WISTON
ESTATE
SOUTH DOWNS

Whole Estate Plan

APPENDIX 3:
Environmental Report

OCTOBER 2016

CONTENTS

1. Introduction

The Wiston Estate has been owned and managed by the Goring family since 1743. The estate covers approximately 2,500 ha at Wiston, West Sussex, the north part being in the Sussex Weald and the south on the South Downs.

2. Landscape Character

2.1 The South Downs Integrated Landscape Character Assessment[1]

Integrated Landscape Character Assessments (ILCAS) are undertaken by county and local authorities to supplement national and regional character assessments. They allow us to categorise and describe the landscape in terms of distinct patterns and they help to identify the features that create local distinctiveness and give the landscape its unique 'sense of place'. The South Downs ILCA was last updated in 2011. It is an aid to decision making, helping us to understand the landscape, what is important and special about it, and how it may change in the future. It is intended to guide change and development so that it does not damage the characteristics or value of the landscape. It also helps us to identify ways that we can maintain and improve the character of a place. The South Downs ILCA defines 18 general landscape types within the National Park as well as 49 character areas, three of which occur within the downland part of Wiston Estate, as follows:

1. **Arun to Adur Scarp Footslopes between the A283 south to the foot of the scarp slope**[i]

The Arun to Adur Scarp Footslopes forms a lowland strip at the foot of the northern scarp of the Arun to Adur Downs, between Amberley and Steyning. The southern boundary of this character area is defined by the steep scarp of the Arun to Adur Downs Scarp and has been drawn along the southern edge of the arable fields that form part of the scarp footslopes. To the north the character area forms a gradual transition to the landscape of the Low Weald.

Key Characteristics:

The geology of the scarp footslopes is complex, comprising bands of chalk, mudstones and sandstones which rise to a locally undulating lowland landscape. Typically the footslopes are divided into large, fertile straight-sided arable fields on the Lower Chalk and small irregular pastures on the less productive clay soils just north of the chalk. These represent a largely intact late medieval landscape. Hedgerows with mature hedgerow oaks link closely with the woodland, forming an interlocking network that is of high biodiversity value. Sandstone outcrops give rise to locally sandy soils which support areas of acid grassland, bracken, gorse, woody scrub and oak-birch woodland.

Streams arising from springs at the foot of the Chalk, flow northwards in narrow, hidden stream valleys, some wooded. Field ponds, mill ponds and designed ponds are common features of the clay. Villages on the springline, e.g. Steyning and Washington, are linked by the A283, which

[1] See South Downs Indicative Landscape Character Assessment map

marks the northern boundary of the character area. A network of public rights of way provides opportunities for countryside access.

2. **Arun to Adur Downs Scarp**[ii]

The Arun to Adur Downs Scarp wraps around the northern edge of the Arun to Adur Downs. It extends from Amberley in the west to Steyning in the east. The boundaries of the Adur to Ouse Downs Scarp are defined predominantly by topography. The southern (top) boundary has been drawn along the crest of the scarp. The northern (lower) boundary is less well defined and has been drawn along field boundaries. There are panoramic views over the Low Weald to the north, particularly from the viewpoint at Chanctonbury Ring.

Key Characteristics

The Arun to Adur Downs Scarp comprises a dramatic steep north-facing chalk escarpment indented by coombes. It is remarkably consistent in height and slope profile throughout its length as a result of the uniformity of the chalk bedrock. The scarp contains some extensive areas of chalk grassland habitat, for example, the nationally important Chanctonbury Ring SSSI and it is relatively well wooded, partly with ornamental planting. Deeply sunken lanes and tracks, known as bostal tracks, cut the escarpment and link the lower land to the chalk uplands e.g. Wiston bostal. 'Gaps' cut by valleys form important communication routes, for example the gap between Chantry Hill and Sullington Hill, and the gap south of Washington where the A24 cuts through. At the foot of the scarp where the slopes are less steep, the land is ploughed for crops. A number of small isolated chalk pits associated with the former agricultural lime-burning industry are visible on the scarp, for example, on Steyning Downland Scheme, although many are now vegetated. There are panoramic views over the scarp footslopes to the north and, in the distance, the Low Weald.

3. **Arun to Adur Open Downs**[iii]

The Arun to Adur Open Downs character area occupies the open downland between the Arun and Adur river valleys to the north of Worthing. The area is defined to the north by the crest of the north facing scarp, the Arun to Adur Downs Scarp. West of the A24 the southern boundary is defined by a minor scarp which forms a clear transition to the Angmering and Clapham Woods, while east of the A24 the southern boundary follows the urban edge of Worthing/Lancing. From the north there are extensive views out across the Low Weald. To the south there are views over the coastal plain and Worthing/ Lancing.

Key Characteristics:

The vast open rolling upland chalk landscape of 'blunt, whale-backed' Downs reaches 238m at Chanctonbury Hill. It is furrowed by extensive branching dry valley systems which produce deep, narrow, rounded coombes, the main one of which, the Findon Valley, contains the A24. It is dominated by large-scale irregular 20th century fields of arable and pasture with stock-fencing or sparse thorn hedgerows creating a very open landscape. Hedgerows and tracks survive from the earlier manorial downland landscape. There are significant areas of unimproved chalk grassland, for example at Chanctonbury Ring and Cissbury Ring, which support nationally scarce plant

species. Occasional scrub and woodland occur on steeper slopes and beech clumps on hill tops contribute to the biodiversity.

The landscape is managed for game shooting which creates a distinctive land-cover including small woodlands and game cover plots. There is a large number of prehistoric and later earthworks, including causewayed enclosures, long barrows and round barrows. Iron Age hillforts at Cissbury Ring and Chanctonbury Ring form prominent features on the skyline and four Neolithic flint mines are associated with minor scarps.

There is good public access with a network of public rights of way and open access land. The typical settlement form is relatively late in origin, and comprises isolated, often prominent farmsteads of 18th-19th century. Building materials are typically flint, red brick and clay tiles, with more modern materials used in farm buildings.

2.2 Fit with National Character Areas

Natural Character Areas (NCAs) are areas that share similar landscape characteristics, defined by natural rather than administrative boundaries, making them a good decision-making framework for the natural environment. 159 NCAs across England have been described by Natural England through NCA profiles or guidance documents which help communities to inform their decision-making about the places that they live in and care for. They support the planning of conservation initiatives at a landscape scale; inform the delivery of nature improvement areas and encourage broader partnership working through local nature partnerships. The profiles also help to inform land management strategies and plans.

In a national context, the north part of Wiston Estate lies within the Low Weald NCA and the south part within the South Downs NCA:

2.2.1 Low Weald NCA[iv]

The Low Weald NCA is a broad, low-lying clay vale which largely wraps around the northern, western and southern edges of the High Weald. It is predominantly agricultural, supporting mainly pastoral farming owing to the heavy clay soils, with horticulture and some arable on the lighter soils in the east. The area is generally wet and woody. Much of its woodlands are ancient, including extensive broadleaved oak over hazel and hornbeam coppice, shaws, small field copses and lines of riparian trees along watercourses. Ghyll woodland is a particular feature and a valuable habitat, scarce elsewhere in the south-east of England. Veteran trees are a feature of hedgerows and in fields and there are many veterans in the Wiston Wealden woodlands. Field boundaries of hedgerows and shaws enclose small, irregular fields and link small, scattered linear settlements along roadsides such as the village of Wiston. The landscape is dissected by the flood plains of many small rivers, streams and watercourses with their associated watermeadows and wet woodlands. Ponds are common, often a legacy of iron and brick-making industries.

The Wealden part of the Wiston Estate is typical of the Low Weald landscape, characterised by a mosaic of small fields and ancient woodlands, linked by a network of hedges and streams with many ponds.

Low Weald NCA provides a wide range of 'ecosystem services', the most important of which have been summarised below.

Provisioning services (food, fibre and water supply)

- **Food provision:** Livestock were traditionally reared on the pastures and continue to be a major land use. Arable and horticultural farming remain important, particularly in the east. All these services take place on the Wealden part of Wiston Estate.
- **Timber provision:** Despite the wooded nature of the NCA and the long history of wood supply, the area does not supply a large amount of timber for the modern market though plans are in place on Wiston Estate to increase commercial timber production.
- **Genetic diversity:** The Sussex cattle breed was refined largely in the Low Weald during the early 19th century and descendants of these original herds still graze parts of the NCA. The area was also important in the development of the Southdown sheep breed.

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

- **Climate regulation:** Longstanding woodland is abundant in the Low Weald and is a good carbon store, as is the undisturbed soil beneath, which has an even higher carbon content. Similarly, its long ley and semi- and unimproved grasslands tend to have higher soil carbon content than cultivated equivalents. Growing timber is good carbon sequestration, particularly in habitats such as wet woodland with rapid deposition. There is extensive woodland on the Wiston Estate, see Section 5.2.1.
- **Regulating water flow:** The predominantly clayey floodplain soils with high groundwater levels and the area's low-lying nature make many areas in the Low Weald, including Wiston Estate, susceptible to flooding.
- **Pest regulation:** The significant proportion of ancient woodland, particularly oak, makes this NCA especially vulnerable to introduced pests and diseases.

Cultural services (inspiration, education and wellbeing)

- **Sense of history:** The Low Weald is an ancient settled and farmed landscape, with mediaeval farmsteads set in mediaeval landscapes. The landscape is influenced by remnants of the Wealden iron industry. There are many fine houses, often set within historic parkland, including Wiston Park.
- **Tranquillity:** The Low Weald is a predominantly pastoral and wooded landscape that is still largely rural and relatively tranquil outside the main urban centres. Wiston Estate is typical in this respect.
- **Recreation:** Recreation is supported by 3,974 km of public rights of way.
- **Biodiversity:** The Low Weald is in the top five NCAs for several rare species such as Chamomile, which was recorded on the estate in the late 1980s. The area is rated in the top ten NCAs for containing Lesser Spotted Woodpecker which has been recorded at Capite Wood and also at Chanctonbury Ring. It is also rated in the top twelve in terms of species richness by the Bat Conservation Trust. Eleven bat species have been recorded on the estate including the rare Barbastelle and Bechstein's bats.

2.2.2 South Downs NCA[v]

The South Downs (NCA) comprises a broad, elevated east–west chalk ridge with a steep north-facing scarp slope and a gentle southerly dip slope. It is an extremely diverse and complex landscape with considerable local variation representing physical, historical and economic influences. The southern part of Wiston Estate is typical of the central part of the South Downs with wide, U-shaped, steep-sided dry valleys on the scarp slope and large, open arable and grassland fields creating an open, exposed landscape across the top of the Downs. Typically woodland is a feature of the steep scarp slopes, consisting mainly of broadleaved woodland with beech, ash and sycamore and there are distinctive fragments of semi-natural chalk grassland with chalk springs on scarp and coombe slopes, for example, in the Steyning Downland Scheme.

The key Ecosystem Services for the South Downs NCA are summarised below with comment on their significance on the Wiston Estate.

Provisioning services (food, fibre and water supply)

- **Food provision**: The area is a major producer of cereals (including wheat and barley) grown on the dip slope, as well as meat (notably, South Downs lamb from the eastern downs) and dairy produce (from the valleys). Oilseed rape is also a significant crop. Sheep farming is characteristic though there has been an increase in pig husbandry. Sheep farming and cereal production are both important farming enterprises on Wiston Estate.
- **Water availability**: The chalk hills of the South Downs are the source of all the water for the NCA, including Wiston Estate. The porous chalk11 acts as a natural filter system and storage reservoir, supplying drinking water, irrigation for farms and gardens, and water for industry.

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

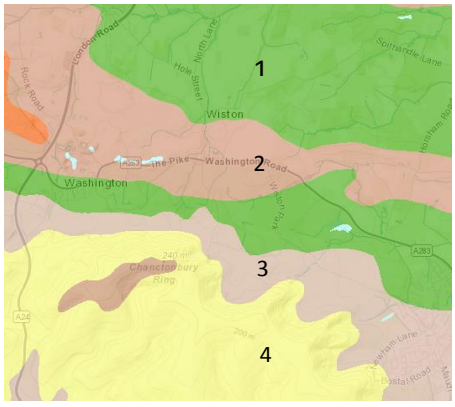
- **Regulating soil erosion**: The lighter soils that dominate the NCA are prone to loss through both wind and water erosion. The small areas of soils with impeded drainage are susceptible to capping and slaking, increasing the risk of soil erosion while the thicker, more clayey soils have a low risk of soil erosion. Vegetation cover, for example, at Chanctonbury Ring, protects the soils from erosion.
- **Regulating soil quality**: The shallow lime-rich soils over chalk, covering 63% of the NCA, and the deeper, freely draining lime-rich loamy soils, covering 13%, are typically shallow and prone to drought. Both these soil types and the freely draining slightly acid loamy soils, across 14 per cent of the area, are valuable for aquifer recharge, the hydrological process by which surface water moves down to groundwater. This is the main way in which water enters an aquifer.
- **Regulating water quality**: The majority of the rivers within the NCA are classed as having 'moderate' ecological status[vi]. Ecological Status is a classification of all Water Bodies, expressed in terms of five classes (high, good, moderate, poor or bad). These classes are established on the basis of specific criteria and boundaries defined against biological, physico-chemical and hydromorphological elements. The groundwater chemical status is 'good' at the eastern end of the NCA, but 'poor' to the west of the River Adur, including Wiston Estate. The natural habitats of the NCA create a natural system of water cleansing, i.e. reedbeds, grasslands and flood plain areas which slow river flows and allow rivers to release silts and pollutants.

- **Regulating water flow**: The River Adur is identified in the *Arun and Western Streams Catchment Flood Management Plan*[vii] as an area of low to moderate flood risk where action should be taken to store water or manage run-off in order to reduce downstream flooding and provide environmental benefits. The natural landscape also currently buffers a large amount of rainfall and floodplain areas store vast amounts of floodwater.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration**: Sense of place is provided by the highly distinctive elevated chalk ridge, scarp and dip slopes and numerous dry valleys. The downs have been a source of inspiration for generations of artists and writers, including Rudyard Kipling, John Constable, Eric Ravilious and the Bloomsbury Group.
- **Sense of history**: The area contains a wealth of visible prehistoric remains, including Neolithic flint mines, bronze-age barrows and prominent hill forts. The area's traditional architecture in its farmsteads and settlements is highly distinctive and includes a high proportion of buildings from the 16th century and earlier. The linear boundaries of parishes and estates reflect historic land use patterns.
- **Tranquillity:** A strong sense of tranquillity is associated with the open downland coombes and ridges. They provide a sense of freedom and escape within the highly developed south-east of England.
- **Recreation**: Recreation is a significant feature of the area, with the majority of the NCA falling within the South Downs National Park. Recreation is supported by nearly 2,000 km of rights of way, including the South Downs Way National Trail running along the crest of the scarp slope through the middle of Wiston Estate. More than 4 per cent of the area is open access land (defined as land open to access on foot by the Countryside and Rights of Way Act 2000), mainly areas of open chalk downland.
- **Biodiversity**: A total of 4,851 ha of the NCA are designated as Sites of Special Scientific Interest (SSSI); there are seven SAC; and seven NNRs. Just over 3,000 ha of the NCA is considered Biodiversity Action Plan (BAP) priority habitat, including coastal and flood plain grazing marsh, maritime cliff and slope, lowland calcareous grassland, fens, lowland meadows, lowland dry acid grassland, coastal vegetated shingle, reedbeds, mudflats and saline lagoons. Not all of these BAP habitats occur on the estate but several are well-represented, see Section 5.2.1 Priority Habitats.

3. Geology and Soils



Typically of many estates on the South Downs, Wiston Estate is situated over several different geological formations, each with particular soil types supporting different habitats and land-uses. From north to south, the estate has the following geology[viii] and soils[ix]:

1. Spithandle Lane northwards: slowly permeable, seasonally wet, slightly acid but base-rich, loamy and clayey soils over Wealden Group Mudstone,

Siltstone and Sandstone. Typically these soils have impeded drainage and moderate fertility. The carbon content of these soils is low. They support seasonally wet pastures and woodlands and are mostly suited to grass production for dairying or beef with some cereal production, often for feed. The main risks to the Wealden clays are associated with overland flow from compacted or poached fields. Organic slurry, dirty water, fertiliser, pathogens and fine sediment can all move in suspension or solution with overland flow or drain water.

2. Belt along Washington Road: freely draining, slightly acid, loamy soils with low fertility over Lower Greensand Group Sandstone and Mudstone. These soils support neutral and acid pastures and deciduous woodlands and are suitable for a range of spring and autumn sown crops. Under grass the soils have a long grazing season. The carbon content is low. Groundwater contamination with nitrate, siltation and nutrient enrichment of streams from soil erosion are the main threats to these soils.

3. Lower Scarp Slopes: free-draining, low-carbon, lime-rich loamy soils over Grey Chalk supporting herb-rich chalk pastures and lime-rich deciduous woodlands. In terms of cropping, the soils are suited to spring and autumn-sown cereals and grass though the land is vulnerable to nitrate leaching to groundwater. Surface capping and erosion of chalk soils under cereals is linked with nutrient enrichment and silting of chalk streams and their gravel spawning beds.

4. Upper Slopes and Dip Slope: shallow lime-rich, loamy, free-draining soils with low/medium carbon-content over White Chalk supporting herb-rich downland, beech hangers and other lime-rich woodlands. Spring and autumn cereals can be grown but the soils are especially vulnerable to leaching of nitrate and pesticides to groundwater. As on the Grey Chalk, surface capping and erosion of chalk soils on any steeper slopes under cereals is linked with eutrophication and silting of chalk streams and their gravel spawning beds.

4. Water

Annual Rainfall

Wiston estate receives approximately 830 mm rainfall per year which is relatively high for Sussex. This is because it is enhanced by orographic rainfall due to its situation in the lee of the South Downs. Much of Southern England is relatively distant from the route of many Atlantic depressions and towards the north-east of the region there is increasing shelter from rain-bearing SW winds. This shelter reaches its greatest potential around the Thames Estuary. The South Downs is therefore one of the wettest parts of Southern England, with an average of over 950 mm per year. In contrast, the Thames Valley, London and the north Kent coast normally receive less than 650 mm of rain per year and the Thames Estuary less than 550mm.

Ecological Status of Rivers and Streams

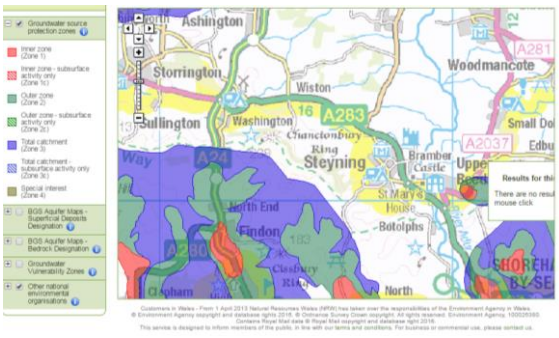
The estate lies in the west of the Adur catchment where the river network consists of secondary and tertiary streams. The Honeybridge stream is a significant tributary in the north of the estate which incorporates the only section of primary river. The ecological status of this headwater

chalk stream is rated as Moderate on a scale from 'High' to 'Bad' though the overall WFD (Water Framework Directive) status of the waterbody is rated Poor on the basis of its fish populations and phosphate levels.[2]

The upper reaches of two further streams cross the estate: the Northover sewer and Black sewer. The ecological status of both streams is rated Moderate. Northover sewer is not assessed under WFD and the overall WFD status of the Black sewer is Moderate.

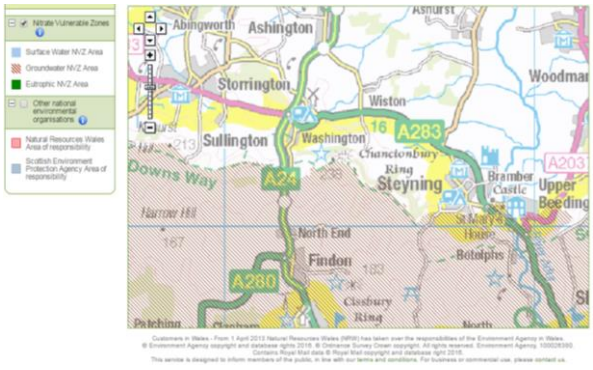
The WFD waterbody status at Wiston is typical of the Adur catchment which is largely rated as Moderate with some poor and few good areas. In terms of the upstream waterbodies from the estate, all are Moderate except for one Poor and one Good. The Moderate status suggests that the waterbody is struggling to support fish species and provide ecosystem services, for example, water supply. It also means that these waterbodies are more susceptible to pollution.

Source Protection Zones[x]



In some areas of Southern England, groundwater supplies up to 80% of the drinking water and it also maintains the flow in many of our rivers. Working with water companies, the Environment Agency has defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These non-statutory zones are catchment areas which are at risk of failing the drinking water protection objectives and where action to address water contamination will be targeted. They show the risk of contamination from any activities that might cause pollution in the area. The closer the activity is, the greater the risk. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest. There is a Groundwater Safeguard Zone in the south-west of the estate around Findon.

Nitrate Vulnerable Zone[xi]

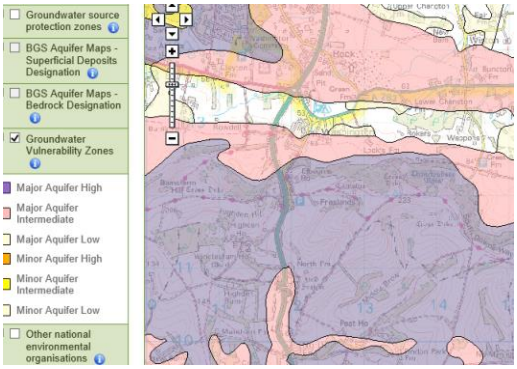


The south part of the estate is a Nitrate Vulnerable Zone NVZ). NVZs are areas designated as being at risk from agricultural nitrate pollution. They include about 58% of land in England.

[2] The WFD is a European Directive which introduces a planning process to manage, protect and improve the water environment. It applies to all rivers (including drains and ditches), lakes, estuaries, coastal waters and groundwater. Under the WFD each waterbody is assessed for a range of different elements: ecological status, chemical status and hydromorphology. Ecological status is recorded on a scale from High through Good, Moderate, Poor to Bad. Good Ecological Status (GES) is the WFD default objective for all water bodies and is defined as a slight variation from undisturbed conditions. The ecological status classification for the water body is determined by the lowest scoring element.

Groundwater Vulnerability Zones

In the south of the estate, the porous bedrock of the chalk downs is a significant aquifer, that is, it provides a high level of water storage. Based on British Geological Survey maps, the Environment Agency provides Groundwater Vulnerability maps. The map right shows that the groundwater vulnerability of the chalk downs at Wiston, a major aquifer, varies from Low on the footslopes of the Downs, through Intermediate on the Greensand ridge and the scarp slopes to High on the open downland.



Chalk Streams

There are no water courses on the chalk block itself due to its permeable nature but a number of springs arise along the foot of the scarp slope where the chalk overlies impermeable clay and the water is forced to flow laterally. The springs feed some chalk streams which have been rated as being amongst the 'most natural' in Sussex. Both brown trout and eel, both priority species, have been recorded locally. Whilst there are no streams on the chalk block, it is prone to rapid run-off during extreme weather events which could lead to 'muddy flood' and enhanced rates of soil loss.

Flood risk[xii]

Tidal influence begins downstream of the estate though may affect floodwater drainage upstream through impoundment. The Environment Agency (EA) flood management plan for the area suggests it is a 'Policy 6' area, that is, 'an area of low to moderate flood risk where EA will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits'. The active floodplain is mostly improved grassland with small parcels of rough grassland or floodplain woodland, providing relatively low 'roughness' or resistance against flood flow. In mitigation however, there are frequent riverside trees and in excess of one hundred ponds on the Wealden clay to slow flows and provide water storage. These vary greatly in size and character from small woodland ephemeral ponds to Wiston Pond, a large pond designated as SNCI.

Non-native invasive species[xiii]

The non-native invasive species Himalayan balsam and Canadian pondweed have been recorded locally. These species are listed on Schedule 9 of the Wildlife and Countryside Act in England and Wales therefore it is an offence to plant or otherwise cause them to grow in the wild. They spread rapidly, outcompeting native species. In addition, Himalayan balsam infestation can lead to siltation of water courses because, having taken over stretches of riverbank through rapid colonisation, its shallow roots then fail to bind the soils which are at increased risk of erosion.

5 Land Use

5.1 Agriculture

5.1.1 Agricultural Land Classification

The Agricultural Land Classification provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long- term limitations on agricultural use. The limitations can operate in one or more of four principal ways: they may affect the range of crops which can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The classification system gives considerable weight to flexibility of cropping, whether actual or potential but the ability of some land to produce consistently high yields of a somewhat narrower range of crops is also taken into account.

The classification is well established and understood in the planning system and provides an appropriate framework for determining the physical quality of the land at national, regional and local levels. Land is divided into five grades as follow:

- Grade 1 – excellent quality agricultural land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown.
- Grade 2 – very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. The level of yield is generally high but may be lower or more variable than Grade 1.
- Grade 3 – good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown, yields are generally lower or more variable than on land in Grades 1 and 2. Grade 3 is further divided into two sub-grades, Subgrade 3a and Subgrade 3b.
- Grade 4 – poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass.
- Grade 5 – very poor quality agricultural land. Land with very severe limitations which restricts use to permanent pasture or rough grazing, except for occasional pioneer forage crops

The Wiston Estate soils[xiv] are mostly a mosaic of Grade 3 and 4 soils with a small area immediately north of the A283 classified as Grade 2 and an area of the open downland as Grade 5.

ADD MAP map not available as subject to licence

5.1.2 Agri-environment Schemes

A large proportion of the estate, including both the estate farm and the tenant farms, is in agri-environment schemes, mostly Entry Level plus Higher Level Stewardship. Environmental Stewardship was an EU-funded agri-environment scheme that ran from 2006 to 2014. It provided funding to farmers and other land managers in England in return for delivering environmental management on their land. Entry Level Stewardship (ELS) was the basic scheme and Higher Level Stewardship (HLS), usually combined with ELS or OELS (Organic Entry Level

Stewardship) aimed to deliver significant environmental benefits in high-priority situations and areas. It was focused on sites requiring a higher level of management.

1. Findon Park Farm (1081.49 ha) is in Entry Level plus Higher Level Stewardship. Expires 30 November 2019.
2. Weppons (169.79 ha) is in Organic Entry Level Stewardship. Expires 31 October 2019.
3. Lock's Farm (100.98 ha) is in Entry Level Stewardship. Expires 31 May 2017.
4. Buncton Manor Farm (163.76 ha) is in Entry Level plus Higher Level Stewardship. Expires 30 September 2020.
5. Upper Chancton Farm (233 ha) is in Entry Level plus Higher Level Stewardship. Expires 30 November 2022.
6. Guesses Farm (53.26 ha) is in Entry Level plus Higher Level Stewardship. Expires 30 November 2023.
7. Daylands Farm (57.22 ha) is in Entry Level plus Higher Level Stewardship. Expires 30 April 2023.
8. North Farm and Charlton Court Farm (263.14 ha) is in Entry Level plus Higher Level Stewardship. Expires 1 June 2019

5.1.3 Farming Enterprises

There are a greater number of farms on the Wiston Estate than on comparable estates, which is partly due to the three generational tenancies (AHA) in existence. These enable security and a long term view for the farm tenants. On many estates the policy has been for farms to amalgamate into larger and more economically sustainable units. At Wiston there are 9 different families living and working on the farms, some with three different generations all still living on them. There are various different enterprises:

Findon Park Farm: A large downland farm comprising of both low input grassland (much of which was put back into grass in the 1980s after being ploughed up after WW2), some new grass leys and a sizeable arable enterprise, with rotational cropping and a strong drive towards providing habitat for farmland birds.

North Farm and Charlton Court Farm: Are similar in topography and composition to Findon Park.

Weppons Farm: Is an organic certified farm, centred around a pedigree Sussex beef herd. Arable crops are grown as feed for the cattle and meat is sold in local markets.

Lock's Farm: The farm tenants were voted Sheep Farmer of the Year in 2009 and are at the forefront of a Romney breeding programme to create stock that can cope with low input grass and lambing outside. The flock currently graze on much of the Findon Park land and each year a large number of rams are exported to the continent for breeding.

Buncton Manor Farm : A mixed farm on the weald clay and sand. Traditionally managed and located close to the village of Wiston.

Upper Chancton Farm: Probably the best soils on the estate, this is the largest tenant farm on the estate and is an arable farm, producing some excellent milling wheats and maize.

Guesses and Guessgate Farms: These are small farms on heavy weald clay. They are farmed using a traditional rotational mixed farming approach with cattle and sheep, improving the drainage and soil structure over the past 10 years.

Daylands: A farm in the northern part of the estate, surrounded by mixed woodlands and predominantly pasture with cattle, sheep and pigs. There is a successful market gardening enterprise, which has been in existence for many years, with produce being sold at local farmers markets.

5.1.4 Arun to Adur Farmers Group (A2A)

The 2010 Lawton Report highlighted the importance of a more cohesive landscape scale approach to conservation management along the lines of "bigger, better, more joined up" which would achieve a more effective and resilient habitat network. As part of the new Countryside Stewardship Scheme launched in 2015 competitive Facilitation Funding was available so that experienced and trusted advisers could develop local Farmer Groups and help them deliver co-ordinated environmental action.

The Arun to Adur Farmers Group successfully applied for the Fund and started a five year programme in July 2015. 24 holdings, including the Wiston Estate, were signed up at the start and three other holdings have joined in the first year bringing the total area of land covered to an impressive 8984 ha (22,190 acres). The project runs from the Arun to Adur rivers with effectively the A27 forming the southern boundary and the Amberley, Storrington, Steyning road the northern.

Through training, sharing knowledge, commissioning new surveys, trialling new techniques and co-ordinating agri-environment options the Group aims to deliver real benefits for a wide range of target species including grey partridge, water vole and uncommon arable plants as well as the landscape, priority habitats and the quality of drinking water. The Wiston Estate is an enthusiastic partner in the Arun to Adur Farmer's Group and with a wealth of experience of delivering an exciting conservation plan will play a key role in the long-term success of the project.

5.2 Biodiversity

5.2.1 Priority Habitats

Deciduous Woodlands

According to the Forestry Commission's latest National Statistics on Woodland Area, Planting & Restocking[xv], the area of woodland in England as at 31st March 2016 is 10% of the land area, with conifers accounting for 26% of this. West Sussex is one of the most wooded counties in England with woodland cover of 18.9%. Wiston Estate has 308 ha of woodland cover in the Weald and 238 ha on the downs, making a total of 546 ha, or 21.7% of the total land cover of the estate.

The Forestry Commission[xvi] estimate that 340,000 of the total 1,306,000 ha or 26.0% of woodland in England is ancient woodland, that is, woodland which has existed at least since

1600 AD. Compared with this, a significantly higher proportion of the Wiston Estate woodlands are ancient with 218 ha or 39.9% (80 parcels) being listed on the Sussex Ancient Woodland Inventory. Nationally 41% of the ancient woodland resource is Plantation on Ancient Woodland (PAWS) which has been cleared and replanted, usually with conifers. On the Wiston Estate, only 21.5% or 47 ha (20 parcels) is PAWS and the remainder is Ancient Semi-Natural Woodlands (ASNW). Therefore the Wiston woodlands have much greater potential for biodiversity than woodlands nationally.

Most of the estate's ancient woodlands are on the Weald and they vary in size between 0.1 ha and 18 ha. There are five main blocks of woodland on the Weald which together make up 64% of the Weald woodland. These are:

- Capite Wood (cpts.1, 2, 3, 4 and 6)
- Frenchlands (cpts. 10,11,12, 13,14 and 15)
- Hawking Soper (cpts. 18,19 and 20)
- Calcott (cpt. 26)
- Copyhold (cpts. 55 and 56).

In addition to these five blocks of woodland, there are a further eleven woods that are between 5 and 14 ha, making up a further 79 ha or 25% of the Weald woodland. These are:

- Basings Wood (cpt. 5)
- Trickles Wood (cpt.32)
- Whitelands Wood (cpt.33)
- Guessgate Wood (cpt.30)
- Guesses Wood (cpt.29)
- Blackbush Wood (cpt. 31)
- Spithandle Wood (cpts. 27 and 28)
- Pepper Furzefield (cpt. 24)
- Great Pepper Wood (cpt 25)
- Paygate Wood (cpt. 39)
- Lidbetter's Copse (cpt.34)

The remaining 34 ha (11%) of Weald woodland is distributed across 27 woods and copses, with a mean size of 1.2 ha.

The National Vegetation Classification (NVC) is one of the key common standards developed for the UK nature conservation agencies. It provides a comprehensive classification and description of the plant communities of Britain, each systematically named, with standardised descriptions for each. Most of the Wealden woodland is NVC type W8 (Ash, Field Maple, Dogs Mercury) or W10 (Oak, Bracken, Bramble) with some W5 (Alder, Sedge), W6 (Alder, Nettle) and W7 (Alder, Ash, Yellow Pimpernel) in the wetter woodlands.

In terms of management, the Wealden woods can be divided into four main categories: oak high forest, conifer plantations, mixed/other broadleaved high forest dominated by ash, sycamore and beech, and coppice. The majority of the conifer plantations were established in the 1960s and 1970s and are in Capite, Frenchlands and Calcott Woods, though four of the

small woods consist purely of Scots pine and there are a few conifer plantations in the medium sized woodlands. There are five hectares of sweet chestnut coppice and approximately 21 hectares of mixed coppice, predominantly ash with oak. Deer and squirrels are major threats to coppice regrowth and natural regeneration.

The downland woodland can be subdivided into two distinct groups: woodland on the scarp slope of the Downs (165 ha) and the woodland on the downs themselves (77 ha). The woodland on the scarp slope is known as the 'sidehill'. The 'downland' woods refer to the woods south of the South Downs Way. It consists of 17 individual woods, 0.5 to 14 ha in size, (cpts 6 to 22) which are on and surrounded by Findon Park Farm.

The majority of the woodland on both the sidehill and on the downs is NVC-type W12 (Beech, Dogs Mercury). The downland woods can be roughly divided into traditionally managed woodland that has clear evidence of a managed coppice layer with elements of standards and patches of high forest and downland that has succeeded naturally into woodland over the last century and in some cases more recently. Much of the sidehill is inaccessible for management due to the steepness of the slopes.

An application is in progress for a 2017 Woodland-only Higher Tier Countryside Stewardship Scheme for the Wealden woodlands. Countryside Stewardship is the agri-environment scheme which has replaced Environmental Stewardship. It has brought together agriculture and forestry grants and offers schemes at two levels, the Mid Tier Scheme and the Higher Tier Scheme. All woodland grant schemes are delivered through the Higher Tier and applications can be made as woodland-only applications or mixed woodland and farmland. The application is for a 5 year multi-annual woodland improvement grant to carry out non-economic management to benefit woodland biodiversity, for example, through ride improvements, management of the dead wood resource, management of veteran trees and deer and squirrel control.

2. Grasslands

There are a number of scattered parcels of Lowland Calcareous Grassland on the downland, totalling 27.5 ha. These are of various NVC types including CG2a/b/c, CG3b, CG4c. The total area excludes some of the grassland in the Steyning Downland Scheme (SDS) which is mapped as Good Quality Semi-Improved Grassland though parts of the SDS have been in restoration to chalk grassland through targeted grazing and scrub clearance measures for the last 6 years. Annual botanical monitoring of the SDS suggests positive trends in the number of positive indicator chalk grassland species.

97 ha, part downland and part Wealden, are registered on the Priority Habitat Inventory as Good Quality Semi-Improved Grassland. One parcel, Frieslands sand pit, is acid grassland. Most has been registered following FEP survey and is under HLS options HK7 (Restoration of species-rich semi-natural grassland, HK15 (Maintenance of grassland for target features) or HK16 (Restoration of grassland for target features).

3. Coastal and Floodplain Grazing Marsh

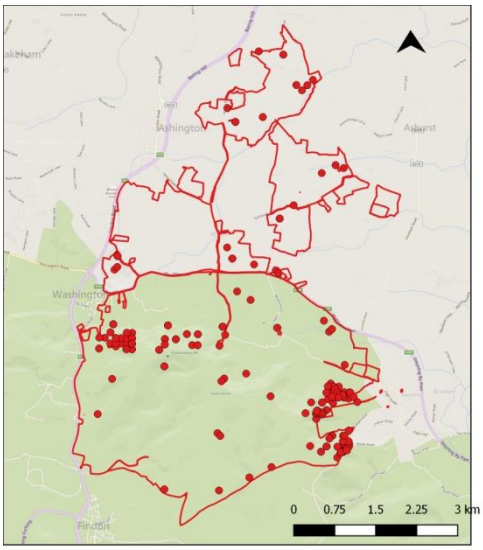
According to the Priority Habitat Inventory, there is no floodplain grazing marsh on Wiston estate as defined by Natural England.

4. Hedges and Field Margins

Traditionally there are few hedges on the downland part of the estate. However there is an excellent network of mixed farm hedges with hedgerow trees across the Wealden part. The hedges connect woodlands and copses and provide very good connectivity for wildlife across the landscape. They are important not just as wildlife corridors for species such as the Barbastelle bat, dormouse and wood white but they also provide habitat for a wide range of species including birds, reptiles, mammals and many invertebrates. Hedgerow trees and other associated features such as ditches much increase their wildlife value.

The majority, but not all, the arable fields on the Wealden part of the estate, have well-established field margins which provide a buffer zone for agricultural run-off and soil erosion and habitat for beneficial insects as well as priority species such as barn owl and grey partridge.

5.2.2 Priority Species[3]



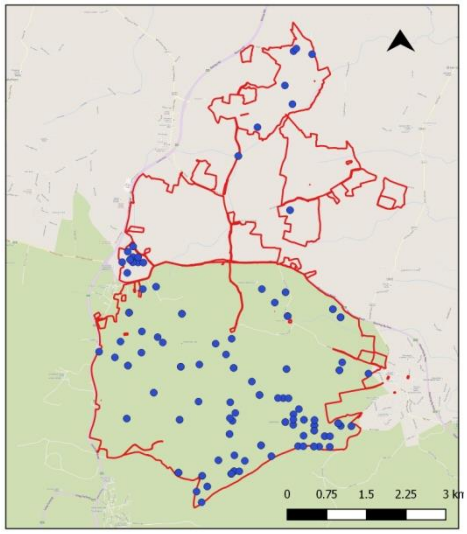
Conservation Priority Species are those species which have a dedicated biodiversity action plan which seeks to reverse their declines and protect vulnerable populations. The UK Biodiversity Action Plan (BAP) published in 1994 was the UK Government's response to signing the Convention on Biological Diversity at the 1992 Rio Earth Summit. The new UK post-2010 Biodiversity Framework replaces the previous national BAP though the lists of priority species still inform much conservation work in the UK.

Many priority species have been recorded on the Wiston Estate. Wildlife groups which have been particularly well-studied include birds and butterflies, both of which are discussed below. There are also many records of herpetofauna (reptiles and amphibians) including Adder, Grass Snake, Common Lizard, Slowworm, Common Toad and Great Crested Newt, all of which are priority species. Other important records are the Water Vole which was recorded in the north of the estate in 2005 and Eel recorded on the Steyning Downland Scheme chalk stream. Priority plants include populations of Juniper at the bostal chalk pit and Frieslands chalk pit as well as a number of orchids including Fly Orchid, Frog Orchid, Musk Orchid and White Helleborine. Red Star Thistle is also a priority species.

[3] Data is copyright of Sussex Biodiversity Records Centre

5.2.3 Birds

The Sussex Notable Bird Inventory[4] is based on a list of birds that are particularly scarce or vulnerable to development in Sussex. In addition to the farmland birds listed below, other records of notable birds on the estate include Turtle Dove, Lesser Spotted Woodpecker, Willow Tit, Stone Curlew and Tree Sparrow. Further there are records of a wide range of raptors or birds of prey, including Barn Owl, Long-eared Owl, Red Kite, Buzzard, Peregrine Falcon, Marsh Harrier, Montague's Harrier, Goshawk and the migratory Hobby. These are particularly good indicators of well-functioning ecosystems with suitable habitat and prey species.



Volunteer and Farm Alliance Survey

Wiston Estate has good populations of several farmland birds of high conservation concern, namely skylark, linnet, corn bunting, yellowhammer and grey partridge and a declining population of lapwing. Bird surveys by the RSPB Volunteer and Farmer Alliance recorded the following numbers of territories of these species:

- 2009: Steyning Valley and field east of Stump Bottom, TQ 155099 (central GR): 37 skylark, 5 corn bunting
- 2010: New Hill Barn, TQ158094 (central GR): 17 skylark, 6 corn bunting
- 2011: field NW of Stump Bottom, TQ143092: 13 skylark, 2 yellowhammer, 1 linnet
- 2013: field NW of Stump Bottom, TQ143092: 26 skylark, 2 yellowhammer, 2 linnet, 4 grey partridge

Anecdotal RSPB records of lapwing suggest a decline from 2008 (15 pairs) to 2016 (1 pair). RSPB commentary on these results suggests that skylark, linnet, corn bunting and yellowhammer numbers are good and generally on a par with other farms and estates in the area. However a series of wet, cold, windy spring/early summers has led to poor breeding success for lapwing. There are opportunities for improving the numbers of breeding farmland birds on the open downland areas, particularly around New Hill Barn, through some changes to farming practices.

Breeding Bird Survey[5]

A Breeding Bird Survey has been carried out annually from 1999 to 2013 on grid square TQ1612 (around Wiston Pond). Sixty-one species have been recorded in total, varying from 36 species in 1999 to 23 species in 2009. The records include the Red List species Willow tit, Skylark, Song Thrush, Mistle Thrush, House Sparrow, Yellowhammer, Herring Gull, Turtle Dove, Cuckoo and Lesser Spotted Woodpecker and Amber List species, Mute Swan, Greylag Goose, Mallard, Common Sandpiper, Mediterranean Gull, Stock Dove, Swift, Dunnock, Bullfinch and Reed Bunting. Red List species are those that are 'Globally Threatened' according to IUCN

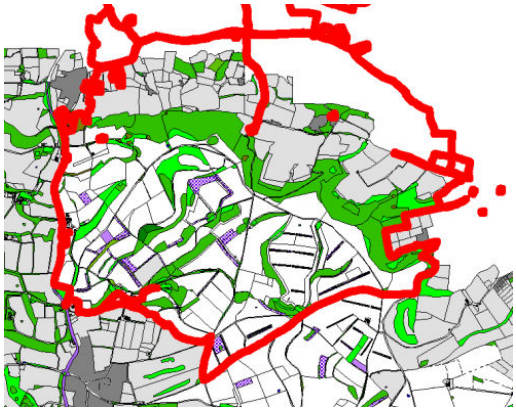
[4] Data is copyright of Sussex Biodiversity Records Centre
[5] Data supplied by RSPB

(International Union for the Conservation of Nature) criteria. Amber List species are those with 'Unfavourable Conservation Status' in Europe.

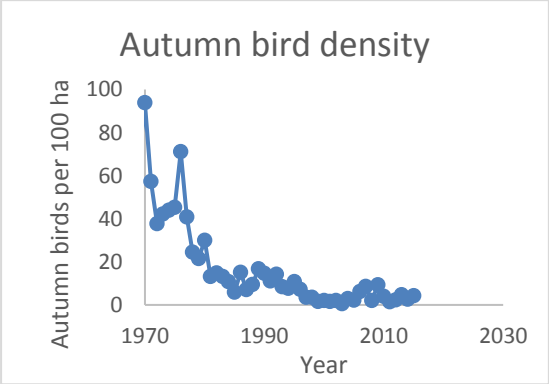
Sussex Study of Grey Partridge

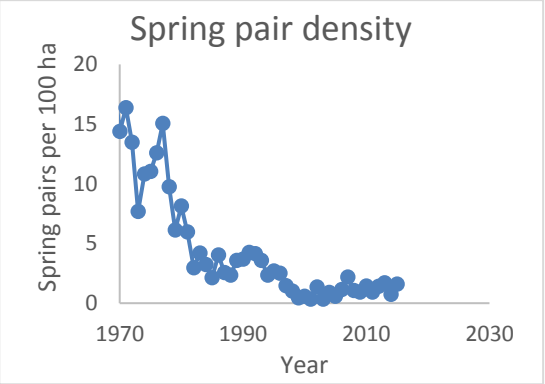
The Game and Wildlife Conservation Trust (GWCT) study on the Sussex Downs is the longest-running monitoring project in the world that measures the impact of changes in farming on the fauna and flora of arable land. It started in 1968 with an investigation into the causes of the decline in numbers of the grey partridge. The main reason for the decline was determined to be a reduction of chick-food insects in cereal crops caused by the disappearance of arable weeds. This followed the first use of herbicides in the late 1950s, and led to the starvation of partridge chicks. Since 1970, in addition to surveying grey partridges, GWCT has recorded information on crop type, crop disease, arable flora and invertebrates in cereal fields across the 62km^2 of the South Downs between Arundel in the west and Worthing in the east. Detailed information on field-scale pesticide use has also been collated from 1970 to 2004.

The map right shows the area of Wiston Estate included in the study, which covers most of the downland part of the estate.



The graphs below[6] illustrate the dramatic decline in grey partridge numbers on the estate over the past 45 years. Surveys are carried out in spring and autumn to record numbers of breeding pairs and chick survival rates respectively. The graphs show that numbers of breeding pairs have fallen from around 15 in 1970 to 1 or 2 pairs at most in the last few years. Autumn counts have dropped from a peak of over 90 in 1970 to zero in some recent years. It is not possible to compare these results directly with those on neighbouring estates for reasons of data protection. However the decline is generally widespread apart from one notable exception at Arundel, where changes in farming practices have successfully reversed the trend.

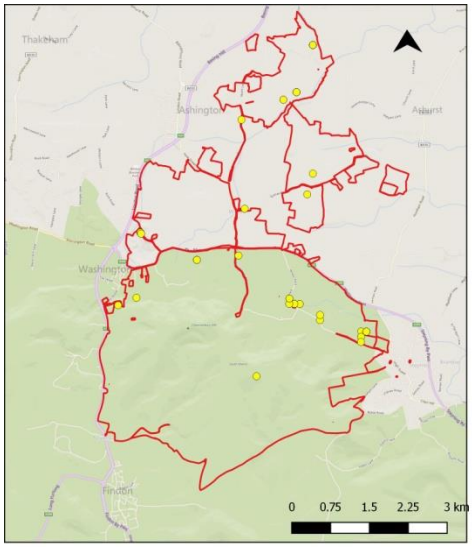




[6] Graphs supplied by GWCT

5.2.4 Butterflies[7]

Forty butterfly species have been recorded on Wiston Estate between 2007 and 2016 including a number of Section 41 (S41) species of principal importance under the 2006 Natural Environment and Rural Communities Act (NERC) in England. This is a list of many of our rarest and most threatened species in England. Outcome 3 of the Government's Biodiversity 2020 strategy contains an ambition to ensure that *'By 2020, we will see an overall improvement in the status of our wildlife and will have prevented further human-induced extinctions of known threatened species.'* Protecting and enhancing England's S41 species is key to delivering this outcome. S41 butterfly species recorded on Wiston Estate are Dingy Skipper, Grizzled Skipper, Wall, White Admiral, Duke of Burgundy, Brown Hairstreak and Small Blue, estate distribution maps for all of which are available.



Key sites for butterflies on the estate are Friesland Chalk Pits, Chanctonbury Ring, Steyning Downland Scheme, Spithandle Woods complex, Trickles Wood, Baldwins Wood, Frenchland, Greenweed Meadow, Capite Wood complex and Great Pepper's Wood complex.

Steyning Downland Scheme has become the prime site in the UK for its population of Brown Hairstreak and the colony of Wall butterfly at Steyning Coombe is of regional importance. Through a successful heritage lottery-funded partnership conservation project between the Steyning Downland Scheme (SDS), South Downs National Park Authority and the Royal Botanic Gardens, Kew, the Duke of Burgundy, which is one of the most rapidly declining and threatened butterfly species in the UK, has extended its range from Chantry Hill, Storrington and was recorded at Chanctonbury Ring in summer 2016.

5.2.5 Bats[8]

Of 18 species of bat recorded in the UK, 11 species have been recorded on Wiston Estate, through a mix of building inspections, roost exit counts, field transect surveys, harp trapping and aural bat detectors. The most common bats are the Common Pipistrelle and the Brown Long-eared. The most notable records are of Bechsteins and Barbastelle. While all species of bat and their roosts are protected by UK and European law, both these rare species have a higher level of protection as European Habitats Directive Annex 2 species. The other species recorded are Brandt's, Daubentons, Natterers, Noctule, Serotine, Soprano Pipistrelle and Whiskered.

[7] Data supplied by Butterfly Conservation

[8] Data copyright of Sussex Biodiversity Records Centre

6 Designations[9]

There are no Special Areas of Conservation (SAC), Special Protection Areas (SPA) or Local Nature Reserves (LNR) on the estate. However a large part of the estate lies within the South Downs National Park. There is one Site of Special Scientific Interest (SSSI), 4 Local Wildlife Sites (previously called Sites of Nature Conservation Importance or SNCI) and 2 West Sussex Local Geological Sites (LGS).

6.1 National Parks

The south part of Wiston Estate from the Washington Road (A283) southwards lies within the South Downs National Park.

6.2 Sites of Special Scientific Interest

Chanctonbury Hill SSSI (ref 1078804) TQ 134117 (16.01 ha)

Reason for Notification: this site lies on the steep chalk escarpment of the South Downs and is dominated by a nationally uncommon woodland type, the maple variant of the calcareous pedunculate oak-ash-beech woodland type. There are also areas of chalk grassland, anotherhabitat that has a restricted distribution nationally. The site supports a rich community of breeding birds with more than 60 species.

The designation comprises 3 units:

1. Well Bottom, TQ 134117, 16.01 ha. Calcareous grassland in unfavourable recovering condition.
2. Chanctonbury, TQ138122, 11.09 ha. Calcareous grassland in favourable condition.
3. Bostal Wood, TQ141119, Broad-leaved, mixed and yew woodland in favourable condition.

6.3 Local Wildlife Sites (previously called Sites of Nature Conservation Importance)

1. Capite Wood (ref H68), TQ156173 (53.27 ha)

This is a large area of very diverse woodland comprising both broadleaved ancient semi-natural woodland and replanted areas of coniferous and deciduous trees. The woodland has two small streams, species rich rides, wet flushes, banks, ditches and a varied topography. It has suffered extensive storm damage and there is abundant deadwood. The woodland is rich in bryophytes.

2. Washington Chalk Quarry (Ref H34), TQ127121 (6.52 ha)

This area of open downland and scattered scrub lies at the western end of Chanctonbury Hill. It includes a collection of disused chalk pits which now support species-rich grassland.

[9] For further information, see Desktop Biodiversity Report (Sussex Biodiversity Record Centre, September 2016)

The flora and butterflies are both of great interest. Part of the site has recently been fenced and sheep grazing reinstated. The South Downs Way runs through the site.

3. Wiston Pond (ref H19), TQ163126 (2.69 ha)

This is a well-established pond within the grounds of Wiston Park. It is surrounded by trees and scrub and has well-developed marginal vegetation. Good populations of amphibians use this pond and also it supports a number of interesting bird species.

4. Steyning Coombe and Steyning Round Hill (H44), 4 parcels around TQ156113 (23.08 ha)

Steyning Coombe and Steyning Round Hill are both important areas of unimproved downland on the escarpment above Steyning. Together these areas are extremely diverse, having steep slopes facing all directions, both short herb-rich sward and tall ungrazed sward, open grassland and grassland with scattered scrub. The rich flora and invertebrate fauna includes several rare plants, snails and butterflies.

6.4 West Sussex Local Geological Sites

1. Rock Common Sand Quarry (Ref TQ11/41)

Rock Common Sand Quarry is a large currently active quarry, 450m by 600m in size. Faces are up to 30m high, exposing sands of the Folkestone Formation overlain by Gault Clay. The Gault Clay is not accessible. Some landfill has been started along the north-west edge.

2. Washington Chalk Pit (TQ11/80)

This is a disused chalk quarry about 200m by 100m in size with faces from 5m up to 10m high. There are good exposures of the interval from upper Zig Zag Chalk to lower Holywell Nodular Chalk. The Washington section is one of the few good inland sections where the Cenomanian-Turonian boundary can be studied.

7 Public Access

There is a good, well-used network of public rights of way across Wiston Estate. This includes two national trails, the South Downs Way and the Monarch's Way. The South Downs Way runs roughly east/west along the chalk downland ridge and crosses the Monarch's Way, a short stretch of which runs along the Steyning Bostal which defines part of the southern estate boundary. In addition, there are various other opportunities for public access to parts of the estate, including:

1. The Steyning Downland Scheme is a partnership of Wiston Estate, the charity A Rocha and the local community, through which public access is actively encouraged on a designated area of around 65 hectares in the south-east of the estate. The project is viewed as an exemplar community wildlife project by the South Downs National Park Authority.

2. Three parcels of chalk downland, 17.41, are designated for Open Access, the largest part being at Pepperscoombe on the Steyning Downland Scheme.
3. 3.44 km are designated as Permissive Paths on land managed by Wiston Farms Ltd in the eastern downland part of Wiston Estate.
4. A 'Pay-to-Ride' Scheme is operated under a private agreement with the landowners in the north of the estate.

There are no registered commons within Wiston Estate.

9. Sources:

[i] http://www.southdowns.gov.uk/wp-content/uploads/2015/03/ILCA-Appendix-I-Scarps-Footslopes.pdf

[ii] http://www.southdowns.gov.uk/wp-content/uploads/2015/03/ILCA-Appendix-H-Major-Scarps.pdf

[iii] http://www.southdowns.gov.uk/wp-content/uploads/2015/03/ILCA-Appendix-A-Open-Downland.pdf

[iv] http://publications.naturalengland.org.uk/publication/12332031

[v] http://publications.naturalengland.org.uk/publication/7433354

[vi] http://evidence.environment-agency.gov.uk/FCERM/en/SC060065/About.aspx

[vii] https://www.gov.uk/government/publications/arun-and-western-streams-catchment-flood-management-plan

[viii] http://mapapps.bgs.ac.uk/geologyofbritain/home.html

[ix] http://www.landis.org.uk/soilscapes/

[x] http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683&y=355134&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=drinkingwater

[xi] https://www.gov.uk/guidance/nutrient-management-nitrate-vulnerable-zones

[xii] https://www.gov.uk/government/publications/arun-and-western-streams-catchment-flood-management-plan

[xiii] http://www.nonnativespecies.org/home/index.cfm

[xiv] http://publications.naturalengland.org.uk/publication/141047?category=5954148537204736

[xv] http://www.forestry.gov.uk/pdf/wapr2016.pdf/$FILE/wapr2016.pdf

[xvi] http://www.forestry.gov.uk/pdf/FCPG201.pdf/$FILE/FCPG201.pdf