

6. Land and Natural Environment



6. Land and Natural Environment

6.1 Location and Ownership

The South Downs woods are a mix of freehold and leasehold woodland lying on the crown and south facing slopes of the Downs, to the north-west round to almost the east of Chichester - see map opposite.

6.2 Site Characteristics

The woods in this plan range in altitude from 75m above sea level to around 220 metres at the top end of Eartham Wood and Charlton Forest. The landscape between and around the woods is a finely detailed mosaic of villages, farms, woodland, hedges, tracks and open fields all of which break up the open expanses and limit view points.

The Marden Blocks form a horseshoe shaped woodland along predominantly east-west ridges surrounding a dry downland valley which encompasses the villages of Stoughton and Walderton.

Charlton Forest and Drovers Wood cover the south facing slope of a valley which rises in the north to a ridge capped by the South Downs way.

The southern edge of Selhurst Park is on a ridge overlooking the coastal plain around Chichester; as you move north through the wood it slopes away to form a north facing valley side opposite Charlton Forest.

Eartham Wood sits on a gentle south facing slope.

Houghton Forest is on a gentle south facing slope climbing towards the ridges of the South Downs as you move northwards.

All of these are significant blocks of woodland in the South Downs landscape.

The soil types found in these woodlands range from calcareous brown earths to calcareous rendzinas, with the better soils being restricted to the dry valley bottoms. Soil depth is variable but is as little as 100mm where overlying chalk.

The average annual rainfall (for Stoughton) is nationally low at 725mm a year.



View of Stoughton village and Inholmes Wood beyond, from Marden looking north-west, (FC picture)



Forestry Commission
England

South England

South Downs 2
Forest Design Plan

Location Map



South Downs 2
FC Woodlands

Produced by the Planning Team June 2012

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1:100,000



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6.3 Conserving Biodiversity

6.3.1 Existing Habitats

Ancient Woodland

Much of the woodland in the plan is classed as ancient woodland (see map opposite). Approximately 77 hectares is ASNW and 1325 hectares is PAWS.

The PAWS areas are dominated by beech and some mixed conifer plantations. The small pockets of ASNW tend to be in inaccessible valleys and on downland banks. Whilst there are some rare plant species present, much of the area is dominated by a bramble or bracken understorey. The dominant regenerating species are ash and broadleaved shrubs.

NVC

A range of NVC types are represented across the woodlands (see maps overleaf) which reflect the underlying soil types and topography within the South Downs. These, however, are only a guide - much of the original character of the ground vegetation has been masked by plantations of mainly beech with some conifer. Ash and shrub species regenerate where light levels and deer pressure allow.

Rides

The woodlands are generally well roaded (FC network) and have an extensive network of grassy un-surfaced rides. In places, these have been worn down to the natural hard surface. Many of the rides edges have been managed, creating a mixture of permanent and transitional open space.

Deadwood

Fallen and standing deadwood is limited in extent in these plantation woodlands. There is more fallen deadwood in the patches of yew amongst the beech, especially in Marden. Dead conifer snags are left standing after programmed clearfells and episodes of wind damage, providing they are regarded as safe.

Open space

Permanent open space is provided along side many rides and beneath power-line wayleaves. In addition, specific open areas in Marden adjacent to Kingley Vale NNR have been created to support downland habitat. There is little transitional open space in these woodlands due to a lack of clearfelling and the age of the beech plantations. However, as these broadleaved stands mature, groups will be

felled to encourage natural regeneration of native trees, which will provide more temporary open areas.

Ponds and watercourses

There is little or no water in these South Downs woodlands. There are two small fire ponds in Charlton and Houghton.

Veteran trees

There are occasional veterans in these woods, mostly yew but some large beech. As the stands mature, opportunities will be taken to select and retain future veterans.

6.3.2 Protected Sites

There are a number of SSSIs in the South Downs but only Kingley Vale SSSI crosses onto FC land at Stoughton. Recent works have taken place to expand the open areas and close working will continue with the NNR team. Elsewhere, Heyshott Down is close to the north border of Charlton Forest and there may be scope to improve linkages with the open areas adjacent to the FC boundary, in particular to support conservation of the priority Duke of Burgundy butterfly.

6.3.3 Priority Habitats

UK BAP Priority Habitats	Comments
Lowland mixed deciduous woodland	Mapped for all of the woodland, but mainly found as intruded regeneration or understorey/scrub.
Lowland beech and yew woodland	The dominant native woodland type throughout this area. Principally on calcareous soils and often artificially beech dominated following widespread planting for high quality timber.

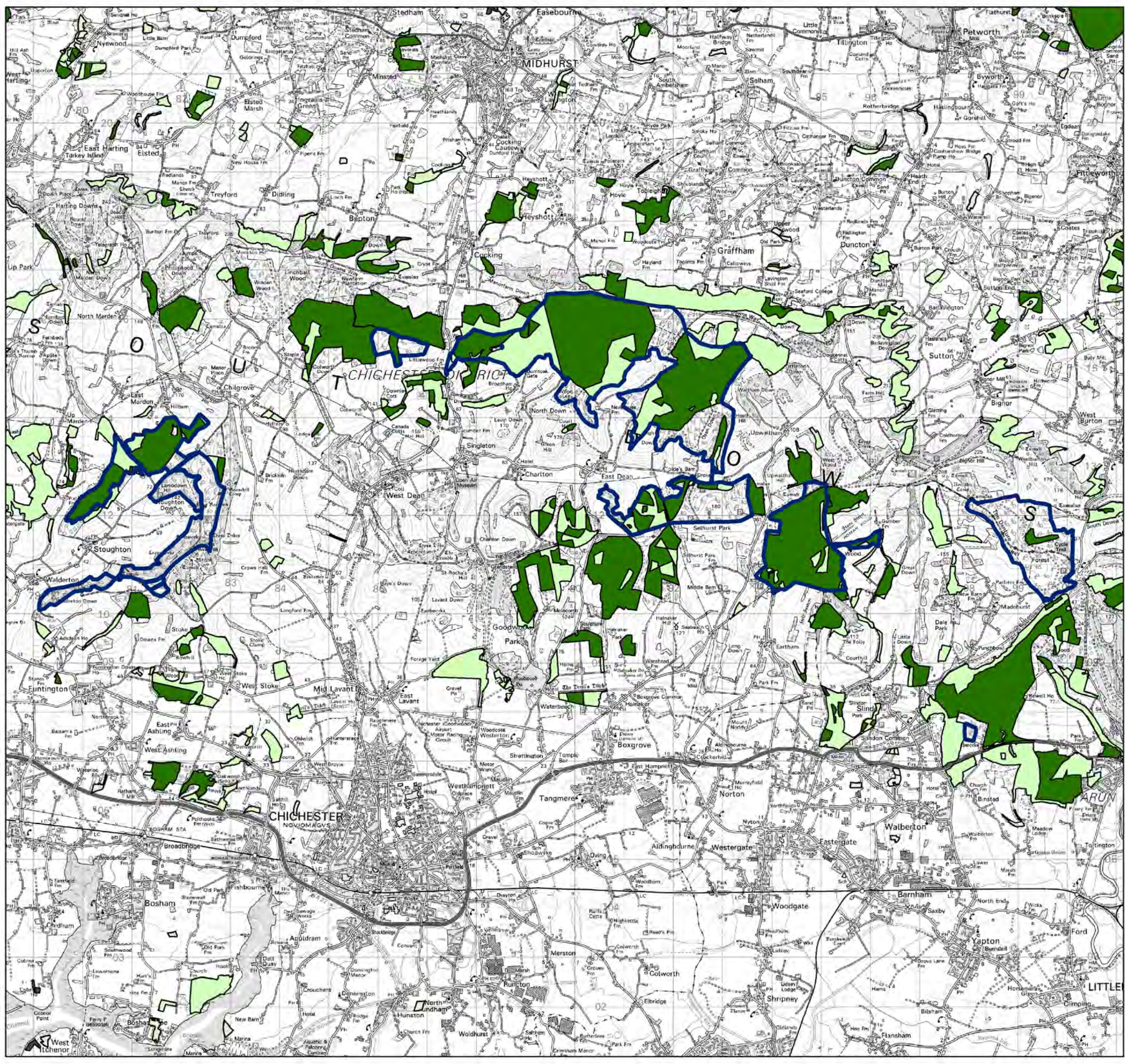
6.3.4 Priority Species Tables

These show where our management activities can benefit priority species. Forest operations act on the vegetation structure of the woodlands, providing habitat level diversity. Bold type indicates a keystone species, where favourable management will benefit a suite of likeminded other species not listed but which rely on similar conditions.

Ancient Woodland

*Indicates location of ancient woodland
as held in the Natural England
Ancient Woodland Inventory Dataset*

-  Ancient and semi-natural woodland (ASNW)
-  Ancient replanted woodland (PAWS)
-  Forestry Commission management area







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UK BAP Priority Species	Management Activity								Comments
	Restoration of ancient woodland to native species	Thinning of conifer woodland	Clearfelling of conifer woodland	Enhancement of open and edge habitat alongside roads and tracks	Minimum intervention management of woodland	Coppicing of broadleaf species	Enhancement of the deadwood resource	Enhancement and creation of stream corridors & ponds	
Adder	✓	✓	✓	✓		✓		✓	Structural enhancements and open space provision will improve conditions for this species.
Barbastelle bat	✓	✓	✓	✓	✓	✓	✓	✓	Present in the wider landscape - retention of older trees will promote roosting habitat in future decades.
Barn owl	✓	✓	✓	✓	✓	✓		✓	Retention of ancient and veteran trees together with identification of future veterans a priority. Expansion of open space both cyclical and permanent will boost its available foraging habitat.
Bechstein's bat	✓	✓	✓	✓	✓	✓	✓	✓	Present in the wider landscape - retention of older trees containing woodpecker holes will promote roosting habitat.
Bee orchid	✓	✓	✓	✓		✓			Responds well to cyclical vegetation management on the woodland edge and on open chalk grassland.
Brown hare	✓	✓	✓	✓		✓			A declining mammal species usually associated with the open habitats beyond our estate but which benefits from the cover afforded on the woodland edge. Improvements to the structural diversity at the woodland edge will likely prove of benefit to the hare.
Brown long-eared bat	✓	✓	✓	✓	✓	✓	✓	✓	A tree roosting bat. Retention of older trees and zoning of minimum intervention stands will boost its numbers.
Bullfinch	✓	✓	✓	✓		✓		✓	A wider countryside species likely to benefit from open habitat creation and enhancements to the woodland edge
Bumblebees	✓	✓	✓	✓	✓	✓	✓	✓	A variety of declining bumblebee species utilise the road and ride edge corridors for landscape scale dispersal.
Chalkhill blue butterfly				✓					Requires a mosaic of short and medium height chalk grassland feeding on Horseshoe vetch. Scrub invasion and lack of grazing a key problem where it survives.
Clay fan-foot	✓	✓	✓	✓	✓	✓		✓	Associated with oak woodland occurring locally in the South East.
Common frog	✓	✓	✓	✓	✓	✓	✓	✓	Predominantly terrestrial in its lifecycle. Favours structurally diverse semi-natural habitats with well connected breeding sites and plenty of deadwood.
Common lizard	✓	✓	✓	✓	✓	✓	✓	✓	Structural enhancements and open space provision will improve conditions for this species.
Common toad	✓	✓	✓	✓	✓	✓	✓	✓	Associated with aquatic habitats for breeding season but a mobile species in the wider landscape both prior to and after the breeding.
Crossbill		✓							Overwintering on the FC estate feeding on conifer seeds and requiring a nearby source of water.

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Dark green fritillary butterfly	✓	✓	✓	✓		✓			Requires open sunny habitats feeding on dog violets. Associated with chalk scrub and woodland rides and glades on the FC estate.
Dingy skipper butterfly				✓					Internal corridor enhancement and buffering of the woodland edge to promote an ecotonal transition together with a localised enhancement of the chalk scrub and the chalk grassland resource.
Dormouse	✓	✓	✓	✓		✓		✓	Ancient & native woodland restoration likely to enhance habitat through the promotion of a more dense understorey and improved ride edge habitat will facilitate dispersal.
Duke of Burgundy	✓	✓	✓	✓		✓			FC playing a leading role in a landscape scale recovery project at the Denge Woods.
European Hedgehog	✓	✓	✓	✓	✓	✓	✓	✓	The enhancement of structural diversity and a softer transition between habitat types will improve conditions for this species.
Firecrest	✓								Reside in tall, well-vegetated conifers, often Norway spruce, with some deciduous trees along rides. Also breed in semi-natural woodland with a well-developed shrub layer of holly or yew.
Glow worm	✓	✓	✓	✓		✓		✓	Road and ride edges, powerline wayleaves and the woodland edge
Grasshopper warbler	✓	✓	✓	✓		✓		✓	Red listed species requiring scrub, thick grassland and recently established forestry plantation.
Grass snake	✓	✓	✓	✓	✓	✓	✓	✓	Structural enhancements and open space provision will improve conditions for this species. Will also benefit from enhancements to wetland habitats such as a network of ponds.
Grey Partridge	✓	✓	✓	✓		✓			A UK and LBAP priority species of the farmscape which will benefit from beneficial woodland management where this adjoins its foraging areas.
Great crested newt									Likely to benefit from ancient and native woodland restoration and the cyclical management of wet scrub in and around water bodies.
Grizzled skipper	✓	✓	✓	✓		✓			A characteristic spring butterfly of southern chalk downland and other herb-rich grassland habitats. Requires the maintenance of a continual supply of open space with occasional disturbance.
Harvest mouse	✓	✓	✓	✓		✓			A species benefiting from enhanced connectivity of native shrubs and grassland - improvements to the ride network will greatly improved the fortunes of this species in this part of Sussex.
Hawfinch	✓	✓	✓	✓	✓	✓	✓		Associated with mature deciduous forest containing a scrub element.

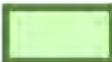
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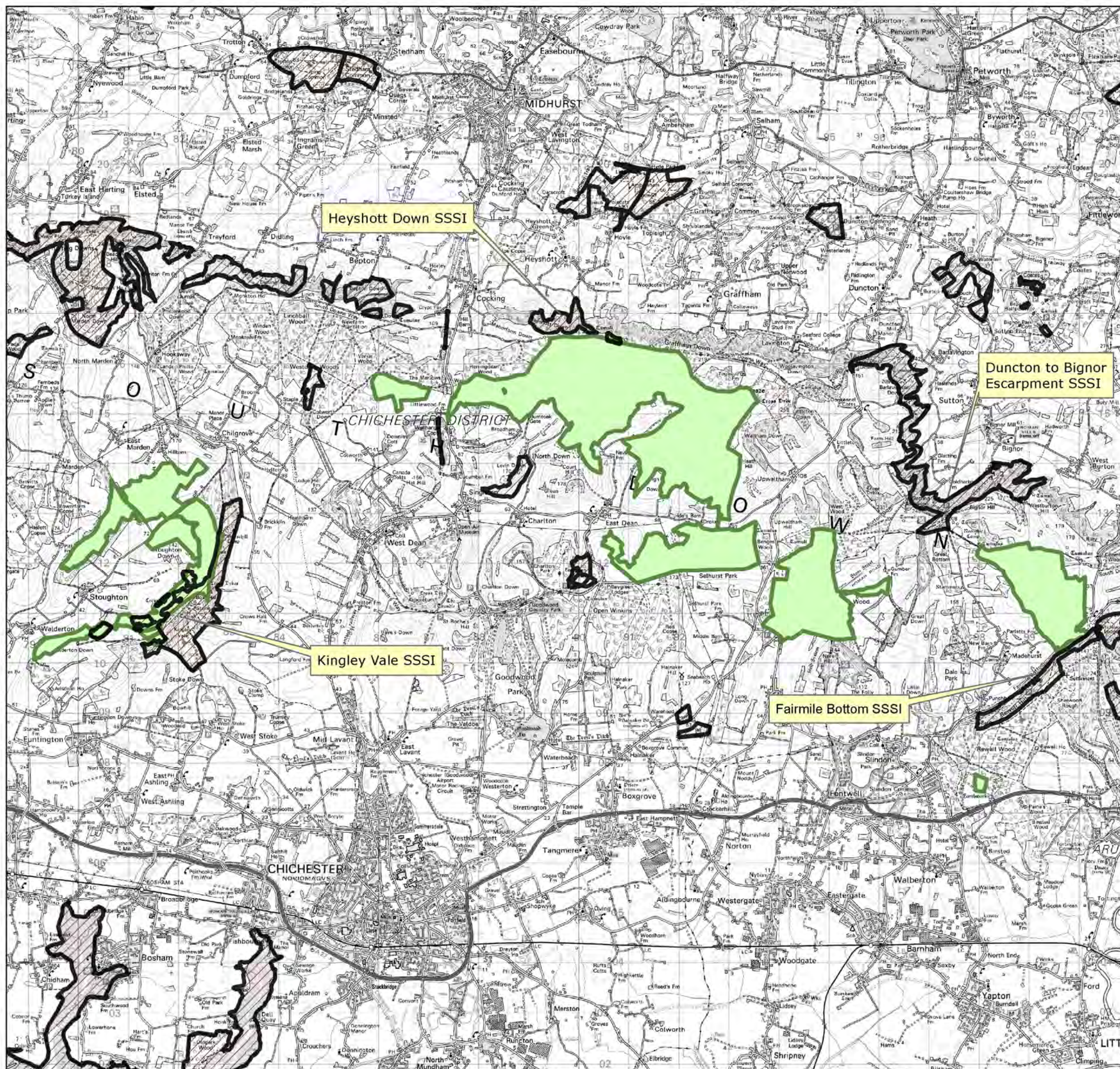
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Lady orchid	✓			✓		✓			South remains the most important centre of the British population. An open woodland and woodland edge species.
Lesser redpoll	✓	✓	✓	✓					Depends on a continual supply of pioneer woodland feeding on birch and alder seeds - a species that is negatively influenced by the creation of permanent open space.
Lesser spotted woodpecker	✓	✓	✓	✓	✓	✓	✓		Increase in abundance of dead and decaying wood component a priority for long term survival. Well developed crowns with a high density of branches are needed for foraging.
Linnet	✓	✓	✓	✓		✓		✓	An edge specialist able to benefit from scrub expansion associated with ancient and native woodland restoration and natural regeneration.
Long-eared owl			✓	✓		✓		✓	Favours smaller woods and thickets; close to open feeding habitats, usually where tawny owls are absent.
Marsh tit	✓	✓	✓	✓	✓	✓	✓	✓	Prefer mature, deciduous woodland where oak or beech is commonest tree species. Use wooded riverside habitat and alder carr. Intensively managed commercial woodland is avoided.
Nightingale	✓	✓	✓	✓		✓		✓	Nightingale will benefit from cyclical open space as provided by ongoing forest management practice.
Nightjar		✓	✓	✓		✓		✓	A UK BAP priority species primarily associated with low-land heathland but cyclical forestry and clearfell will provide useful habitat for this species during PAWS restoration.
Noctule	✓	✓	✓	✓	✓	✓	✓	✓	Largely associated with deciduous woodland.
Pearl-bordered fritillary butterfly			✓	✓		✓			Recent extinction of this species in the past few decades could be reversed as part of a landscape scale reintroduction project. Significant beneficial habitat management underway in and around its former core areas.
Pipistrelle bat	✓	✓	✓	✓	✓	✓	✓	✓	Creation of additional open space will improve foraging habitat and older tree retention will provide an increase in summer roosts.
Red kite				✓	✓				A recovering species in the South East that was once widespread and abundant. Scattered retention of conifer in native woodland restoration zones a priority to facilitate its continued recovery
Redstart	✓	✓	✓	✓	✓	✓	✓		Favour mature broadleaved woodland edges. Conservation of older trees a necessity.
Silver washed fritillary	✓	✓	✓	✓		✓		✓	Breeds in broad-leaved woodland, especially oak woodland or woods with sunny rides and glades. Common dod-violet is the main foodplant.
Slow worm	✓	✓	✓	✓		✓	✓		Structural enhancements and open space provision will improve conditions for this species.

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Sites of Special Scientific Interest

-  FC Management Area
-  Sites of Special Scientific Interest



COUNTY: WEST SUSSEX SITE NAME: KINGLEY VALE

DISTRICT: CHICHESTER

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981. Most of this site is a National Nature Reserve (NNR)

Local Planning Authority: CHICHESTER DISTRICT COUNCIL

National Grid Reference: SU 822107 Area: 209.4 (ha.) 517.4 (ac.)

Ordnance Survey Sheet 1:50,000: 197 1:10,000: SU 81 SW, SU 80 NW

Date Notified (Under 1949 Act): 1952 Date of Last Revision: 1978

Date Notified (Under 1981 Act): 1986 Date of Last Revision:

Other Information:

This site is in 'A Nature Conservation Review'* and lies within the South Downs Area of Outstanding Natural Beauty. The archaeological interest of the site includes Bronze Age and Roman earthworks, including burial mounds, cross dykes, a camp and a field system.

Reasons for Notification:

This site is of interest for its yew woodlands which are considered to be the best in Britain. In yew woodlands elsewhere the stands are either less extensive or mixed in with other taller species. A further important feature of Kingley Vale is the presence of stages in the development from scrub in grassland to mature woodland. In addition to the woodland, four nationally uncommon habitats are represented at the site: chalk grassland, chalk heath, juniper scrub and yew scrub. The site supports a rich community of breeding birds and diverse populations of invertebrates, notably lepidoptera (moths and butterflies).

The site lies on three geological formations: the Upper Chalk of the steep escarpment, the clay-with-flints capping of the plateau above the escarpment and the valley gravel and coombe deposits of the valley floor. This geological variation is reflected in the various habitat types. The yew woodlands at this site are the most extensive in Britain and have developed chiefly on the chalk escarpment. An important feature of the site is the presence of all stages in the development of the chalk flora from grassland via scrub to mature yew woodland. There is also an area of chalk heath which consists of plants more usually found on acidic soils (calcifuges) growing in association with plants which are characteristic of chalk soils. A recently constructed dewpond adds to the diversity of the site. Kingley Vale was declared a National Nature Reserve in 1952 and is important in education, scientific research and environmental monitoring.

A grove of yew in the valley is estimated to be 500 years old, but most of the escarpment yew woodlands are less than 200 years old. Where old yew trees have died the gaps are being colonised by ash *Fraxinus excelsior* and elder *Sambucus nigra*. The dense yew canopy precludes the development of a significant field layer, but open areas support upright brome *Bromus erectus* and wild strawberry *Fragaria vesca*. Woodland on the clay-with-flints of the plateau is variable and of mature woodland of ash with peduncu-

late oak *Quercus robur* or of younger woodland of ash, yew, beech *Fagus sylvatica* and Corsican pine *Pinus nigra*. The valley woodland is of oak, ash and yew. Woodland at Kingley Vale supports a rich community of breeding birds including nightingale, green woodpecker, tawny owl, woodcock and sparrowhawk.

The calcareous scrub of the escarpment is principally of yew, hawthorn *Crataegus monogyna* and dogwood *Cornus sanguinea*. Juniper *Juniperus communis*, a plant which has a restricted distribution in the county, occurs as an important component of the calcareous scrub in parts of the site but suffers from competition with the faster-growing yew. The scrub of the plateau is more mixed and consists of yew, hawthorn, dogwood, elder, whitebeam *Sorbus aria*, wild privet *Ligustrum vulgare* and gorse *Ulex europaeus*. Valley scrub is similar in composition to the plateau scrub and occurs in conjunction with rough grassland of upright brome *Bromus erectus* and cock's-foot *Dacrylis glomerata*.

Areas of chalk grassland at this site are rich in flowering plants and are dominated by sheep's fescue *Festuca ovina*, meadow oat *Avenula pratensis* and salad burnet *Sanguisorba minor*. Among the species which are abundant in the sward are chalk milkwort *Polygala calcarea*, wild thyme *Thymus praecox* and squinancywort *Asperula cynanchica*. Several uncommon plants are present, including autumn gentian *Gentianella amarella*, roundheaded rampion *Phyteuma tenerum*, bee orchid *Ophrys apifera*, autumn lady's tresses *Spiranthes spiralis* and fly orchid *Ophrys insectifera*.

An area of chalk heath on the upper slopes of the coombe is maintained by mowing and grazing, but remnants of this habitat type are also present in the plateau scrub. Calcifuges present include ling *Calluna vulgaris* common violet *Viola riviniana* and bell heather *Erica cinerea* which grow in association with plants which also occur in the adjacent chalk grassland.

Butterfly and moth populations are very rich at this site. A total of 37 butterflies breed, including the chalkhill blue *Lysandra coridon*, purple hairstreak *Quercusia quercus* and the notable Duke of Burgundy fritillary *Hamearis lucina* and purple emperor *Apatura iris*. Six notable moths are present including the forester *Adscita statices*. The nationally rare fly *Doros sonopseus* has been recorded from chalk downland here.

*'A Nature Conservation Review', D A Ratcliffe (1977), Cambridge.

Management Prescriptions:

Priorities for the delivery and maintenance of conservation interest at this site are as follows:

- Thinning of beech woodland to promote the natural regeneration of site native species and provide opportunities for yew woodland expansion
- Retention of veteran trees to benefit woodland birds, bats, lichens, fungi and invertebrates associated with old-growth habitat
- Maintenance of a scattered resource of standing and fallen deadwood
- Promotion of chalk scrub within internal gaps and at the woodland margins to benefit invertebrates, bats, ground flora and woodland birds
- Maintenance and enhancement of the open space to benefit downland species

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6.4 Safeguarding our heritage

There are sixteen Scheduled Monuments in these woods, comprising bowl barrows, cross dykes, a field system and part of Stane Street Roman road in Eartham. Each of these has a management plan agreed with English Heritage.

Conservation of the sites requires no specific woodland design elements, but site specific vegetation control is important to prevent damage and in some cases to expose the sites to view.

There is evidence of extensive heritage remains under the woodland cover on this section of the South Downs. As information emerges, further steps will be taken to integrate these features into forest management assessments to enable their conservation.



Stane street Roman Road in Eartham (FC picture)

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6.5 Review and Analysis

There are six objectives stated in the brief that the plan should address.

- Areas of this woodland complex are PAWS. The plans should maintain and where appropriate enhance the remnant features of interest, with the most shade casting non-native species targeted for management to safeguard native plant species.

The actions for this objective are covered under the Working Woodlands section. The emphasis will be on gradual change, allowing native species time to recolonise the woods whilst maximising the economic return from existing productive stands. A small proportion of conifers will be retained into old age to provide structure and diversity and to support raptor nesting.

- There is one SSSI in this FDP area. Plans should take account of its management requirements.

Kingley Vale is a nationally important site. FC is working closely with NE to maintain this SSSI in favourable condition.

- Open rides and road habitats need to be maintained and where possible expanded to provide a variety of habitats. There are opportunities to target support for the Duke of Burgundy butterfly, a priority species in this area.

Works have already taken place in many of the woods to widen rides and link open space - further work is proposed. Open space creation will aim to encourage a temporary flush of downland vegetation where soils and site conditions are most suitable.

- The limited age range within these woods has a tendency to limit the variety of habitat present. Management should seek to continue to widen the age range found in these blocks to benefit flora and fauna.

Much of this area of the South Downs consists of plantation beech planted over a short period. Active management under the Working Woodlands prescriptions will gradually diversify the age structure. The importance of a diverse woodland to wildlife is shown in the priority species tables.

- There are 16 Scheduled Monuments in this FDP area. Plans should take account of their management requirements.

All the Scheduled Monuments have plans which maintain and enhance them for future generations.

- The South Downs is now a National Park and noted for its high landscape

value. The plan should be sensitive to landscape impact and change.

It is implicit in this plan that change should be gradual and moving towards native species. The use of continuous cover systems will minimise any landscape impact that might arise from tree felling operations.

Climate Change and Disease Resilience

Forestry is in the early stages of developing strategies to help woodlands adapt to a changing climate. The South Downs woods are fortunate in that they will change gradually to native broadleaves and most of these will be managed under a continuous cover system, which is considered to provide a more stable environment for wildlife.

However, we must be alert to the very real threat that climate change can present to these beech woods. Most of the broadleaved species currently identified as resilient are non-native and therefore unsuitable for planting on these ancient woodland sites. The retained conifers will be 'climate proof' and will be accustomed to their sites and therefore more robust in the face of change. The continuing provision of a diverse woodland environment is the best protection for the wide range of species that live in the South Downs woods.

Natural Reserves

In general, the woods of the South Downs deliver more for nature conservation when they remain in active woodland management. The forest cycle creates the greatest diversity of habitat niches to support the widest diversity of nature and over much of the Downs, we are progressing the restoration of ancient woodland. The transformation from plantation to 'natural' woodland in a natural reserve would take many decades and provide limited opportunities for some specialised but rare species, many of which are not mobile. There are significant areas of unmanaged woodland already in this landscape.

There are only two freehold blocks, Marden and Houghton, where a natural reserve could be created. Marden adjoins the Kingley Vale SSSI and NNR which is mostly non-intervention woodland already. Houghton is well used by the public who enter from an adjoining and very popular car park and café. There are no areas there considered suitable for natural reserve status.

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6.6 Land and Natural Environment Objectives

Forest Design Plan Objectives	Forest Design Plan Outputs At Year 10 (2018)	Monitoring
Land and Natural Environment	Restoration of AW is continuing and progress has been in line with the plan proposals.	Sub-compartment database records. Aerial photographs.
	Thinning and felling has taken place as planned to provide habitat change and diversity for a range of species.	Sub-compartment database records. Aerial photos. Appropriate species monitoring.
	The ride network has been maintained and improved and has features which can support the key species.	Sub-compartment database records. Aerial photos. Appropriate species monitoring.
	Records of cultural/archaeological interest within the woodland have been improved. The existing cultural/archaeological interest has been protected and conserved.	Operational site assessments have taken account of woodland archaeology and sought expert advice from English Heritage and the County Archaeologist where appropriate.



View south from Selhurst car park
(FC photo)