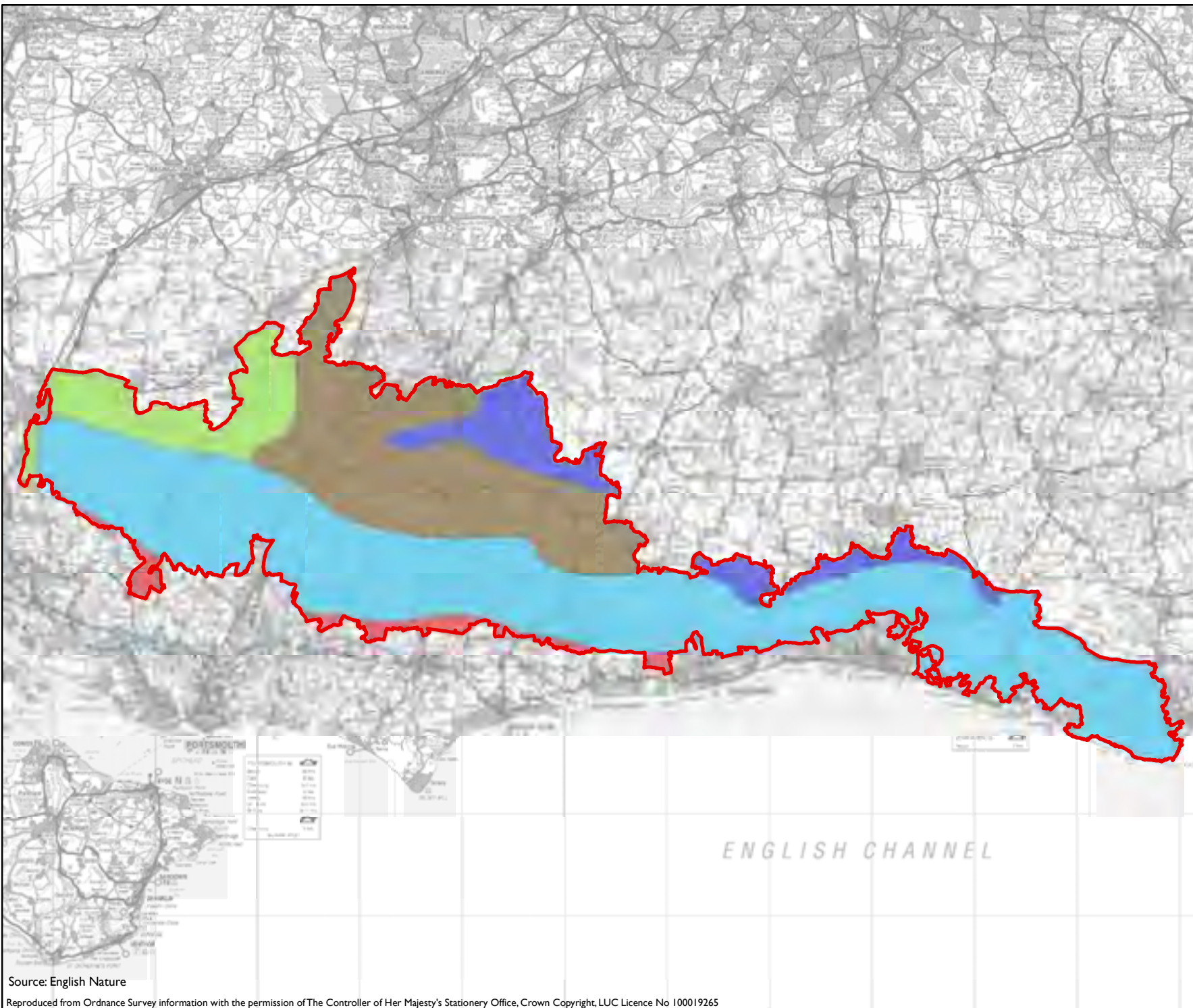
⁵ Ancient Woodland and LNR data is from English Nature, and should be seen as indicative rather than definitive.

South Downs Integrated Landscape Character Assessment

Figure 5.1: Natural Areas

Key

-  South Downs Boundary
- Natural Areas**
-  Hampshire Downs
-  Low Weald
-  South Coast Plain and Hampshire Lowlands
-  South Downs
-  Wealden Greensand



Source: English Nature

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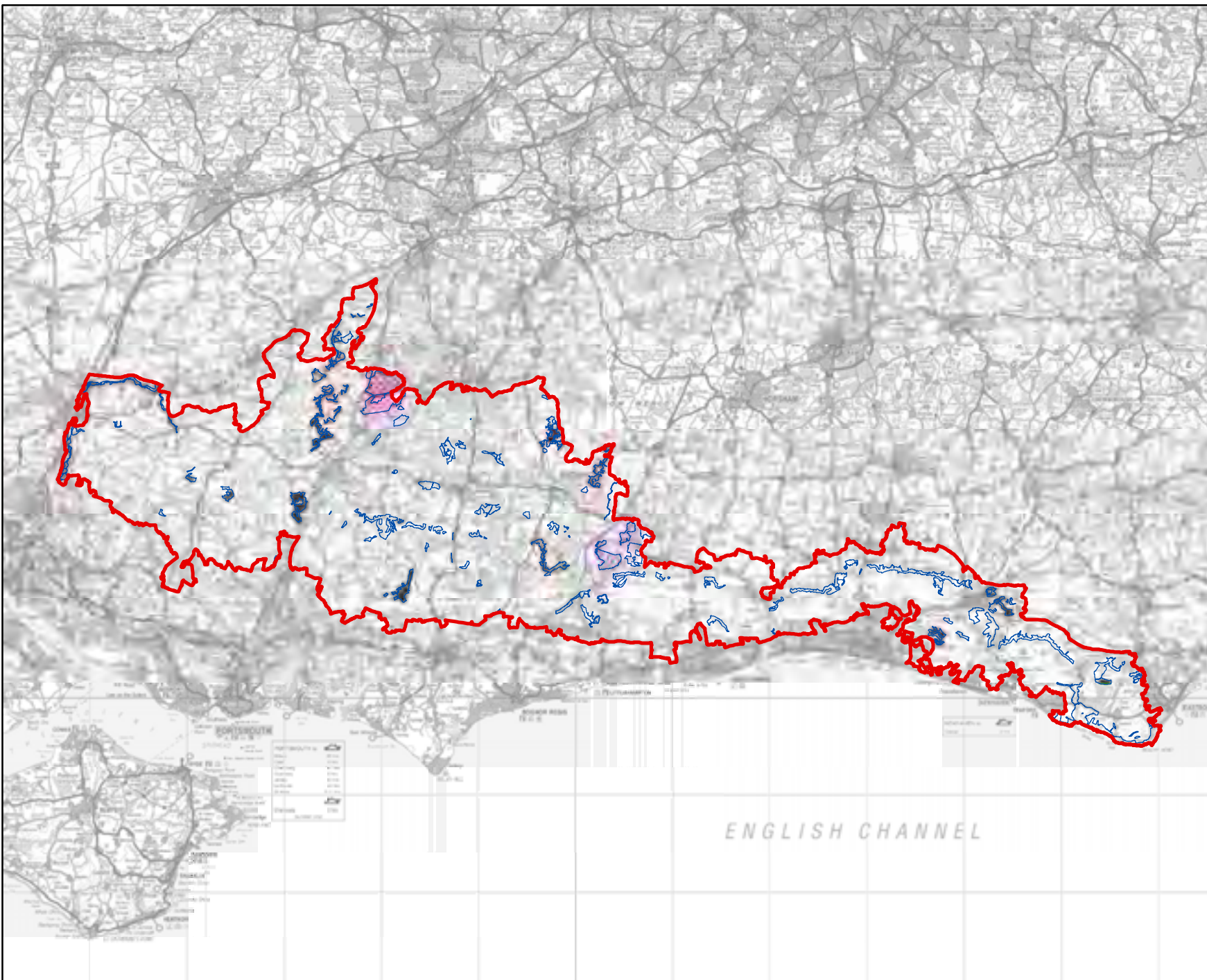
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South Downs Integrated Landscape Character Assessment

Figure 5.2i: Statutory Nature Conservation Designations

- Key**
- South Downs Boundary
 - Statutory Designations**
 - Sites of Special Scientific Interest
 - Special Areas of Conservation
 - Special Protection Areas
 - National Nature Reserves
 - RAMSAR Sites



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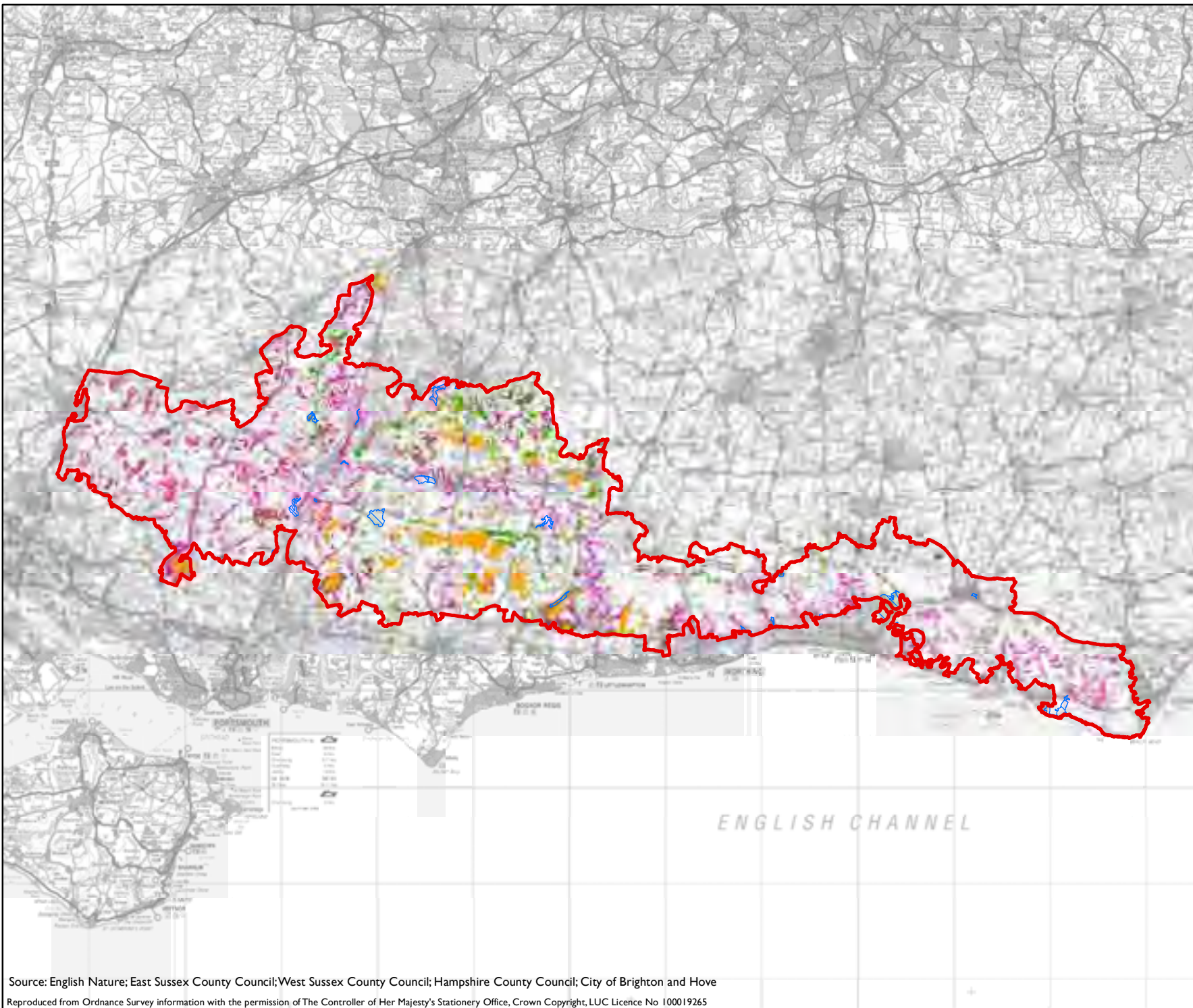
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SUSTAINABLE FUTURE

South Downs Integrated Landscape Character Assessment

Figure 5.2ii: Non-Statutory Nature Conservation Designations

Key

-  South Downs Boundary
-  Local Nature Reserves
-  Sites of Nature Conservation Importance
- Ancient Woodland**
 -  Ancient Semi-Natural Woodland
 -  Plantations on Ancient Woodland Sites



Source: English Nature; East Sussex County Council; West Sussex County Council; Hampshire County Council; City of Brighton and Hove

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Date Prepared: 15/09/2005

0 5 10 20 km



distribution of select Phase I semi-natural habitats is shown in **Figure 5.3**, and their extent within the study area is shown in **Table 5.2**.

Table 5.2: Summary area (ha) of select semi-natural habitats

Habitat type	Area (ha) within each County				Total area (ha)	Total % of South Downs
	W Sussex	E Sussex	Hampshire	Brighton and Hove		
Semi-natural broadleaved woodland	11910	1166	6592	211	19879	12.10
Calcareous grassland ⁶	1461	1574	792	139	3966	2.41
Neutral grassland ⁷	744	15	1465	-	2224	1.35
Marshy grassland	558	196	57	-	811	0.49
Parkland	523	-	275	-	798	0.49
Heathland ⁸	332	16	429	-	777	0.47
Standing fresh water	185	38	79	0.3	302	0.18
Mire or fen	17	2	14	-	33	0.02

- 5.11. In summary, analysis of the Phase I Habitat data indicates that the study area supports significant areas of a wide range of habitat types. In particular the area supports a significant area of semi-natural broadleaved woodland (19,879ha or 12.1% cover) and calcareous grassland (3,966ha or 2.4% cover).
- 5.12. An assessment of habitat areas, together with local and national Biodiversity Action Plans (BAPs) and wildlife site data indicates that the most characteristic and valuable habitat types are:
- Chalk grassland and associated habitats;
 - Rivers and floodplain habitat;
 - Ancient semi-natural woodland;
 - Heathland;
 - Farmland and arable.

⁶ Calcareous grassland area figures include the following categories, (1) calcareous grassland semi-improved, (2) calcareous grassland unimproved, and (3) calcareous grassland.

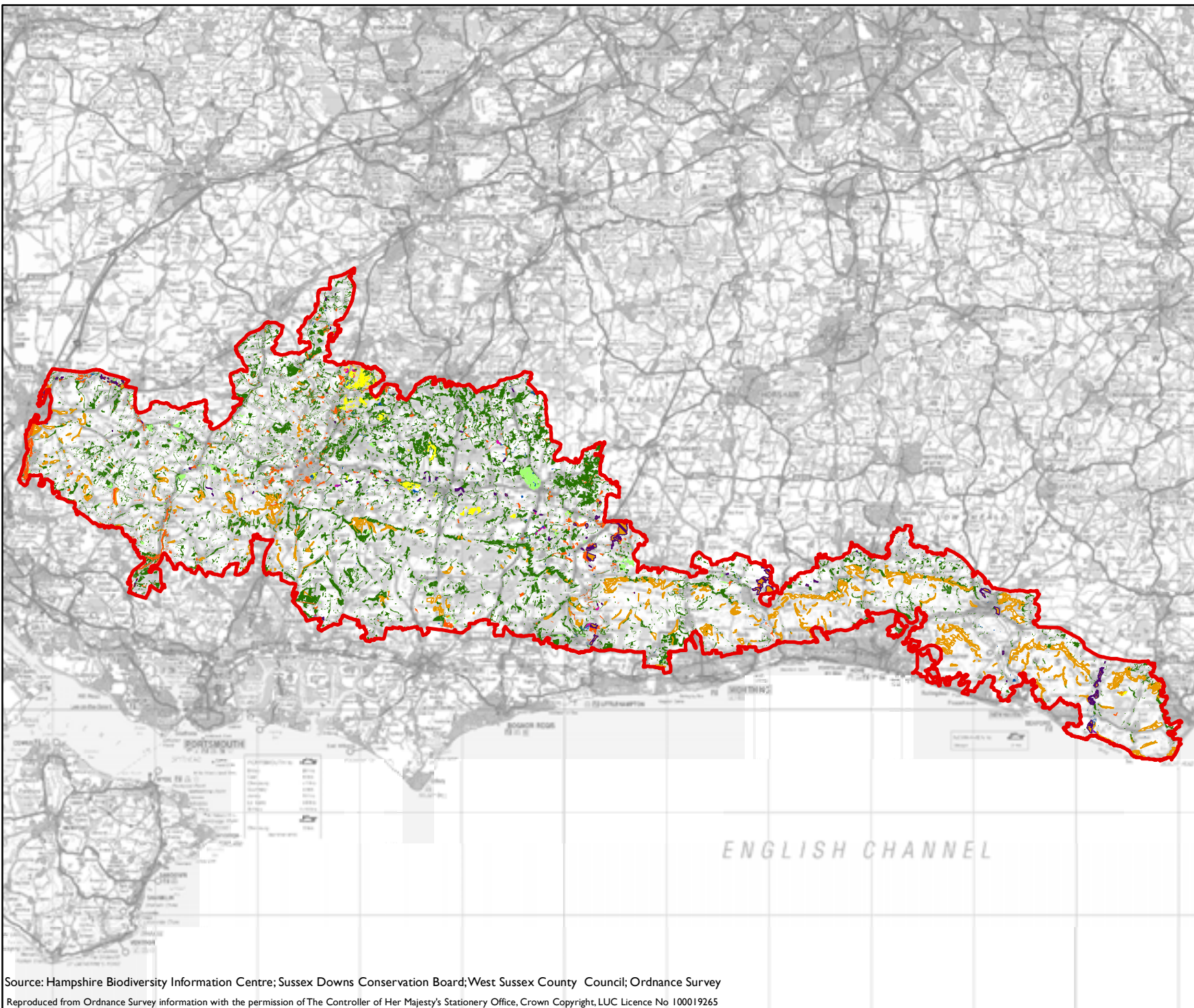
⁷ Neutral grassland area figures include the following categories, (1) Neutral grass semi-improved, (2) Neutral grass unimproved, and (3) neutral grassland.

⁸ Heathland area figures include the following categories, (1) dry dwarf shrub heath, (2) heath acid basic, (3) heath acid grass, (4) shrub heath acid, (5) shrub heath basic, and (6) wet dwarf shrub heath.

South Downs Integrated Landscape Character Assessment

Figure 5.3: Distribution of Select Phase I Habitat Types

- Key**
- South Downs Boundary
 - Selected Phase I Habitats**
 - Calcareous grassland
 - Heathland
 - Marshy grassland
 - Mire or fen
 - Neutral grassland
 - Parkland
 - Semi-natural broadleaved woodland
 - Open water



Date Prepared: 15/09/2005

0 5 10 20 km

LAND USE CONSULTANTS
ENVIRONMENTAL PLANNING AND LANDSCAPE ASSESSMENT

Source: Hampshire Biodiversity Information Centre; Sussex Downs Conservation Board; West Sussex County Council; Ordnance Survey
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Chalk grassland and associated habitats

- 5.13. The South Downs supports significant areas of unimproved chalk grassland, with extensive areas occurring along the north-facing escarpment, and more widely scattered fragments on the south-facing, largely shallow sloping, predominantly arable dip slope. These areas support diverse plant communities, including many notable plant species, and important populations of invertebrates and breeding birds. Several internationally important chalk grassland sites occur within the South Downs.
- 5.14. The flora of the escarpment is somewhat oceanic in character, reflecting its northerly aspect and relatively cool and damp climate. These north-facing grasslands are particularly notable their rich terrestrial lichen and bryophyte assemblages, and for preferential notable plants such as frog orchid *Coeloglossum viride* and musk orchid *Herminium monorchis*. In contrast the warmer conditions associated with the south-facing dip slope, support a suite of plant species with a distinct southern British distribution. It is the extent, variety and species composition of chalk grassland within the South Downs that make this an internationally important resource.
- 5.15. A number of other habitats may be found in association with this chalk grassland, including neutral and acid grassland, heath, chalk heath and transitions to coastal grassland. Where present, such habitats provide important diversity at the landscape scale, and contribute to the ecological value of the area as a whole. Chalk heath in particular, is of inherent ecological value and is thought to have developed over undulating chalk bedrock where low-lying areas were filled with windblown lime-free loess during the last ice age. This has created an intimate mosaic of basic and acidic soil conditions, resulting in a unique community comprising a mix of specialist chalk and acid plant species. A good example of chalk heath habitat within the South Downs is found at Lullington Heath NNR.
- 5.16. Shrub and woodland frequently form an important component of the chalk grassland system, and include communities such as yew woodland and juniper scrub that are of individual ecological value. However, continued grazing is crucial to maintaining the open, species-rich turf structure, and a lack of grazing at some sites has led to the loss of open species-rich grassland to coarse grassland, dense woody scrub and eventually woodland.

Rivers, streams and floodplain habitat

- 5.17. The Rivers Arun, Adur, Ouse, Cuckmere and Rother occur within the South Downs, with all except for the Rother running in a southward direction and cutting through the chalk escarpment. These rivers together with a number of streams and winterbournes, for example the Itchen, Lavant, Emms and Meon, provide a range of important wetland habitats, that in turn support a diverse range of aquatic plants, invertebrates and over-wintering wildfowl and waders.
- 5.18. The rivers themselves vary in character according to underlying geology and the geology at source, with the four major rivers that head in a southern direction, forming relatively large lowland clay rivers. Large sections of these rivers have been engineered and embanked for flood protection purposes, and the majority of the floodplain has been drained for agricultural purposes. Nevertheless areas of high nature conservation interest still occur, such as floodplain grassland, reedbed, ditches and bankside trees. Many of these wetland habitats carry statutory nature

conservation designation, and also include areas of international importance such as the The Arun Valley RAMSAR. This site which lies between Pulborough and Amberley, comprises a series of wet meadows which are subject to winter, and occasional summer flooding. The grasslands are dissected by a network of ditches, several of which support a rich aquatic flora and invertebrate fauna, and are of international importance for wintering wildfowl and breeding waders.

- 5.19. In addition to the large rivers and their floodplains, small chalk streams and winterbournes are also characteristic of the Downs, and are of high ecological value. Chalk rivers such as the Itchen contain water throughout the year, while the Lavant dries totally during late summer. These chalk streams and rivers support a diverse aquatic flora and are important habitat for a range of aquatic invertebrates and fish. The Itchen is a classic example of an ecologically rich chalk river, and is of International importance for its aquatic water-crowfoot plant communities, its populations of southern damselfly *Coenagrion mercuriale* (for which it is one of the major population centres in the UK), and its high densities of bullhead *Cottus gobio*.

Woodland

- 5.20. The South Downs is well wooded, supporting a range of woodland types that vary according to local geology, climate and management history. Woodland types include hanger woodland which is found both on the chalk and on the greensand, ghyll woodland associated with steep sided stream valleys, as well as more mixed semi-natural woodlands, including much of ancient origin together with a range of more recent woodland plantations.
- 5.21. The hanger woods of the South Downs include areas of International importance for their uncommon woodland communities, and include the East Hampshire Hangers SAC. Uncommon woodland types include those dominated by mixtures of beech and ash on chalk rich soils, which are extremely rich in vascular plants, including white helleborine, violet helleborine, green-flowered helleborine and Italian lords-and-ladies. Other ecologically important woodland types that occur on the chalk include yew dominated woodland, and an unusual mixed woodland of ash, maple, wych elm, beech and occasional large leaved lime, a species which is more typically a constituent of limestone woodlands in central and western Britain.
- 5.22. On the Greensand, areas of small-leaved lime dominated woodland occur, which are notable for their rich bryophyte flora, including several species that are rare in the lowlands. Areas of woodland associated with sheltered stream side valleys (known as ghyll woodland) also occur locally, and favour a range of species more typical of the northwest of England. Sessile oak for example often replaces pendunculate oak, and bilberry is often conspicuous in the ground layer. These woodlands are also important sites for bryophytes and ferns.
- 5.23. Areas of broadleaved plantation woodland occur throughout the South Downs, with areas of mixed and coniferous plantation locally abundant within the Greensand regions. Although not of such high ecological value as semi-natural woodlands, these areas do provide valuable habitat for a range of plant and animal species.

Heathland

- 5.24. The sandy soils of the Wealden Greensand support occasional areas of heathland, including areas of dry and wet heath, acid grassland, mire and scrub. As a whole these heathland sites support an interesting flora, as well as being important for specialist invertebrates and for breeding birds such as woodlark, nightjar and Dartford warbler. Examples of important heathland sites within the study area include the internationally important Wealden Heath SPA, Ambersham Common SSSI and Hurston Warren SSSI.
- 5.25. Areas of dry heath are relatively plant species poor, although they do support an interesting lichen flora and are support important populations of reptiles and specialist invertebrates. Areas of wet heath and valley mire also occur locally, and are of high ecological importance. These habitats are more species rich, and support a number of locally notable plant species, for example marsh clubrush, oblong-leaved sundew and white beak sedge, and are rich in bryophytes, including Sphagnum bog mosses.
- 5.26. Areas of scrub and woodland often form a component of these heathlands, and where managed appropriately provide valuable habitat diversity.

Farmland and arable

- 5.27. Farmland dominates the study area, largely in the form of arable land and contributes significantly to the overall character and ecological value of the area. The majority of the arable land is intensively managed under modern farming systems, although areas of the steep chalk scarps and river valleys are often farmed less intensively, and are associated with a greater variety of commercial crops, which are often grown in rotation with grassland leys. This mixed farmland often supports a rich biodiversity, including a number of nationally declining plant and animal species.
- 5.28. At a national level, the rapid changes in agricultural practice over the past 60 years have been responsible for a decline in many species of plants and animals associated with farmland. In particular, farmland birds and arable weeds represent two of the most rapidly declining groups, and several species have been identified as priorities under the UK BAP.
- 5.29. The South Downs represents an important area for a number of nationally declining plant and animal species associated with agricultural land, relevant examples include:
- a range of farmland bird species, including grey partridge, tree sparrow, corn bunting and skylark. These species have suffered rapid decline across the UK due to changing agricultural practice, and they are priority species under the UK BAP;
 - notable arable weeds such as cornflower, field gromwell and Pheasant's eye. These species and many others have declined due to a shift from mixed farming and spring sown crops to increased specialisation, early autumn sowing and the increased use of fertilisers and pesticides.

6. RURAL LAND MANAGEMENT

- 6.1. The principal land management information presented and interpreted in this section is:
- Agricultural land use as reported to the Defra Agricultural Census in 2004, and trends from 1990 to 2003;
 - Areas in Countryside Stewardship Scheme and Environmentally Sensitive Area agreements as at 2004;
 - Woodland cover as recorded in the Ordnance Survey MasterMap database, and the Forestry Commission National Inventory of Woodland and Trees; and
 - Amenity and recreational land use.
- 6.2. The data are generally presented by four landscape-based 'Broad Regional Areas', as shown in **Figure 6.1**, which are:
- The Eastern Open Downs;
 - The Central Wooded Downs;
 - The Western Downs; and
 - The Greensand and Weald.

AGRICULTURAL LAND USE

- 6.3. Agricultural land classifications across the study area, which indicate the land's productive potential and the types of crops that can be grown, are shown in **Figure 3.3**. In common with most of lowland England and the South East Region, the majority of the area is Grade 3 (defined as "good to moderate quality agricultural land") which is capable of growing a range of arable crops with relatively few restrictions). There are few areas of Grade 2 land ("very good quality agricultural land"), which occur in river valleys where there is a depth of alluvial soil, and no areas of Grade 1 land although this occurs in significant areas on the coastal plain south of the designated National Park boundary. Grade 4 land is found mostly on the steeper land with thin chalk soils or heavy clay with flints, occurring across the study area but particularly in the central part of the South Downs Countryside Character Area. The land shown as non-agricultural in **Figure 3.3** is mainly woodland.

Trends from 1990 to 2003

- 6.4. Agricultural census data were available for the Sussex Downs and East Hampshire AONBs from 1990 to 2003, but not for 2004 at the time of writing. The data for the two AONBs, which together cover almost the same area as the designated National Park (awaiting confirmation), have been combined and compared across the period to identify major trends.

- 6.5. Agriculture in the South Downs, as elsewhere in the UK, has been subject to the influence of changing market demand (generally declining product prices), production costs (generally rising), Common Agricultural Policy production subsidies (varying between production sectors and over time), diversification of enterprises, agri-environment scheme availability and competition for land from other land uses, notably forestry and residential or lifestyle uses.
- 6.6. Overall, the area of land recorded as being farmed decreased over the period by 3,900 hectares, or about 4%, compared with a 2% decrease in England as a whole. This data represents land recorded as being part of agricultural holdings, in the annual Agricultural Census (by Defra, and formerly MAFF). Of particular note, the woodland area represents only woodland on farm holdings. Woodland is discussed under a separate heading below.
- 6.7. The most significant changes in agricultural land use in the South Downs have been a reduction in the area of crop and fallow land (down by 8,900 hectares or 18%) and in temporary grassland (down by 5,200 hectares or 43%) which is often associated with crop rotations. These were largely compensated by an increase in the area of land in setaside (up by 6,300 hectares or 621%) and permanent grassland (up by 4,600 hectares or 19%) (**Figure 6.2**). Compulsory setaside was introduced in 1992. By comparison, in England the area of crop and fallow land decreased by 8% and temporary grassland by 19%, less than half the decrease experienced in the South Downs.
- 6.8. Despite the fact that there was little overall decrease in total grassland area, the total number of grazing livestock (expressed as livestock units) decreased by 25% (**Figure 6.3**). This implies that average grazing intensity reduced significantly over the period, from 1.25 livestock units per grassland hectare to 0.98 LU/grassland ha.⁹ Most of the decrease was due to a reduction in dairy cow numbers over the period (down 36%) and a lesser reduction in total sheep numbers (down 18%), with beef cow numbers increasing somewhat (up 16%). These comparisons do not take account of non-grassland animal feeds, with dairy cattle in particular receiving a significant proportion of their annual requirements from supplementary feed such as silage and concentrated feeds. Some of the reduction in grazing intensity would be due to the uptake of land into the South Downs Environmentally Sensitive Area (27,356 hectares as at 2003) as the management prescriptions limit stocking rates, but reductions in overall grazing intensity are also a national trend.
- 6.9. In England over the same period the total number of grazing livestock units decreased by 16% and average grazing intensity reduced from 1.38 LU/grassland hectare to 1.24 LU/grassland ha. Dairy cow numbers decreased by 31%, total sheep numbers decreased by 23% and beef cow numbers increased by 8%.
- 6.10. The types of farm holdings recorded also changed over the 1990 to 2003 period. **Figure 6.4** and **Figure 6.5** illustrate these changes. Overall, the total number of holdings increased by 246 holdings, or 27%. There was a substantial increase in farms of 'other' type (259 additional holdings) which appears to be matched by the increase of 118% in the number of small holdings of up to 20 hectares (243 additional

⁹ Based on standard livestock unit conversion factors: dairy cow 1.0 LU, beef cow 0.75 LU, other cattle over one year 0.7 LU, cattle under one year 0.34 LU, breeding ewe 0.11 LU, other sheep 0.08 LU, lambs 0.04 LU.

South Downs Integrated Landscape Character Assessment


Figure 6.1: Broad Regional Areas


Key

 South Downs Boundary

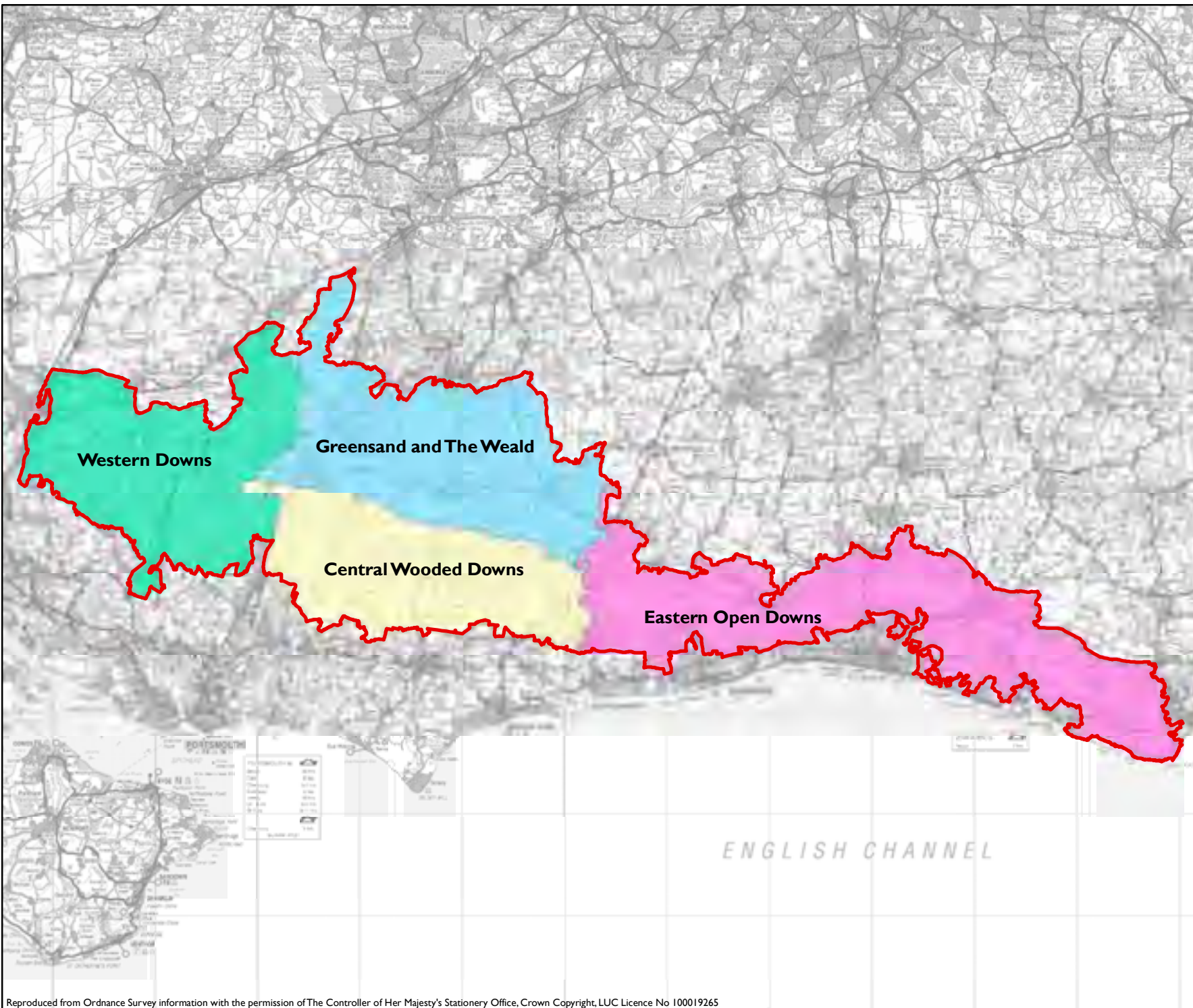
Region

 Central Wooded Downs

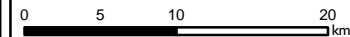
 Eastern Open Downs

 Greensand and The Weald

 Western Downs



Date Prepared: 15/09/2005



holdings). The census data cannot be used to investigate whether these are generally the same holdings, but it is highly likely that they are. The only size category that decreased was holdings of 50 to 100 hectares (24 fewer holdings). The typical trend throughout England has been that small to medium sized farms of approximately 20 to 100 hectares are subdivided with the bulk of the productive land sold to a neighbouring holding and the house and a small amount of land retained by the owner as a retirement property or sold to another buyer.

- 6.11. The number of dairy farms also decreased, to an even greater extent than the decrease in number of dairy cows, implying that the average herd size increased over the same period. On the other hand, the number of grazing livestock farms (mainly beef and sheep) increased, and again this is likely to be at least a partial reflection of the increase in small holdings, as livestock farming is generally well suited to smallholdings and part time farming.
- 6.12. In England over the same period similar trends were apparent, in some ways more marked. Although the total number of holdings increased by only 9%, holdings smaller than 5 hectares increased by 176%, and holdings larger than 100 ha increased by 18%. There was a decrease of 27% in holdings of 20 to 50 hectares and of 17% in holdings of 50 to 100 hectares. Dairy and general cropping holdings decreased dramatically and holdings of 'other' type increased dramatically.

Figure 6.2: Change in main agricultural land uses in the South Downs from 1990 to 2003

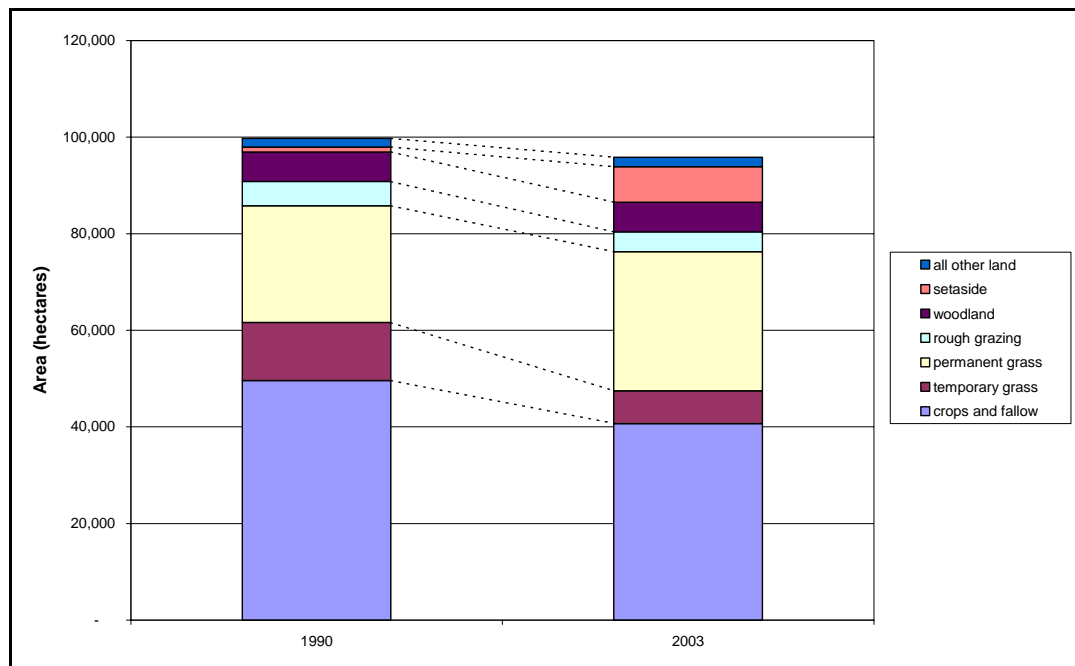


Figure 6.3: Change in numbers of cattle and sheep (expressed as livestock units) in the South Downs from 1990 to 2003

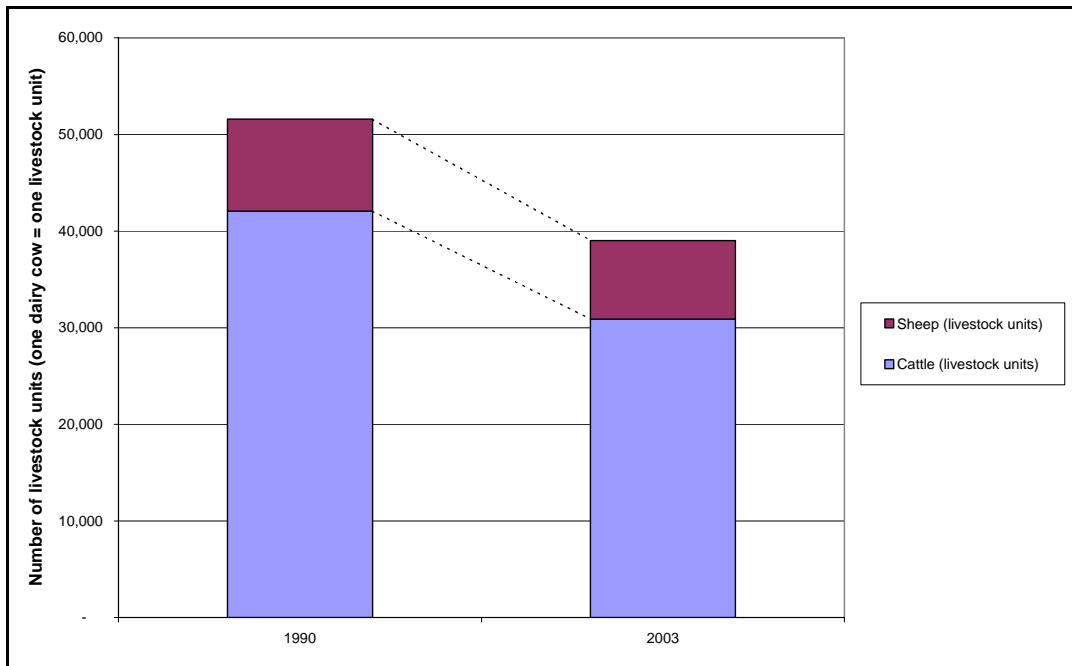


Figure 6.4: Change in farm holding types in the South Downs from 1990 to 2003

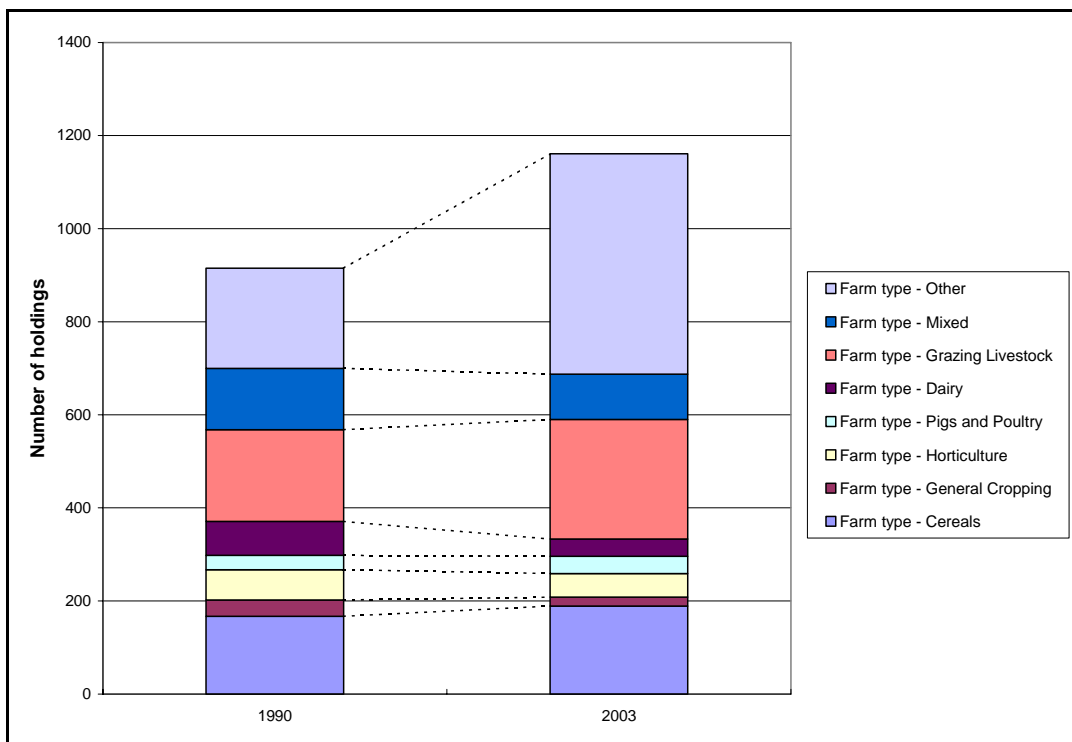
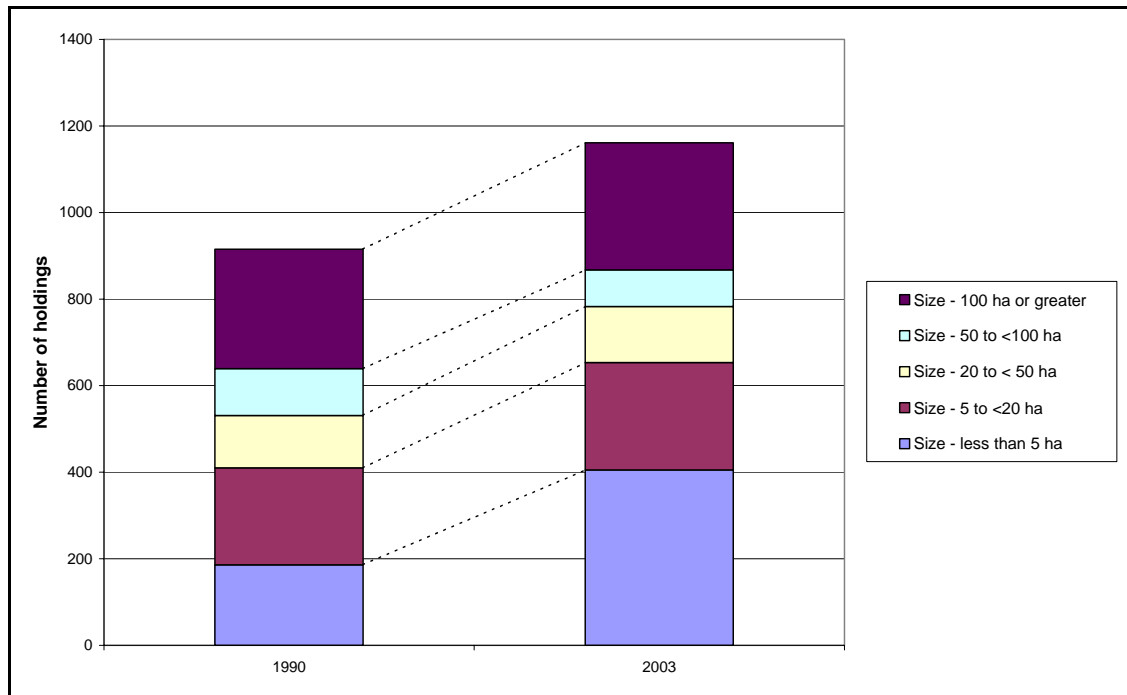


Figure 6.5: Change in farm holding sizes in the South Downs from 1990 to 2003



Comparison of agricultural land use in the Broad Regional Areas

- 6.13. Agricultural use of the four 'Broad Regional Areas' (see **Figure 6.1**) has been compared on the basis of 2004 Agricultural Census data. The data were obtained by matching the 'middle layer super output areas' (MSOAs) to the four 'Broad Regional Areas' as far as possible. Super output areas and aggregations of these, as defined by the Office Of National Statistics, will progressively become the standard means of analysing geography, replacing units such as parishes and wards. The MSOA boundaries do not match the designated South Downs National Park boundary exactly, but a best fit has been used which is adequate for comparing the 'Broad Regional Areas'.
- 6.14. The dominance of cropping land uses in the Central Wooded Downs, and to a lesser extent in the Western Downs, is clearly evident from **Figure 6.6**. Equally, the strength of grassland livestock farming in the Eastern Open Downs is obvious. This is graphically illustrated by **Figure 6.7**, showing the proportion of cropland generally declining from west to east, and the importance of grassland increasing.
- 6.15. In line with these observations, the Central Wooded Downs have the highest proportion of larger holdings (greater than 100 hectares, the largest size group available in the data) as shown by **Figure 6.8**, and the largest proportion of farmland accounted for by these larger holdings as shown by **Figure 6.9**.

Figure 6.6: Main agricultural land uses in the four Broad Regional Areas of the South Downs (2004)

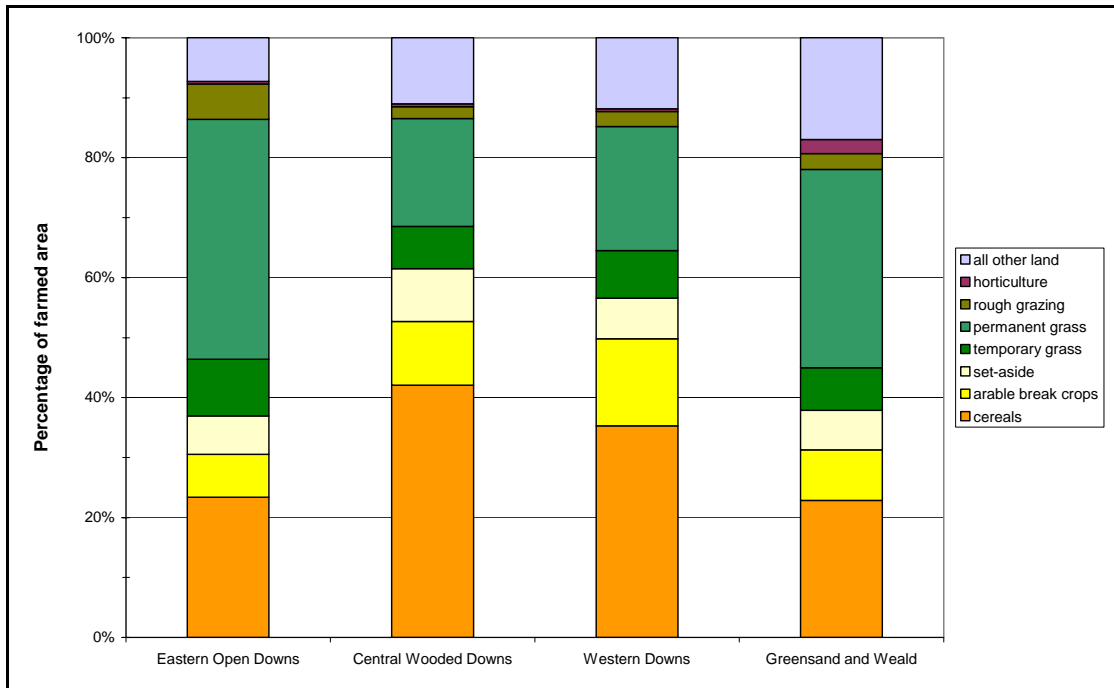
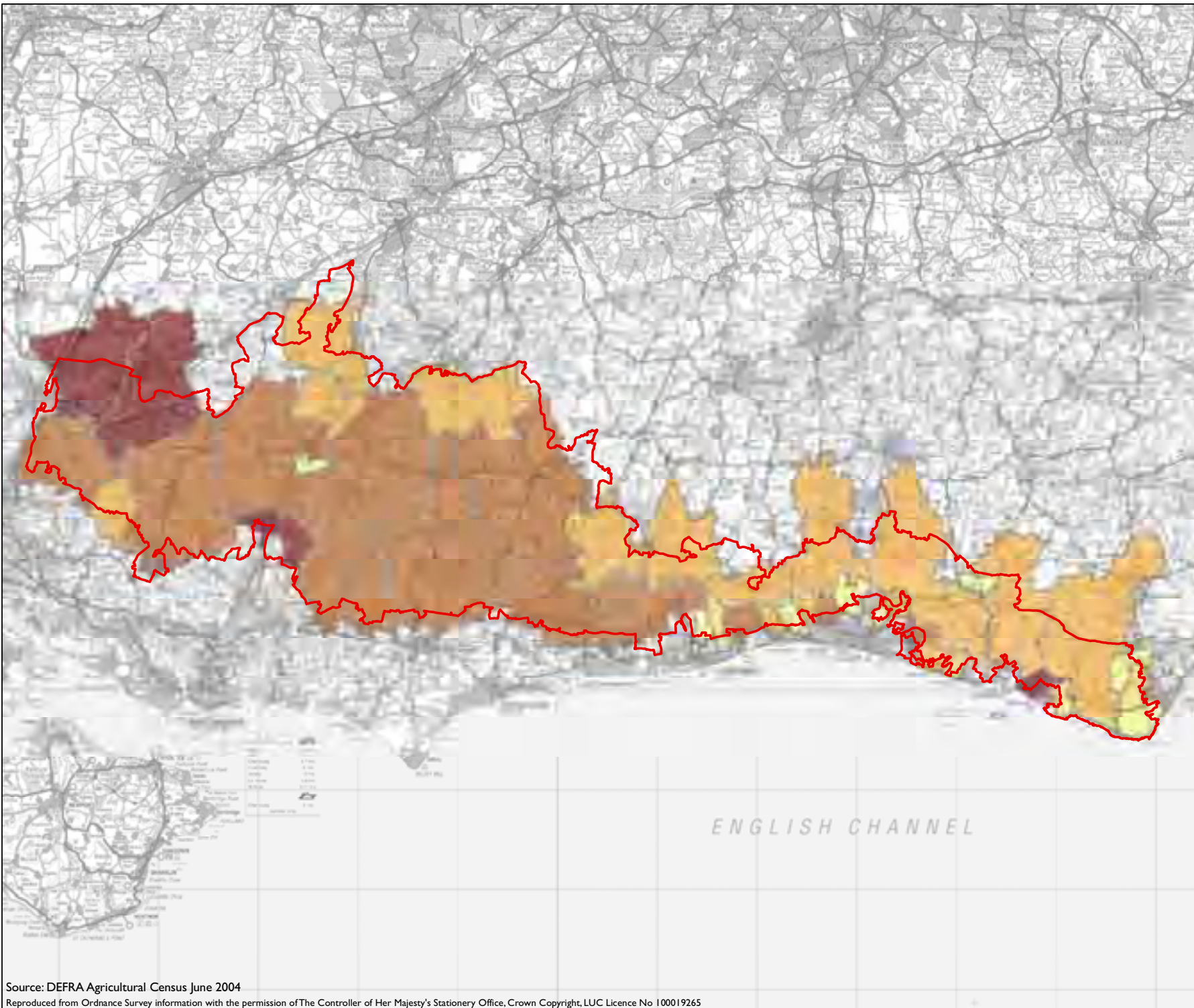


Figure 6.7: Relative importance of cropping as a land use in the South Downs (2004)

[separate A3 sheet]



South Downs Integrated Landscape Character Assessment

Figure 6.7: Relative importance of cropping as a land use in the South Downs


Key


 South Downs Boundary


Cropped land as proportion of total crop and grass land

 0 - 5%

 >5 - 25%

 >25 - 50%

 >50 - 75%

 >75 - 86%

Data analysed and mapped using
Office of National Statistics
Middle Layer Super Output Areas
(MSOA)

Date Prepared: 03/01/2006

0 5 10 20 km



Figure 6.8: Farm holding sizes in the four Broad Regional Areas of the South Downs (2004)

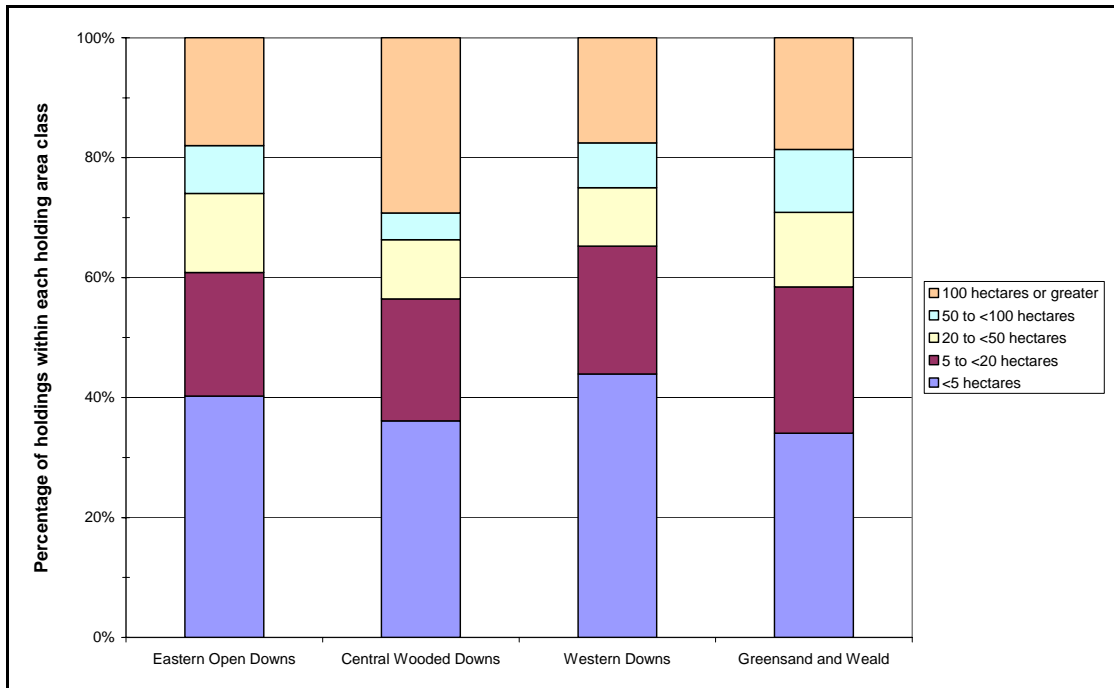
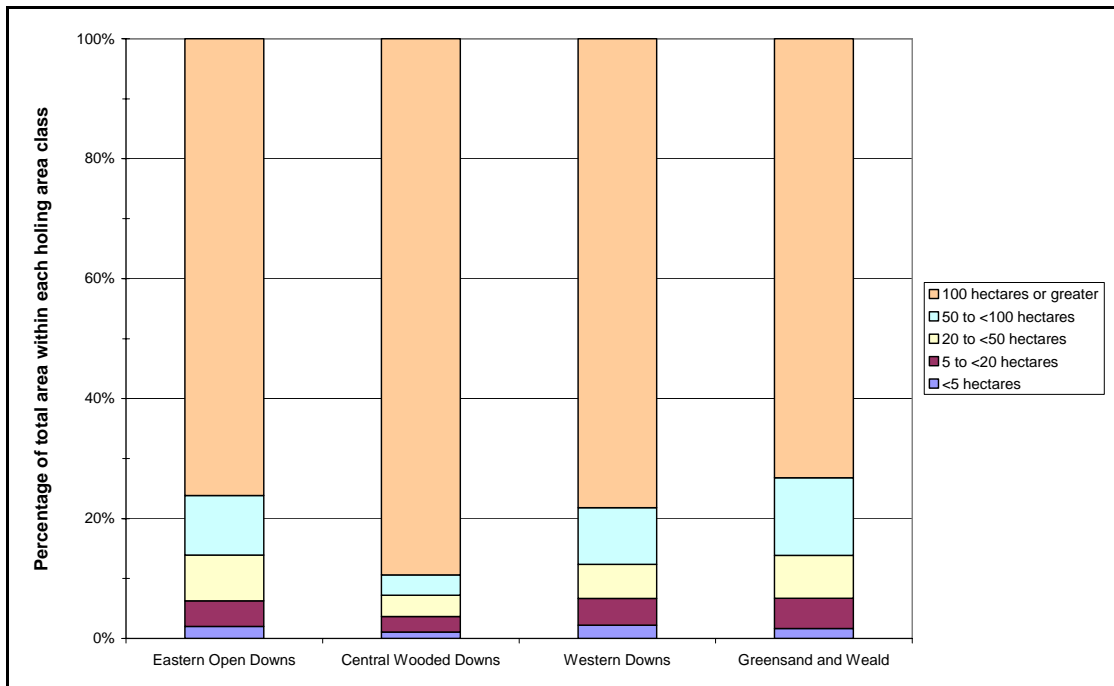


Figure 6.9: Distribution of farmed area among farm holding size classes in the four Broad Regional Areas of the South Downs (2004)



Agri-environment agreements

- 6.16. The areas in Countryside Stewardship Scheme (CSS) agreement or in Environmentally Sensitive Area (ESA) Scheme agreement as at 2004 are shown in **Figures 6.10** and **6.11**. Where an agreement includes land both inside and outside the boundary of the designated National Park, the whole area covered by that agreement is shown.
- 6.17. The two schemes are complementary, with CSS agreements mainly in place outside the ESA. In 2003 there were 261 ESA agreements covering 27,356 hectares, primarily focused on land to the east of the Arun. In addition there were 166 farms with Countryside Stewardship agreements covering 1,477 hectares and focused on the western half of the Downs and the Wealden area.
- 6.18. The most common CSS agreement types were arable extensification and arable field margins. Substantial areas of chalk grassland and old meadows and pastures are also under agreement.
- 6.19. The CSS and ESA schemes are now closed, and any further agreements will be under the Environmental Stewardship Scheme (Entry Level or Higher Level). The likely impacts of the new schemes are discussed below under 'The Future for Agriculture and Forestry'.







WOODLAND

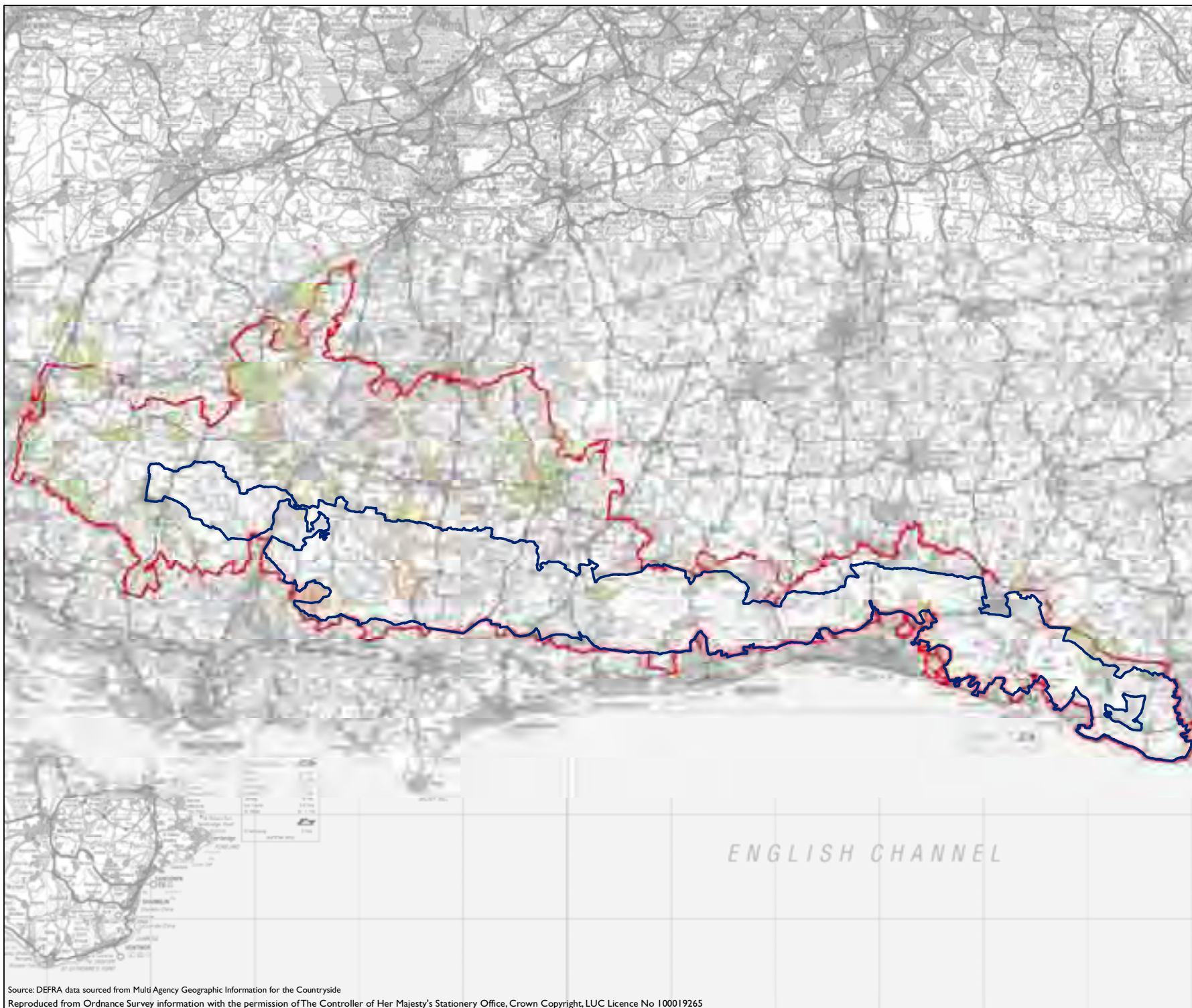
- 6.20. The approximate areas under woodland are shown in **Figure 6.12**, with summary data in **Table 6.1** (actual areas of each woodland type from the Forestry Commission's National Inventory of Woodland and Trees) and **Table 6.2** (percentage area of each type within each Broad Regional Area from the Forestry Commission's National Inventory of Woodland and Trees). Where a woodland parcel includes land both inside and outside the boundary of the designated National Park, the whole parcel is shown.
- 6.21. The information shown on the map and in the tables is from the Forestry Commission's National Inventory of Woodland and Trees, which was mainly based on interpretation of the latest aerial photographs available over the period 1995 to 2000, although the photographs may have been taken some time earlier. It may therefore be somewhat out of date, particularly for categories such as 'young trees' and recently harvested areas. It also includes only areas larger than two hectares and thus excludes small, dispersed woodlands such as small coppice lots. As a consequence Mastermap data was also analysed to provide an indication of the distribution of coppice, including areas under 2ha in size. A new national woodland survey is currently being undertaken by the Forestry Commission with reference to recent, detailed aerial photographs and this will supercede data presented in this section.
- 6.22. The Forestry Commission's data indicates that mature, broadleaved woodland comprises half of all woodland in the South Downs with the largest proportion in the Greensand and Weald region. Mixed broadleaf/conifer is the next most common type, followed by conifers, although there are differences between geographical regions. The Forestry Commission's figures indicate that coppice is 4% of woodland overall but 8% in the Greensand and Weald region. However, since this data

South Downs Integrated Landscape Character Assessment

Figure 6.10: Countryside Stewardship Scheme (CSS) agreements in the South Downs

Key

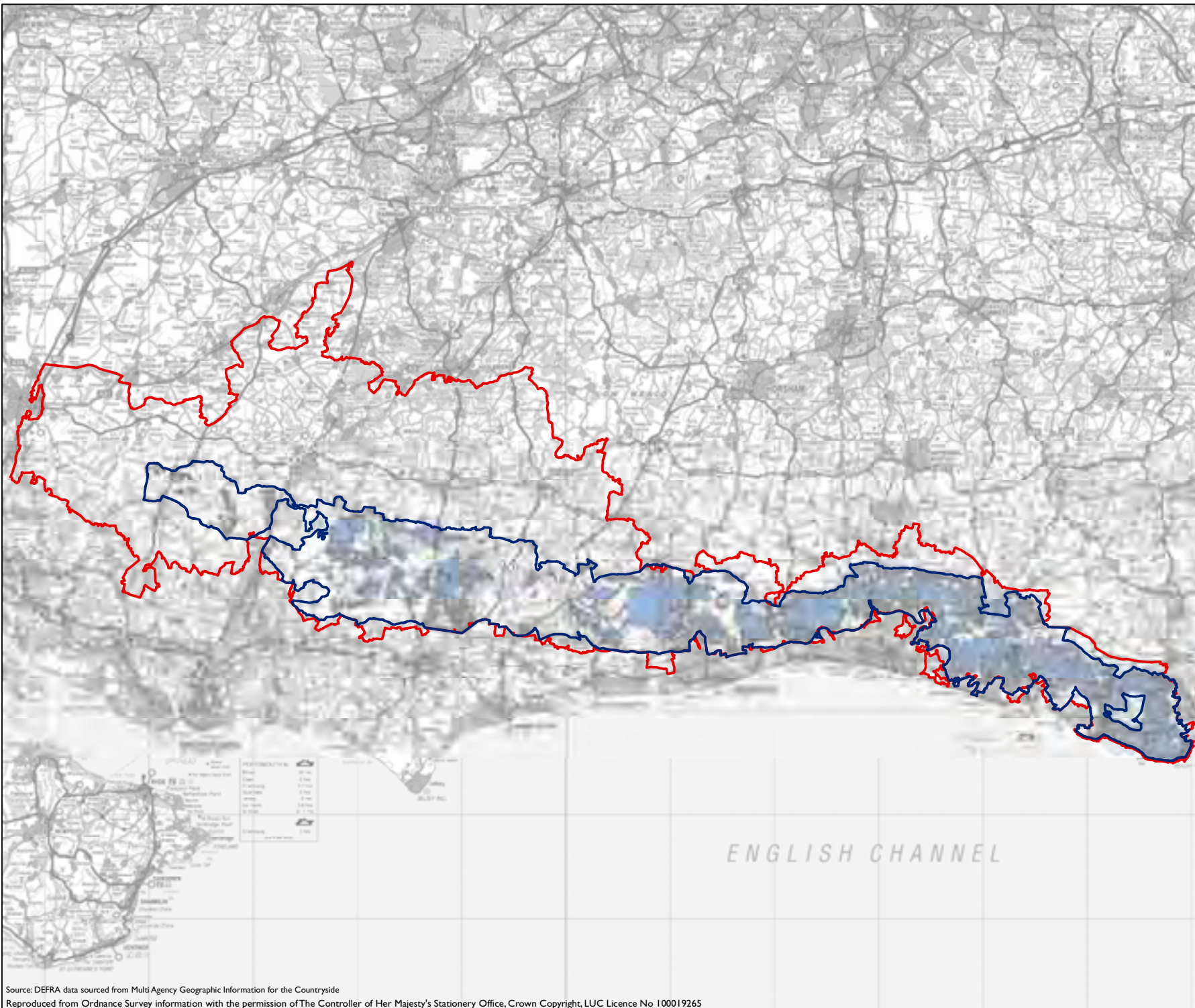
-  South Downs Boundary
-  Access
-  Arable - extensification and margins
-  Chalk grassland
-  Field boundaries
-  Historic landscapes
-  Lowland heath
-  Old meadows and pasture
-  Waterside land
-  South Downs ESA Boundary



Date Prepared: 28/12/2005

0 5 10 20 km





South Downs Integrated Landscape Character Assessment

Figure 6.11: Environmentally Sensitive Area (ESA) agreements in the South Downs

Key

- South Downs Boundary
- South Downs ESA Agreements
- South Downs ESA Boundary

Date Prepared: 28/12/2005

0 5 10 20 km

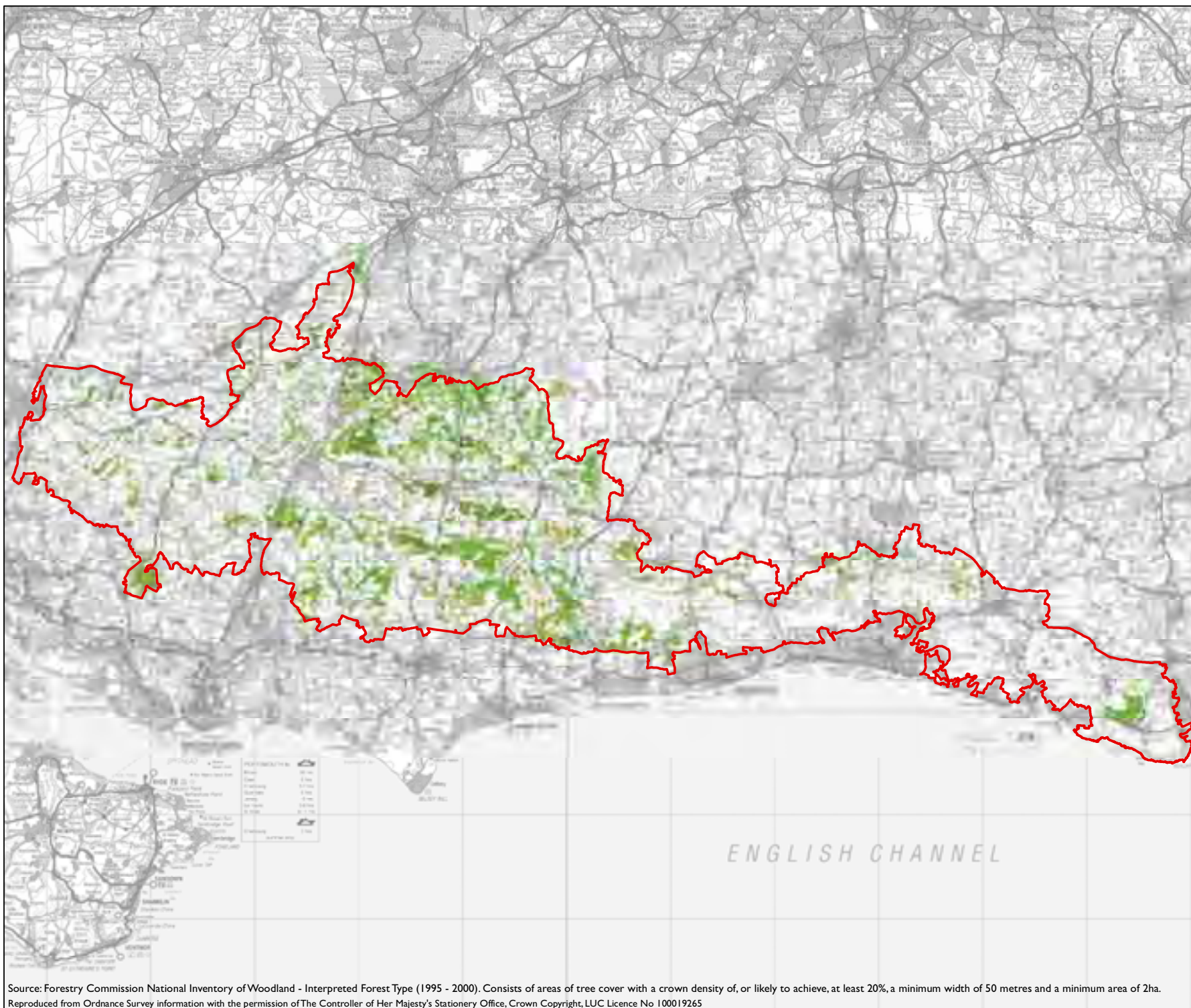


South Downs Integrated Landscape Character Assessment

Figure 6.12: Woodland distribution (interpreted forest types) in the South Downs

Key

- South Downs Boundary
- Broadleaved
- Coniferous
- Coppice
- Felled / Ground prepared for planting
- Mixed
- Shrub / Young trees



Date Prepared: 03/01/2006

0 5 10 20 km



Source: Forestry Commission National Inventory of Woodland - Interpreted Forest Type (1995 - 2000). Consists of areas of tree cover with a crown density of, or likely to achieve, at least 20%, a minimum width of 50 metres and a minimum area of 2ha. Reproduced from Ordnance Survey information with the permission of The Controller of Her Majesty's Stationery Office, Crown Copyright, LUC Licence No 100019265

excludes woodlands under 2ha in size this figure is likely to be inaccurate. Also there is no distinction between actively managed coppice and unmanaged coppice in these figures.

Table 6.1: Areas of woodland (> 2 hectares) in the South Downs Broad Regional Areas

Interpreted Forest Type	Eastern Open Downs	Central Wooded Downs	Western Downs	Greensand and Weald	South Downs
Broadleaved	3,615	5,220	2,789	6,372	17,996
Coniferous	176	767	653	2,791	4,388
Coppice	45	343	51	1,126	1,565
Felled / Ground prepared for planting	297	959	296	848	2,401
Mixed	666	2,727	1,103	2,621	7,116
Shrub / Young trees	720	636	283	399	2,039
Total	5,519	10,653	5,176	14,157	35,504

Source: Forestry Commission, National Inventory of Woodland and Trees (2002)

Table 6.2: Areas of woodland (> 2 hectares) in the South Downs Broad Regional Areas, as a percentage of total woodland

Interpreted Forest Type	Eastern Open Downs	Central Wooded Downs	Western Downs	Greensand and Weald	South Downs
Broadleaved	65%	49%	54%	45%	51%
Coniferous	3%	7%	13%	20%	12%
Coppice	1%	3%	1%	8%	4%
Felled / Ground prepared for planting	5%	9%	6%	6%	7%
Mixed	12%	26%	21%	19%	20%
Shrub / Young trees	13%	6%	5%	3%	6%
Total	100%	100%	100%	100%	100%

Source: Forestry Commission, National Inventory of Woodland and Trees (2002)

- 6.23. Mastermap data indicates that the total area of coppice (i.e. categories labelled coppice or osiers/ coppice or osiers, nonconiferous trees/ coppice or osiers, nonconiferous trees, scrub/ coppice or osiers, scrub) in the study area is 3721 ha of which 2002 ha (over half) is represented by stands under 2ha in size. This is considerably greater than the Forestry Commission's figures and indicates the large proportion of small woodlands in the South Downs and their importance as an element of the landscape. Mastermap data indicates that, of the total 3721 ha, 240 ha (or 6.4%) falls within the Western Downs region, 605 ha (or 16.3%) falls within the Eastern Open Downs region, 901 ha (or 24.2%) falls within the Central Wooded Downs and 1975 ha (or 53%) falls within the Greensand and the Weald region. In most of the regions almost half of the coppice is represented by stands of under 2ha in size. However, in the Greensand and Weald 60% of these stands are under 2ha in size.
- 6.24. The Forestry Commission is now preparing the South Downs Forest Design Plan, which sets out the medium to long term management objectives for more than 4,000 hectares of Forestry Commission woodland in the area. Of this area 1,700 hectares are plantation forests (primarily conifers) on ancient woodland sites. The Plan will aim to restore a large proportion of these sites to native species.¹⁰

¹⁰ Forestry Commission (2005) South Downs Forest Design Plan, 2005-2035. Phase One – Queen Elizabeth Country Park to West Harting Down (Consultation Draft).

THE FUTURE FOR AGRICULTURE AND FORESTRY

- 6.25. In the past, farmers' reliance on producing agricultural commodities underpinned by guaranteed prices meant that they tended to respond en masse to economic signals based on the quality of their land, climate and proximity to markets. We are now entering a new era in which each farmer will make much more individual choices about whether they concentrate on, for example:
- Continuing to produce commodity products at the lowest cost;
 - Differentiating and adding value to what they already produce; or
 - Diversifying their incomes outside agricultural production, effectively becoming part-time farmers.
- 6.26. This suggests that the impact of a changing agriculture on the landscape at a local level will become more difficult to predict. Other important factors at play, besides the signals provided by product markets, will be the extent to which incentives for entering agri-environment schemes will be seen as attractive, and the requirements imposed by current and future regulation, particularly measures put in place to meet the Water Framework Directive's requirement to have water bodies in good condition by 2015. Some likely overall trends, which may not hold true for individual holdings, are presented below.
- 6.27. Farms will tend to grow larger, and smaller farms will be less common as economic concerns, although smallholdings may become even more common as increasing numbers seek to downshift and escape to the country. The long term trend towards the concentration of agricultural land management in the hands of a dwindling number of large farming businesses is likely to accelerate over the next few years as a result of the decoupling of CAP support payments and will probably have the greatest impact on arable land, but also on beef and sheep farms. On this land, there will be significant economic advantage to land being managed in larger units. The impact is likely to be greatest on the smaller downland farms in the Eastern Open Downs and Western Downs and on the mixed farms of the Greensand and Weald – the advantage will be less on the large estates in the Central Wooded Downs. The dairy sector is something of a special case since there has been significant structural change in the last few years and there are now few small dairy farms in the South Downs. Nevertheless, amongst the remaining larger dairy farms in areas such as the Western Downs there will be a trend towards increased farm size with land taken on from neighbouring farms many of which will be beef and sheep or arable farms.
- 6.28. The amalgamation of holdings will lead to some existing farm buildings becoming surplus to requirements, perhaps sold to non-farmers for residential use, while it is also possible that new, larger buildings will be required to serve these larger holdings, depending on the types of farming being practiced. Additional new buildings may be required for diversified activities on farms, perhaps packing and storage sheds for specialist products, workshops for craft related activities, or accommodation and facilities for the tourist industry.
- 6.29. The increased exposure to world markets for the main agricultural commodities (such as wheat from the mid-west of the United States and beef from Argentina), that has been brought about by the reduction in tariff barriers and EU price support

will mean that agricultural incomes are likely to be more volatile than they have in the past. In addition, there is likely to be an increase in the more short term tenure of commercially managed agricultural land through farm business tenancies, or share or contract farming agreements. The combination of volatile agricultural markets and short term tenure means that the economic incentive for farmers to invest heavily in the agricultural infrastructure of their land, such as by reseeded long term grass leys or renewing field drains, is likely to decline. While, agricultural 'improvements' are likely to take place where an expanding agricultural business takes over land that was previously managed to less exacting economic standards, the economic benefits will not be enough to warrant the kind of large scale changes that took place in the 1970s and 1980s.

- 6.30. Environmental improvement of the infrastructure of these commercial farming businesses is likely to be highly dependent on the availability of grant aid. The large majority of the arable land is likely to come into the Entry level of the Environmental Stewardship Scheme. However, the landscape impact of this is likely to be small. The restricted budget of the Higher Level of Environmental Stewardship will mean that the area entering this scheme will be more modest – indeed it is possible that some land currently in the South Downs ESA or Countryside Stewardship schemes will not be accepted into the Higher Level of ES when current agreements end. Nevertheless, where land is accepted into the Higher Level, there is likely to be significant environmental enhancement in terms of reversion of arable land to chalk grassland, heathland and flood plain grazing marsh. These are specifically identified in the targeting statements for the South Downs and Wealden Greensand Joint Character Areas.
- 6.31. Increased use of land for biomass crops and other speciality crops is likely, as farmers seek to try new and potentially profitable ventures. Biomass crops include short rotation coppice (poplar or willow) and miscanthus (elephant grass), both of which are tall and uniform crops with potential landscape impacts both while growing and following harvest. Oilseeds and specialist industrial crops may also emerge as components of the agricultural landscape. All of these crops are more likely to appear on flatter to gently rolling land where they can be easily harvested with heavy machinery.
- 6.32. While economic pressures are likely to be the main determinant of land management on these commercial farms, this does not necessarily mean that land will be more intensively managed. For instance, in a drive to cut costs, it is possible that beef and sheep will be 'ranch'd' at low densities and low inputs and it is likely that land that is marginal for arable production (such as land that floods frequently) will be put back to grassland and grazed by beef cattle or sheep. Businesses choosing to pursue high value added production (such as organic) may also become less intensive.
- 6.33. The EC requirement for set-aside on holdings with arable land continues for the foreseeable future, although it seems unlikely that this area will increase since farmers no longer receive a higher payment on set-aside land. Many people are predicting a decline in the arable break crops such as oilseed rape and field beans, but the large acreage of oilseed rape this year appears to belie this claim.
- 6.34. The other trend in farm holdings – that of a withdrawal of agricultural production and the growth in the number of 'lifestyle' farmers on marginal agricultural land – is

likely to be increasingly important around the more heavily populated areas at the foot of the Downs and in the more agriculturally marginal heavier soils in the Weald. The management decisions of these lifestyle farmers tend to be derived from personal and qualitative, rather than economic, factors, making them difficult to predict. However, land will tend to be managed for amenity or environmental purposes rather than agricultural production.

- 6.35. It is tempting to think that this focus on environmental and amenity management will result in the landscape quality of this area being maintained. However, other factors such as the unfamiliarity of new smallholders with traditional forms of management, the replacement of cattle and sheep with ponies as grazing animals and the lack of a financial incentive to maintain hedgerows, ditches and other infrastructure, may lead to a significant progressive change of character. The fragmented nature of the land ownership and management means that any change will be relatively fine-grained.
- 6.36. In summary, the overall pace of change is likely to increase once farmers have come to terms with the new CAP regime, but most changes will take place gradually. There is likely to be a divergence between the more agriculturally productive land on the larger holdings and the less productive land on smaller holdings.
- 6.37. In terms of forestry, coniferous forests are likely to be replaced gradually over time with broadleaf planting or open grassland, as they mature and are harvested. There is now a strong preference for indigenous broadleaf species from an aesthetic perspective and for enhancing biodiversity through providing habitat for indigenous species. Little replanting of coniferous species would be expected given that these timber types generally can be imported much more cheaply than they can be produced in the UK. The woodland grant schemes are also targeted towards replanting of indigenous species.

AMENITY AND OTHER LAND USES

- 6.38. Recreational and amenity use of the South Downs is already substantial and will undoubtedly increase further in the future. The open access land, registered common land and public rights of way currently available for use are broadly depicted by **Figure 6.13**.
- 6.39. Some considerations which help to gauge the effects of such activities on the landscape are:

The requirements of recreation or amenity land use: Walking, picnicking, visiting attractions such as stately homes, riding, cycling (on or off road), motorised vehicles, fishing, canoeing, various forms of gliding and model aircraft flying are some of the many recreational activities common on the South Downs. Each depends on access to a suitable landscape, sometimes with very specific features, and has potential impacts on the landscape or at least on other visitors' experience of it. In some cases the landscape is specifically modified to suit the activity, particularly where trails are required.

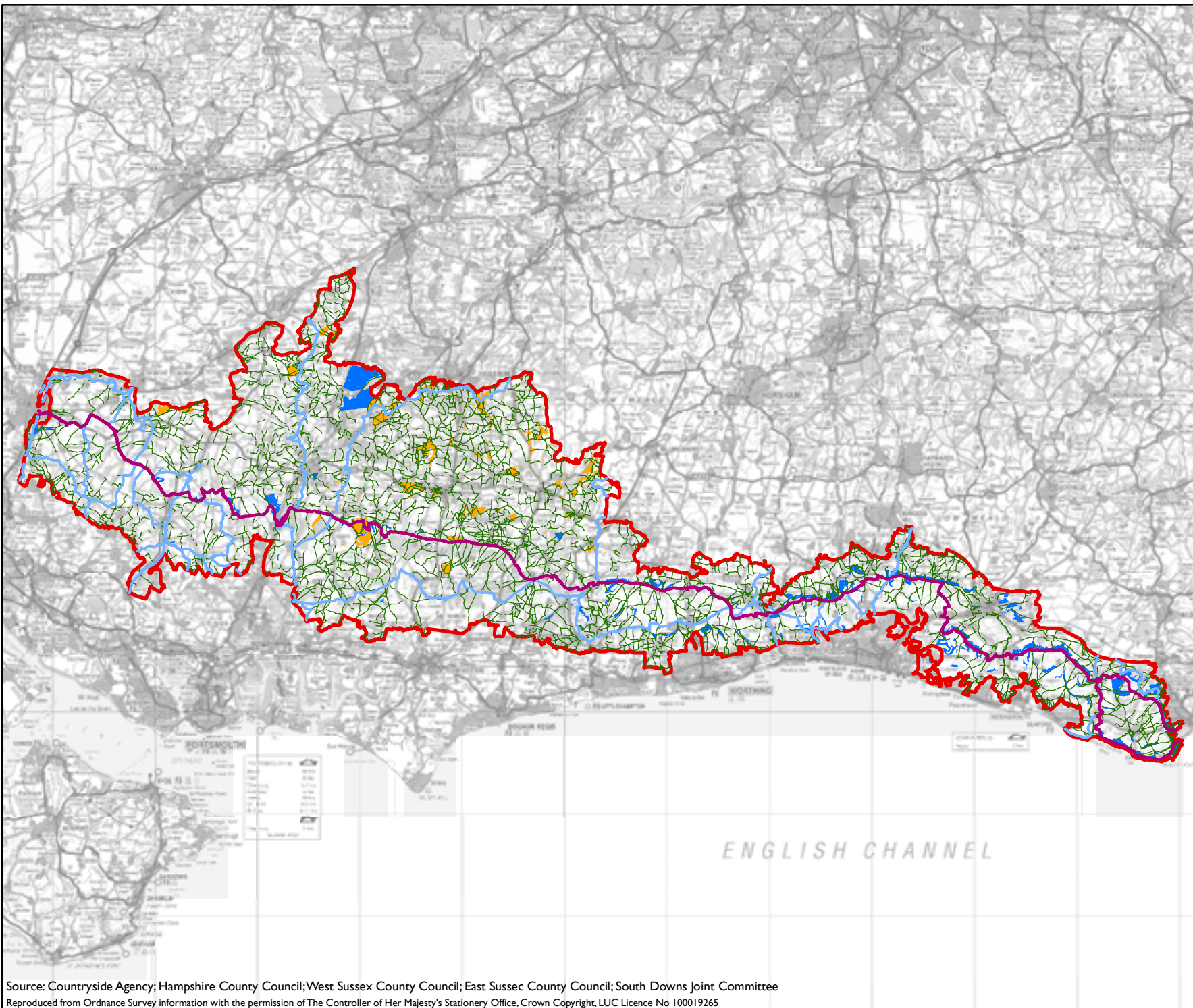
Impacts associated with the land use: Traffic is an obvious impact for many recreational activities, often bringing an associated need for car parking and improvements to roads. Noise and litter or other forms of pollution are common

South Downs Integrated Landscape Character Assessment

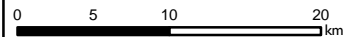
Figure 6.13: Countryside Access

Key

- South Downs Boundary
- Open Access Land
- Registered Common Land
- South Downs Way National Trail
- Long Distance Paths
- Other Public Rights of Way



Date Prepared: 1/11/2005



Source: Countryside Agency; Hampshire County Council; West Sussex County Council; East Sussex County Council; South Downs Joint Committee

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recreational impacts. Wheeled vehicles bring some increase in erosion risk, varying with the size of the vehicle and whether it is motorised.

Demand: How popular is the activity and to what extent is it likely to become more or less popular over time? The popularity of mountain biking has increased dramatically in recent years, for example, and new forms of recreation can also arise with demands of their own. Mountain boarding, using large skateboards designed for off-trail use, is one recent example.

6.40. A wealth of sites has been set aside for amenity and recreational land uses within the South Downs, or are available for certain amenity and recreational uses but not dedicated to them. Examples are:

- Country parks, managed by local authorities or private owners;
- Forestry Commission sites open to the public;
- National Trust properties;
- Private properties open to the public;
- National and Local Nature Reserves, with public access provided;
- Land in agri-environment schemes, with public access provided as a condition;
- Land subject to public rights of way. A paper provided to the South Downs National Park Inquiry estimated that there are over 3200 km of rights of way within the designated National Park area;¹¹
- Open access land under the Countryside and Rights of Way Act 2000, and common land with dedicated access under legislation.

6.41. Possible impacts on the landscape from changing patterns and demand for amenity and recreational land uses are:

- An increased demand for car parking, picnicking and associated facilities such as toilets and cafeterias as increasing numbers of people seek to use the National Park area for passive or active recreation. These facilities will require an appropriate location and sympathetic design.
- Increased provision and standard of trails, perhaps with greater segregation of activities to minimise conflicts between users such as walkers, horse riders, mountain bikers and motorised vehicles.
- Potentially a gradual redesign of elements of the landscape to suit both biodiversity objectives and user requirements. This might be achieved through restoration of arable land to pasture and the replacement of coniferous forests with broadleaved species or open pasture.

¹¹ South Downs Campaign (2004) Recreation in the South Downs National Park.

- The creation of new sites or facilities to suit specific types of recreation.

7. SOCIO-ECONOMIC CHARACTER

BROAD SOCIO-ECONOMIC FEATURES

- 7.1. The study **The Rural Economy of the South Downs**, by the Oxford Institute for Sustainable Development and Oxford Brookes University (2005), analysed demographic and economic features and trends in the South Downs. Some of the key findings were:
- The South Downs population grew very rapidly from 1991 to 2001 (5.3%), and more quickly than the rural South East as a whole.
 - People in the South Downs tend to be very highly qualified and often occupy senior and managerial employment roles, to a somewhat greater extent than people in the South East as a whole (**Table 7.1**).
 - The main economic sectors closely reflect those for the South East as a whole (**Table 7.2**)
 - Average household income is relatively high (£31,000 p.a.) but there are substantial variations between wards within the South Downs area. Incomes are highest in Winchester, East Hampshire, Chichester and East Sussex, and lowest in the parts of the Park falling within Arun and Lewes Districts.
 - Despite these generally positive employment and income statistics, parts of the South Downs have relatively poor access to services as measured by the Index of Multiple Deprivation 'Geographical Access to Services' domain, because of their rural nature. Using year 2000 data, 31 of 54 South Downs wards were ranked within the 'most deprived' 20% of wards nationally for access to services, although car ownership is high in the South Downs (85% of households own at least one car) which enables a high proportion of people to access services more easily.
 - House prices are very high (average £247,759 in 2002, 32% above the average for the rural South East) suggesting significant affordability problems for the less well off.
- 7.2. These factors suggest that demand for housing in parts of the South Downs is acute and that people performing jobs linked to the landscape such as agricultural and woodland management may not be able to compete with the more highly paid, unless they have access to a dwelling with agricultural and forestry workers' rights. This may ultimately have flow-on effects to the management of the landscape itself. There is also a likelihood that former farm buildings will continue to be purchased for residential conversions, rather than remaining as (or being restored as) part of the working countryside.
- 7.3. Perhaps surprisingly, the proportion of houses in the South Downs that are second residences and holiday homes (1.4%) is similar to England as a whole, but well below the 10.5% average for English National Parks. This may indicate an unmet demand

for such second homes, and the potential for competition with local residents and workers.

Table 7.1 Occupational groups of South Downs residents

Occupational groups	% of resident population	
	South Downs	South East
Grade A/B (higher and intermediate managerial/professional)	30.1%	26.6%
Grade C1 (supervisory, clerical; junior managerial)	32.5%	32.4%
Grade C2 (skilled manual worker)	12.2%	13.9%
Grade D (semi- and unskilled manual workers)	11.6%	13.4%
Grade (on state benefit; unemployed; lowest grade worker)	13.5%	13.7%

Source: Oxford Brookes (2005)

Table 7.2 The top five sectors in which residents of the South Downs are employed

Sector	% of resident working population	
	South Downs	South East
Public administration, defence, education, health	25.7%	24.3%
Financial and business service	20.7%	19.7%
Wholesale and retail	14.2%	16.3%
Manufacturing	10.4%	12.4%
Construction	6.8%	7.4%

Source: Oxford Brookes (2005)

- 7.4. The remainder of this chapter focuses on the two largest economic sectors which are linked to the landscape of the South Downs, tourism and agriculture, and on the classification of South Downs Census Output Areas into categories of 'rurality'.

ECONOMIC CONTRIBUTION OF RECREATION AND TOURISM

- 7.5. The **South Downs Visitor Survey** (April 2002 to March 2003)¹² provided detailed information on current recreational use patterns and economic impacts. The study estimated that there are 39 million leisure day visits annually to the proposed South Downs National Park area, contributing over £333 million to the regional economy including £178 million to tourism-related businesses located within the South Downs. This was estimated to sustain over 8,000 jobs and most of which were held by people living in the South Downs or neighbouring areas.
- 7.6. The majority of day visits were by people living in the South East and London (27 million) and by people staying on holiday outside the South Downs (7 million). Residents of the South Downs made 4 million day visits and visitors staying on holiday within the South Downs made 1 million visits. The study linked the low proportion of 'staying visitors' to a shortfall in visitor accommodation facilities within the South Downs, especially those linked to quiet open-air enjoyment such as campsites and hostels. It concluded that further provision of such facilities would increase the amount of visitor revenue retained within the area.

¹² Tourism South East and Geoff Broom Associates (2003) South Downs Visitor Survey. Research undertaken for the Countryside Agency.

VALUE OF AGRICULTURAL PRODUCTION

- 7.7. This study has made a broad estimate of the 'farmgate' value of production in 2004 from the main agricultural sectors of combinable crops (cereals, oilseeds and pulses), dairy, beef and sheep, distinguishing between the value of crop and livestock sales and the income received from Common Agricultural Policy commodity schemes. This estimate uses the areas of crops and numbers of livestock reported in Defra's June 2004 Agricultural Census, combined with average yields and market prices for these crops and livestock, published in the Farmers' Weekly, from the autumn of 2004.
- 7.8. No attempt has been made to calculate the value of horticultural production, pig or poultry production or any of the minor livestock sectors since reliable data is either not available from the Agricultural Census (the case for the poultry and minor crops sectors) or because of the relative complexity of the sector (the case for the many different horticultural crops). All values given represent the gross income received by farmers, taking no account of farming costs or value added by farmers through processing or marketing. These values are shown in **Table 7.3**.

Table 7.3 Estimated value of agricultural production in the South Downs (2004)

Value in £ millions	Sales of combinable		Sales of sheep			Total
	crops	Sales of milk	Sales of beef	meat and wool	CAP payments	
Eastern Open Downs	£7.19	£5.26	£3.70	£2.04	£5.28	£23.48
Central Wooded Downs	£5.06	£2.87	£1.19	£0.39	£2.84	£12.36
Western Downs	£9.09	£6.73	£3.07	£0.61	£5.27	£24.78
Greensand and Weald	£4.22	£4.84	£2.30	£0.66	£3.04	£15.07
Total South Downs	£25.57	£19.70	£10.27	£3.71	£16.43	£75.68

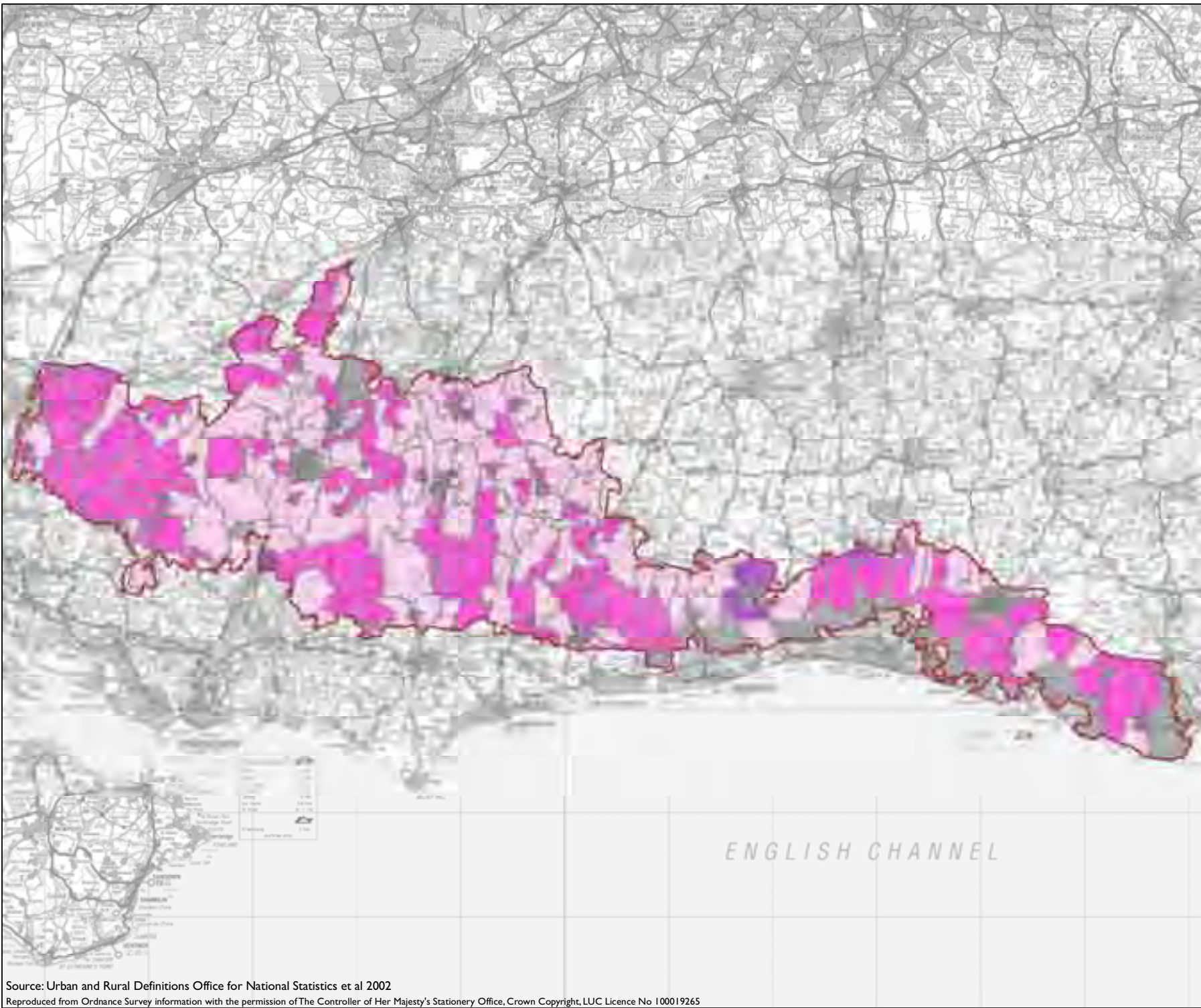
Source: Based on analysis of areas under various crops, and livestock numbers, as reported in Defra 2004 Agricultural Census

- 7.9. In terms of revenue from product sales, combinable crops yielded the greatest income for the South Downs overall, followed by milk sales, then beef and then sheepmeat and wool. Subsidy payments under the CAP comprised a further 22% of the total farmgate income. Combinable crops were the most important source of agricultural income in all 'Broad Regional Areas', and particularly in the Central Wooded Downs (41% of total income) and the Western Downs (37%). Beef and sheep income was highest in the Eastern Open Downs (25%) and the Greensand and Weald (19%).
- 7.10. As subsidy payments are 'decoupled' from agricultural production, the incentive to produce specific commodities will decrease. This will have at least two effects. Firstly, land uses are likely to diversify, as until now there has been a bias towards production of the subsidised commodities. Secondly, production will be more strongly influenced by market demand and therefore the types of land use will fluctuate as the relative demand for various commodities changes.

DEFINITIONS OF RURALITY

- 7.11. Defra's definition of urban and rural areas in the South Downs is shown in **Figure 7.1**. Government has recently revised the way rural and urban areas are defined.¹³ There is now a six-way classification of rural wards and census output areas based on a primary division for the wider context for the ward or output area – **sparse** and **less sparse**. Under each of these there are three classifications for settlement morphology – **town and fringe**; **village**; and **hamlet and isolated dwellings**. These are summarised in **Figure 7.2**.
- 7.12. The majority of the South Downs area is classified as **less sparse – village** and **less sparse – hamlet and isolated dwellings**. The latter classification is particularly prevalent in the Greensand and Weald and the Central and Wooded Downs 'Broad Regional Areas'. There are also several output areas classified as **sparse – town and fringe**, particularly on the northern fringes of Worthing and Brighton and at Beachy Head. In most cases these output areas are primarily open countryside and parts may be perceived as relatively remote. However, urban areas located within these output areas raise the average density of households (per hectare) above the threshold for the 'town and fringe' classification.
- 7.13. The classifications produced by this analysis largely reflect historic settlement patterns which have developed over several centuries of recent history. As an example, the Wealden landscape has historically included many small, dispersed settlements and these have gradually grown over time, some more rapidly than others.
- 7.14. The fact that the rural areas of the South Downs are defined in this classification as less sparse does not imply that they have a highly built-up character. Rather, it indicates that the landscape is a mosaic of settlements and more open countryside. There is a real sense of tranquillity and remoteness offered by parts of the South Downs and workshops contributing to this study emphasised the paradox of accessibility combined with a perception of remoteness. The sense of isolation is tempered to an extent by the potential for light pollution from settlements, particularly those on the south coast.

¹³ The Countryside Agency (2004) The new definition of urban and rural areas of England and Wales. Research Note CRN 86.



South Downs Integrated Landscape Character Assessment

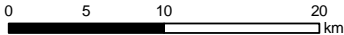
Figure 7.1: Urban and Rural Census Output Areas

Key

- South Downs Boundary
- Hamlet & Isolated - Less Sparse
- Town & Fringe - Less Sparse
- Urban >10K - Less Sparse
- Village - Less Sparse

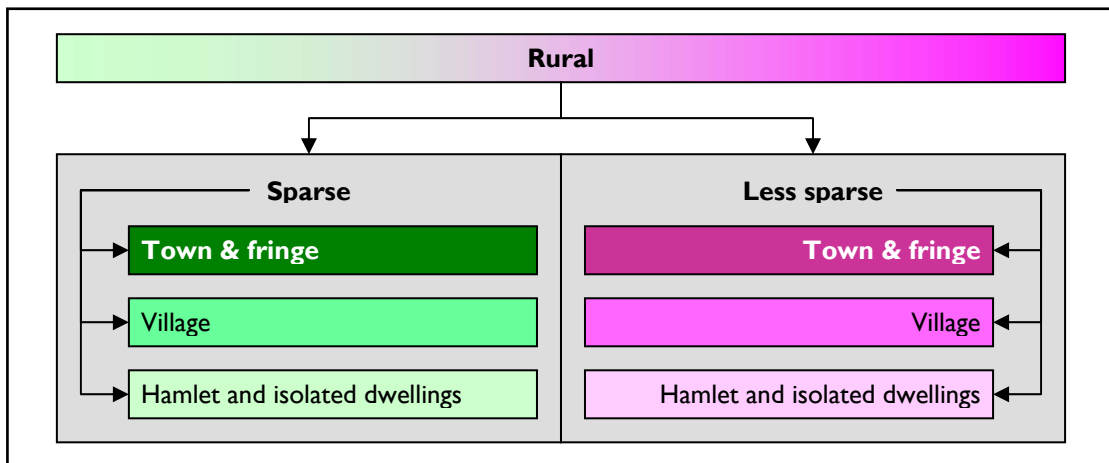
Data analysed and mapped using Office of National Statistics Output Areas

Date Prepared: 03/01/2006



Source: Urban and Rural Definitions Office for National Statistics et al 2002
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Figure 7.2: The structure of rural classifications



PART 2: THE CHARACTER OF THE SOUTH DOWNS LANDSCAPE

This second part of the report contains the characterisation for the South Downs. It provides a description and evaluation of each generic landscape type and presents more detailed information for each landscape character area.

8. THE CHARACTER OF THE SOUTH DOWNS LANDSCAPE

INTRODUCTION

- 8.1. The interaction of physical, historic, natural and social and economic processes, described in the previous chapters, have in combination created the unique and distinctive character of the South Downs. It is a very complex and landscape with significant local variation and contrast. The great diversity is recognised in the identification of a very large number of **landscape types** (18). Each of these landscape types has a distinct and relatively homogenous character with similar physical and cultural attributes, including geology, landform, land cover and historic evolution. The landscape types are further subdivided into component **landscape character areas**. The character areas are discrete geographic areas that possess the common characteristics described for the landscape type. Each character area has a distinct and recognisable local identity.
- 8.2. The landscape classification for the South Downs is set out in **Table 8.1** and illustrated on **Figure 8.1**. The classification and boundary mapping has been undertaken using GIS, with mapping at a scale of 1:25,000. A more detailed map showing an overview of the classification is provided in the folder at the end of this report (to be provided in final report).

Table 8.1: The South Downs Landscape Classification

A: Open Downland	
A1:	Ouse to Eastbourne Open Downs
A2:	Adur to Ouse Open Downs
A3:	Arun to Adur Open Downs
A4:	Mount Caburn
A5:	East Winchester Open Downs
B: Wooded Estate Downland	
B1:	Goodwood to Arundel Wooded Estate Downland
B2:	Queen Elizabeth Forest to East Dean Wooded Estate Downland
B3:	Stansted to West Dean Wooded Estate Downland
B4:	Angmering and Clapham Wooded Estate Downland
C: Clay Plateau	
C1:	Froxfield Clay Plateau
D: Downland Mosaic	
D1:	South Winchester Downland Mosaic
D2:	Hambledon and Clanfield Downland Mosaic
D3:	Bramdean and Cheriton Downland Mosaic
D4:	Newton Valence Downland Mosaic

E: Chalk Valley Systems	
E1:	Lavant Valley
E2:	Emms Valley
E3:	Meon Valley
E4:	Itchen Valley
F: Major River Floodplains	
F1:	Cuckmere Floodplain
F2:	Ouse Floodplain
F3:	Adur Floodplain
F4:	Arun and Lower Rother Floodplain
G: Major Valley Sides	
G1:	Cuckmere Valley Sides
G2:	Ouse Valley Sides
G3:	Adur Valley Sides
G4:	Arun Valley Sides
H: Major Scarps	
H1:	Ouse to Eastbourne Downs Scarp
H2:	Adur to Ouse Downs Scarp
H3:	Arun to Adur Downs Scarp
H4:	Buriton to Arun Scarp
H5:	Saltdown to Butser Hill Scarp
H6:	Selborne Hangers to East Meon Scarp
I: Scarp Footslopes	
I1:	Ouse to Eastbourne Scarp Footslopes
I2:	Adur to Ouse Scarp Footslopes
I3:	Arun to Adur Scarp Footslopes
J: Greensand Terrace	
J1:	East Hampshire Greensand Terrace
J2:	East Meon to Bury Greensand Terrace
K: Mixed Farmland and Woodland Vale	
K1:	Rother Valley Mixed Farmland and Woodland
K2:	Kingsley/Blackmoor Mixed Farmland and Woodland
L: Wealden Farmland and Heath Mosaic	
L1:	Parham Farmland and Heath Mosaic
L2:	Rother Farmland and Heath Mosaic
L3:	Woolmer Forest/Weaver's Down

M: Sandy Arable Farmland	
MI:	North Rother Sandy Arable Farmland
N: Greensand Hills	
NI:	Blackdown to Petworth Greensand Hills
O: Low Weald	
O1:	Milland Basin
O2:	Northchapel Basin
P: Wooded Claylands	
PI:	West Walk – Rookesbury Park
Q: Upper Coastal Plain	
QI:	South Downs Upper Coastal Plain
R: Shoreline	
RI:	Seaford to Beachy Head Shoreline

FORMAT OF THE ASSESSMENT

8.3. Detailed information is provided for each of the landscape types and character areas.

Landscape Types

8.4. Each section is initiated by a summary map illustrating the location of the landscape type in relation to the South Downs as a whole, and identifying constituent character areas. This is followed by a map illustrating the component historic landscape types. A detailed landscape type description and evaluation is then provided. The information is presented as follows:

Description

Integrated Key Characteristics

8.5. This section provides an integrated summary of key characteristics of the landscape type.

Physical Landscape

8.6. This section provides background information on geology, landform, hydrology and land cover elements that contribute to character.

Perceptual/Experiential Landscape

8.7. This section covers perceptual characteristics, tranquillity, countryside access, and artistic and literary perceptions as follows:

- Perceptual characteristics include those defined in the landscape character assessment guidance i.e. scale, enclosure, diversity texture, form, line colour,

South Downs Integrated Landscape Character Assessment

Figure 8.1: The South Downs Landscape Classification

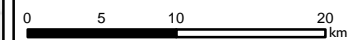
Key

Landscape Types

- A: Open Downland
- B: Wooded Estate Downland
- C: Clay Plateau
- D: Downland Mosaic
- E: Chalk Valley Systems
- F: Major River Floodplains
- G: Major Valley Sides
- H: Major Scarps
- I: Scarp Footslopes
- J: Greensand Terrace
- K: Mixed Farmland and Woodland Vale
- L: Wealden Farmland and Heath Mosaic
- M: Sandy Arable Farmland
- N: Greensand Hills
- O: Low Weald
- P: Wooded Claylands
- Q: Upper Coastal Plain
- R: Shoreline

Note: See fold-out maps at the back of this report for more detailed boundaries

Date Prepared: 15/09/2005



balance, movement, pattern, etc. focussing on how specific elements contribute to the aesthetic characteristics.

- Tranquillity is defined by analysis of noise levels, perceived naturalness, visible overt human impact, density of settlement/ diffusion of people and artificial lighting in each character area. These criteria have been drawn from the University of Northumbria's method for defining tranquillity¹⁴.
- Countryside access is defined by presence of publicly accessible landscapes, the extent of such landscapes, and the level of public access (as well as proximity to people) e.g. presence of open access land, density of public rights of way network, land managed for access.
- Literary perceptions and cultural associations are drawn from existing published AONB assessments. Perceptions recorded through descriptive writings, visual arts and music can indicate how the landscape has changed over time, and communicate the special perceptual qualities of the landscape.

Biodiversity

- 8.8. This section includes a summary of the key biodiversity features and their relative importance using information from Phase I habitat maps, distribution of designated sites, and information contained in the designated site citations.

Historic Character

- 8.9. This section includes a summary of the key historic processes and features and their contribution to character using information from the historic landscape classification, and distribution of designated sites.

Settlement Form and Built Character

- 8.10. This section provides information on settlement types and patterns, building styles and local materials. The information is taken from fieldwork, historic research and existing assessments.

Evaluation

Sensitivity

- 8.11. A subset of key characteristics - the key positive attributes that, if lost or changed, would change the character of the landscape.

Change - Key Issues and Trends

- 8.12. Evidence for past change is drawn from previous studies and assessments, field survey, and consultation. This is presented as a list of bullet points.
- 8.13. Future change is presented as a series of paragraphs covering climate change, agriculture and rural land management, and development. The information has been compiled using reports on climate change in the south east, results of the work on

¹⁴ Mapping Tranquillity: Defining and Assessing a Valuable Resource', co-commissioned by the Campaign to Protection Rural England and the Countryside Agency.

socio-economic/agricultural character, and information emerging from discussions with AONB officers.

Broad Management Objective and Landscape Guidelines

- 8.14. The overall management objective may also be interpreted as a 'vision' for the landscape type. This is followed by bulleted guidelines separated into 'Landscape Management Considerations' and 'Development Considerations'.

Landscape Character Areas

- 8.15. Further specific information is presented at the character area level. This information should be read in the context of the landscape type. Information is presented as follows:

Location and Boundaries

- 8.16. A brief description of where the area lies within the South Downs. It includes information about how the boundaries were defined and its relationship with adjacent areas.

Integrated Key Characteristics

- 8.17. This section provides an integrated summary of character, referring to specific examples where appropriate.

Specific Characteristics Unique to the Character Area

- 8.18. This section focuses on the key characteristics of the area, including specific characteristics that are unique to that character area. This addresses physical, perceptual, biodiversity, historic, settlement and built form characteristics in an integrated way.

Sensitivity Specific to the Character Area

- 8.19. This section picks up on any specific landscape and visual sensitivities that apply to this character area, in addition to those listed in the landscape type evaluation.

Change Specific to the Character Area

- 8.20. This section presents past, present or future change that specifically applies to this character area, in addition to that presented in the landscape type evaluation.

Landscape Management/Development Considerations Specific to the Character Area

- 8.21. This section presents considerations that are specific to this character area, in addition to the considerations presented at the landscape type level.