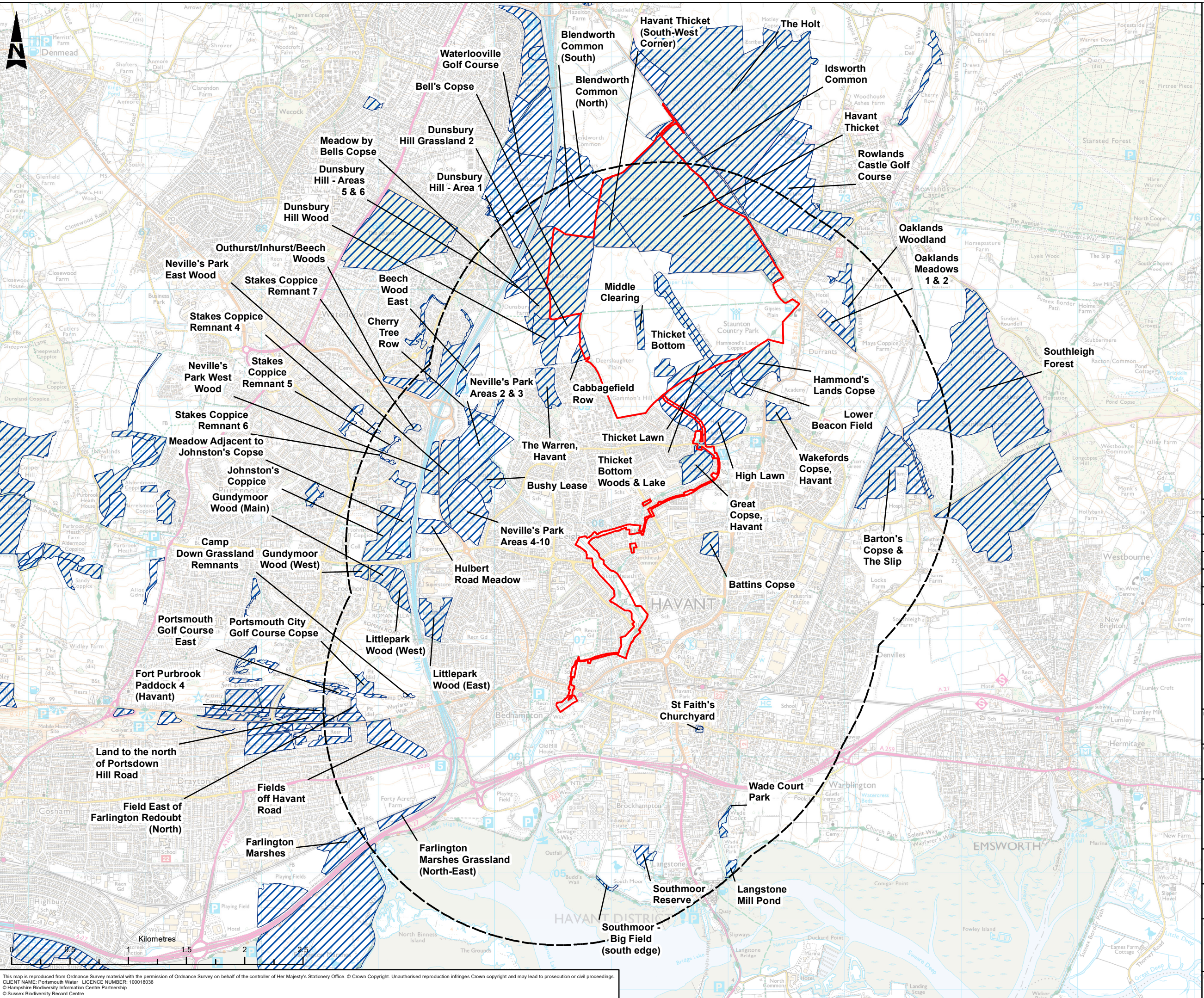


Appendix A9.1.A

Statutory Designated Sites

Appendix A9.1.B Non-Statutory Designated Sites within 2 km of the Site



- Red Line Boundary
- 2km Study Area
- Site of Importance for Nature Conservation (SINC)

C01	FD	KT	CW	LB	PUBLISHED		19/09/2020
Rev	Dn By	Old By	Rev By	Auth By	Description		Date

Member of the SNC-Lavalin Group

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Drawing Suitability	Status
PUBLISHED	A1

Contractors Drawing Number:
HTR - ATK - ZZ - ZZ - GS - Z - 0084
Project | Originator | Volume | Location | Type | Role | Number

Telephone: Havant (023) 9249 9888
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Website: www.portsmouthwater.co.uk
Registered Office: PO Box 8 West Street
Havant Hampshire PO9 1LG
REGISTERED IN ENGLAND No. 2536455

Project Ref. No	Sheet	Scale	Sheet Size
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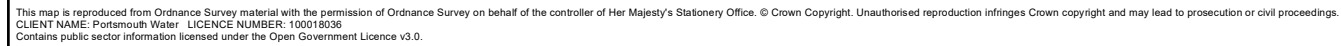
Project Title
HAVANT THICKET RESERVOIR

Drawing Title
**NON-STATUTORY DESIGNATIONS
WITHIN 2KM OF THE PIPELINE**

Portsmouth Water Drawing Number	Rev
	C01

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Appendix A9.1.C Irreplaceable Habitats within 2 km of the Scheme



- | | | | | | | |
|------|-----------|-----------|-----------|------------|-------------|------------|
| C01 | FD | KT | CW | LB | PUBLISHED | 19/08/2020 |
| Rev. | Drn
By | Ckd
By | Rev
By | Auth
By | Description | Date |

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Contractors Drawing Number:

HTR - ATK - ZZ - ZZ - GS - Z - 0036

Project	Originator	Volume	Location	Type	Role	Number
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Project Title

HAVANT THICKET RESERVOIR

Portsmouth Water Drawing Number	Rev C01
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Appendix A9.1.D Ancient Woodland Report

**Review of six plots of woodland in and adjacent to the
Proposed Havant Thicket Reservoir Site, Hampshire for
their ancient woodland status; the significance and value
of their lichen flora and vegetation; the presence of
veteran trees and the condition of the woodlands.**

Authors: Cross, AM BSc (Hons) MSc MCIEEM and Sanderson, NA BSc (Hons) MSc

Version 5.0

June 2020

FINAL REPORT

Review of six plots of woodland in and adjacent to the Proposed Havant Thicket Reservoir Site, Hampshire for their ancient woodland status; the significance and value of their lichen flora and vegetation; the presence of veteran trees and the condition of the woodlands.

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Executive Summary

Portsmouth Water Ltd commissioned a review of six plots of woodland in and adjacent to the Proposed Havant Thicket Reservoir Site, Hampshire for their ancient woodland status and condition and fieldwork to identify the significance and value of the lichen flora and vegetation of those six woods as well as the presence of veteran trees.

1. The Avenue: this is a relic of an ancient pasture woodland habitat and has good surviving elements of that habitat. The lichen flora includes relicts of the pasture woodland habitat and is only one of four such areas that survive from the Forest of Bere and attached commons. Eighteen veteran trees were recorded from this wood. Its condition is unfavourable and declining. **The woodland is a species rich ancient woodland relic with some features of interest inherited from previous pasture woodland ecosystem still present.**

2. Middle Clearing: originally part of the ancient pasture woodland complex, this has had a history of clearance, replanting and - in more recent times – was part of a modern grazing system. There is no significant lichen interest here and no veteran trees. **The woodland present today is certainly not ancient pasture woodland, and little survives to justify an ancient woodland status.**

3. Round Wood: originally part of the ancient pasture woodland complex, this has had a history of clearance, replanting and - in more recent times – was part of a modern grazing system. There is no significant lichen interest here and no veteran trees. **The woodland present today is certainly not ancient pasture woodland. So little survives of the biological heritage of this plot, it is difficult to describe it as ancient woodland.**

4. The Corsican Pine Plantation: originally part of the ancient pasture woodland complex, this has had a history of clearance and replanting. Unlike Middle Clearing and Round Copse, this area was never subject to intensive grazing. There is no lichen interest here and no veteran trees. Whilst there is very little surviving from the ancient pasture woodland, the natural regeneration under the Pine is scrub vegetation and flora characteristic of the soils of this area. **The stand can be considered a Plantation on an Ancient Woodland Site (PAWS).**

5. Blendworth Fragment the origins of this small area of woodland are difficult to trace but some map evidence and the tithe apportionments indicate that this area –in a separate parish from Havant Thicket – was not wooded in the first part of the 1800's though it was planted by 1870 and has remained woodland since then. There is no lichen interest and no veteran trees identified though the boundary banks do have old, 'character trees'. There are some yews present and these are impossible to date. The condition of the woodland is unfavourable and probably declining. **The Blendworth fragment is probably not ancient woodland.**

6. Bell's Copse fragment: this area was badly damaged when cleared in the 1970s. Since then, however, the plot is regenerating naturally albeit checked now and then by burning. The condition – as an ancient coppice woodland – is unfavourable and maintained. There is no lichen interest here and no veteran trees. **The Bell's Copse fragment is part of the ancient Bell's Copse and is still ancient woodland albeit in very poor condition and with no old features seen.**

1 Introduction

Commission

- 1.1 Portsmouth Water Ltd commissioned a review of six parcels of woodland in the area in and around 'Havant Thicket Reservoir Site', Hampshire with the objectives of the work being to:

- Research and comment on their status as 'ancient woodland';
- Survey and assess the woodland lichen flora with comments on its conservation significance;
- Identify veteran trees; and
- Assess the condition of the woodland plots.

- 1.2 Fig 1.1 shows the location of the six woodland plots covered in this report. Four are named and two are not. For this report, the unnamed thin strip in the northern area is called 'Blendworth fragment' and the plot at the top of Bell's Copse is called 'Bell's Copse fragment'. The area of the Corsican Pine Plantation is also called 'The Triangle' in the report text.

- 1.3 The full report on the lichens is provided as Appendix 1 with extracts/summaries given in this main report.

Version 5.0 of this Report

- 1.4 Version 5 of the report was updated on 26 June 2020. The changes to this report in comparison to the previous issued Version are:
- 1.5 Paragraph 4.5 and Fig 4.1 below Paragraph 4.5. The number of veteran trees given in Version 4.0 stated that there were 19 veteran trees in The Avenue. This is incorrect. The number of veteran trees is 18 (which correlates with the GIS database and the Lichen Report of Appendix 1) and this has been corrected in the text. The Fig 4.1 referred to in Para 4.5 has been changed to Fig 4.2 as there is an earlier Fig 4.1 in the report.
- 1.6 'Para 1. The Avenue' in the Executive summary has been amended and now includes the identification of 'eighteen' veteran trees in The Avenue.

Background Reports

- 1.7 The proposed reservoir site has been studied over a number of years. The following reports from previous studies have been reviewed for this 2019 report:
- Sanderson, NA. 1994. Havant Thicket. Proposed Reservoir Site – Nature Conservation Value. For Hampshire Wildlife Trust;
 - Viney, T. 2012. Havant Thicket Winter Storage Reservoir Site: Site History Information;
 - ECOSA, 2012. Havant Thicket Winter Storage Reservoir. Ecology Report. Chapter B - Vegetation (Final Document, August 2012); and
 - Norton/ECOSA. 2019. Havant Thicket Winter Storage Reservoir, Rowlands Castle, Hampshire. Ecological Impact Assessment Report. Chapter C Vegetation Assessment. 3rd Draft. [Part of ECOSA Studies of Havant Thicket Winter Storage Reservoir Site].
- 1.8 The Sanderson report from 1994 is provided as Appendix 3. Note that since the 1994 report there have been changes in/evolution of, amongst others, the interpretation of the landscape, survey methods and guidance.

Site Location and Description

- 1.9 The area of study lies east of Waterlooville and west of Rowlands Castle, Hampshire. Upper Lake, approximately in the centre north (see Fig1.1 below) of the Havant Thicket Proposed Reservoir Site, is at grid reference SU714100.
- 1.10 Fig 1.2 shows the topography of the landscape and the location of the six woodland plots. Four plots, The Avenue, Middle Clearing, Round Wood and The Corsican Pine *Pinus nigra* plantation lie in a shallow 'valley' with several small watercourses gathering into a main stream that drains approximately southwards out of the site east of the base of Gammon's Hill. The western edge of this valley is defined by a ridge of c. 42m to 47m asl running approximately north-south from Gammon's Hill towards Bell's Copse and beyond. The Blendworth fragment and the Bell's Copse fragment are in a different catchment lying to the west of this ridge.

Fig 1.1: The location of the woodland plots are marked with red hatching. [Source Portsmouth Water Ltd]

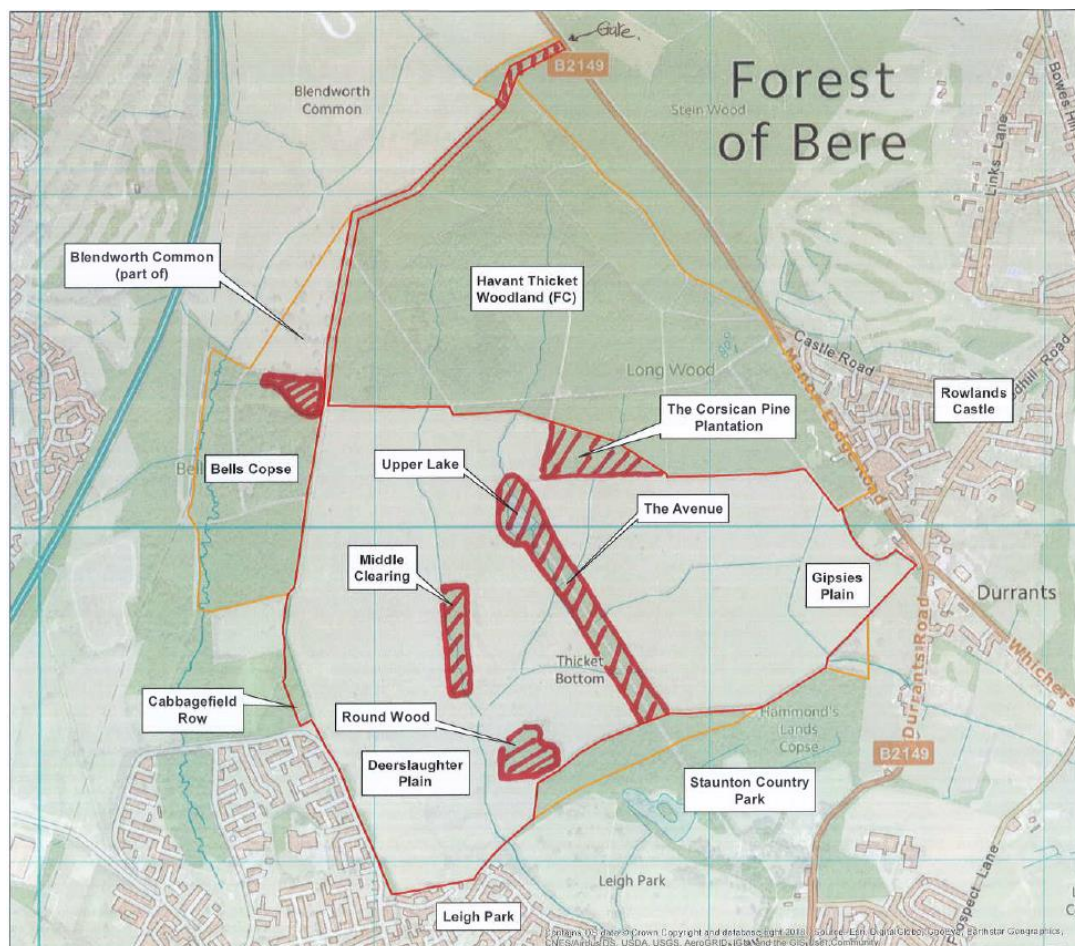
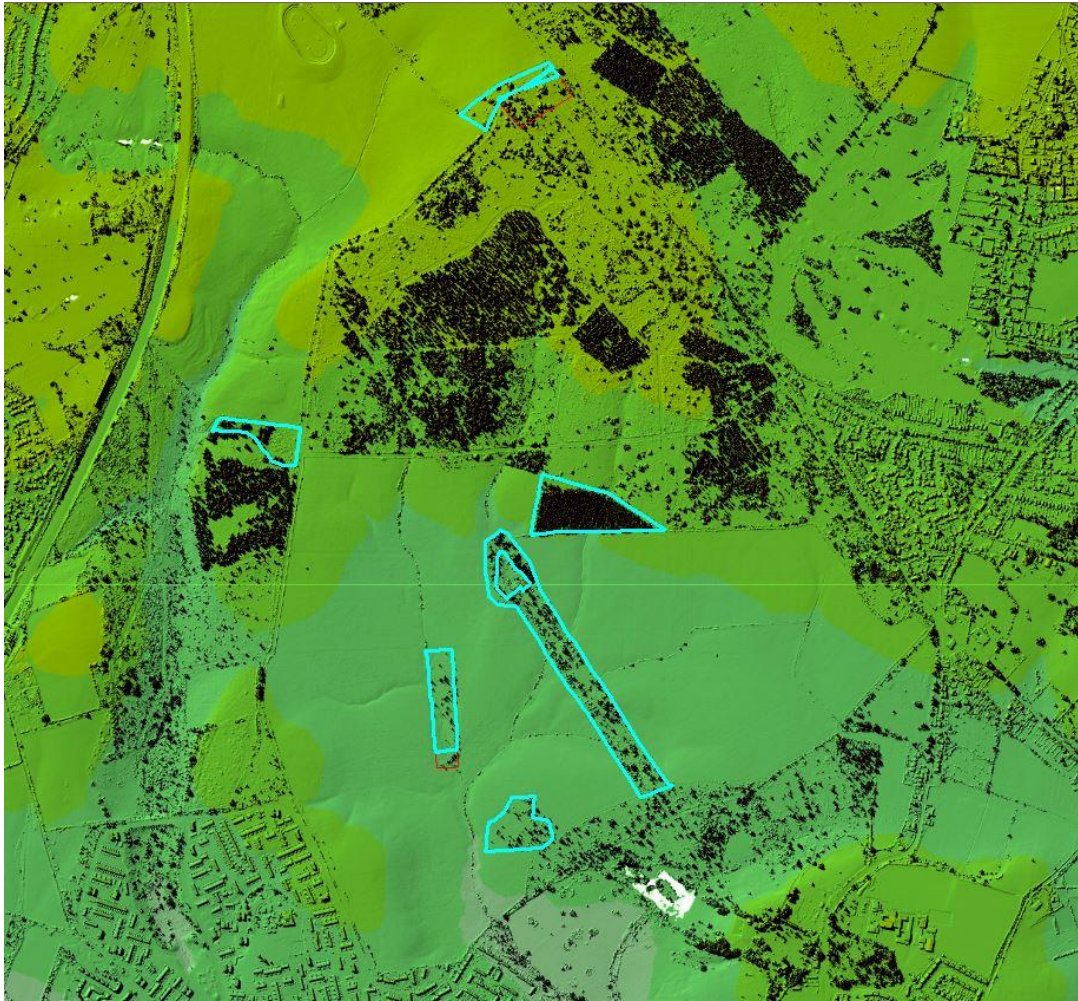


Fig 1.2: LIDAR image (Composite 2m DSM date unknown) showing tree canopy and topography of landscape with the six woodland plots outlined in blue. [Source: Environment Agency/OGL]



1.11 The Site is in the Hampshire Basin and the geological deposits – bedrock and superfcials - underlying this area has been mapped (at 1:50,000) by the British Geology Survey (BGS). The bedrock geology under the six woodland plots is:

- The Avenue: southern area is on London Clay (clay silt and sand); the northern area on the overlying London Clay (sand) the Lambeth group (clay silt and sand);
- Middle Clearing and Round Wood are both on London Clay (clay silt and sand);
- The Corsican Pine Plantation is on London Clay (sand);
- Bell's Copse fragment is on London Clay (clay silt and sand) though the western end is on London Clay (sand); and
- Blendworth Fragment is on Lambeth Group (clay silt and sand).

1.12 The BGS map shows that the bedrock geology in lower lying areas including the central area of The Avenue, Middle Clearing and Round Wood overlain with 'Head' deposits.

Overview of Landscape History

1.13 The six woodland plots shown on Figs 1.1 and 1.2 lie in three historic parishes:

- Havant Parish: The Avenue, Round Wood; Middle Clearing and Corsican Pine Plantation (The Triangle);
- Blendworth Parish: Blendworth fragment; and
- Bedhampton Parish: Bell's Copse fragment.

1.14 Historic parishes are particularly important in studies of ancient woodland as each parish will have had its own unique history with respect to land management and use, especially common lands and the rights associated with them (for example grazing, timber, pannage etc.).

Havant Parish

1.15 The areas that are now The Avenue, Middle Clearing, Round Wood, and The Corsican Pine Plantation (the Triangle) are all located in what was, before their enclosure, a pasture woodland complex on part of the common land or wastes of Havant parish. Certain people would have had the rights to resources on the common including grazing, timber, pannage and so on. Since late medieval times the Bishops of Winchester had the right to hunt on all or part of this area of common land and the area they had the rights to hunt in was called Havant Chase. Whilst the Bishops controlled the rights to hunt, the common rights were still exercised. Various places within the Common had local names and these can be seen on the County (1st edition) of the 25/6 inches to the mile OS map. Some are still in use today though not necessarily covering the same areas as the historic name did, for example Havant Thicket; others, for example, Loscott Plain and Burnholme Plain, have gone as names and places.

1.16 These common lands/wastes of Havant parish were enclosed in 1868 (Kain et al. 2004) and all common rights were extinguished. Following enclosure, land management was under the control of a single entity and they began substantial changes of land use very soon after.

Blendworth Parish

1.17 The Blendworth fragment is on the southern edge of the historic parish of Blendworth where it is adjacent to the boundary of the historic parishes of Havant and Idsworth. The Blendworth fragment was part of the much more extensive Blendworth Common.

- 1.18 The adjacent areas of Havant and Idsworth parishes to the south were also common land (until each was enclosed). Before enclosure, there would have been no physical boundary between the three allowing commoner's livestock (from any of the interconnected parishes) as well as wild animals (for example deer) relatively free movement between the areas. The commons of Blendworth (and Idsworth) were enclosed in c.1816 (Kain et al. 2004). Parish boundary banks were then built between Blendworth and Havant (and Idsworth - Havant) after enclosure and these are still present today. No boundary bank was built between Blendworth and Idsworth, the boundary marked instead by a line of posts.

Bedhampton Parish

- 1.19 The Bell's Copse fragment has a very different history to the woodland plots in the two parishes listed above. The main difference is that in rather than being common land and grazed pasture woodlands and rough grazing, the Bell's Copse fragment was part of an anciently enclosed landscape that has been managed since before the 1600s, as far as can be interpreted on the evidence used in this report, as a coppice woodland. A coppice woodland is a different ecosystem to a pasture woodland (see for example, Harding and Rose, 1993). The management by cutting poles/wood from coppice stools would produce phases of light and shade based on the coppice cycle practiced at the time (Rackham, 2003 and 2006). Grazing, if it occurred, played a lesser role in a coppice woodland in comparison to a pasture woodland. The habitat and conditions resulting from the coppicing provide conditions for certain ground flora and associated species that may not be present – or so prominent – in grazed pasture woodlands.
- 1.20 Bell's Copse was until the clearances of the 1970's a much larger woodland than is present today. Those clearances made the Bell's Copse fragment the northern edge of the modern Copse though for almost all of its life, the fragment lay well within the woodland. The original Copse was rich in ancient woodland vascular plant species (Sanderson, 1994) and many appear to still be present today (though we have no data specific to the area of the fragment).

Summary

- 1.21 Each of these three parishes have very different histories and management; Bell's Copse has been a coppice woodland for centuries whilst the Havant and Blendworth lands to its east were grazed as part of a common land and hunting land complex. The common rights on Blendworth ended in c. 1816 and those of Havant in 1868. Commoning rights on Havant and Blendworth commons would have been different from each other. The Bishops of Winchester had the right to hunt on Havant but not on Blendworth. Bell's Copse may have been part of a medieval park and this would have been managed completely differently to the common land. Bell's Copse itself - being a coppice - would have been managed in a distinctive manner (for example coppicing/felling of standards/grazing tightly controlled and tied into the coppicing cycle). The six plots investigated for this report are modified descendants of these three parish historical landscapes.

Status on Natural England's Inventory of Ancient Woodland (provisional)

- 1.22 The original survey and mapping of known and likely/potential ancient woodland sites was carried out on a county basis and published, generally, as a County 'Inventory of Ancient Woodland (provisional)'. For Hampshire, the first mapping (1988) was done in partnership between the ecology team of the Hampshire County Council (HCC) and the Nature Conservancy Council. This original provisional inventory was revised in 1995, again with HCC but this time in partnership with English Nature (HCC, 1995).
- 1.23 Each county produced its own inventory of ancient woodland (provisional) and these were written up as paper reports with maps showing woodland sites (e.g. for Hampshire see HCC, 1995). The maps from these reports were later digitised to form part of an amalgamated nationwide electronic provisional ancient woodland inventory available to view on the government's MAGIC (Multi-Agency Geographic Information of the Countryside) website. Since digitisation (likely with some amendments/errors at the time of digitisation) of the original county provisional inventory maps (HCC, 1995), there are ongoing, ad hoc revisions to the inventory to give the national map displayed on MAGIC.
- 1.24 There is significant difference between the original and latest versions of the provisional inventory for the six woodland plots covered in this report. Figs 1.3a and b show the original (1995) and latest (2019) versions respectively of the inventory. Table 1.1 below lists the status on the original and latest inventory for each of the six plots.

Table 1.1: Status of the six woodland plots on the original and latest revision of the inventory of ancient woodland (provisional and subsequent revisions).

Woodland Plot	Category on Inventory of Ancient Woodland	
	1995	2019
The Avenue	Ancient Semi-Natural Woodland	Ancient & Semi-Natural Woodland
Corsican Pine Plantation (The Triangle)	Ancient Replanted Woodland	Ancient Replanted Woodland
Round Wood	Ancient Replanted Woodland	Ancient & Semi-Natural Woodland
Middle Clearing	Unclear: could be either Ancient Semi-Natural Woodland or Not on Inventory	Ancient & Semi-Natural Woodland
Bell's Copse	Woodland cleared since the production of the First Series OS 1:25000 maps c.1920	Ancient Replanted Woodland
Blendworth Fragment	Not on Inventory	Ancient & Semi-Natural Woodland

Source: 1995 is HCC, 1995 and 2019 is MAGIC at gov.uk accessed November 2019.

Fig 1.3a: 1995 ancient woodland inventory (provisional) (from HCC, 1995). White within back line: ancient semi-natural woodland; hatching: ancient replanted woodland and cross-hatching: woodland cleared since 1920.

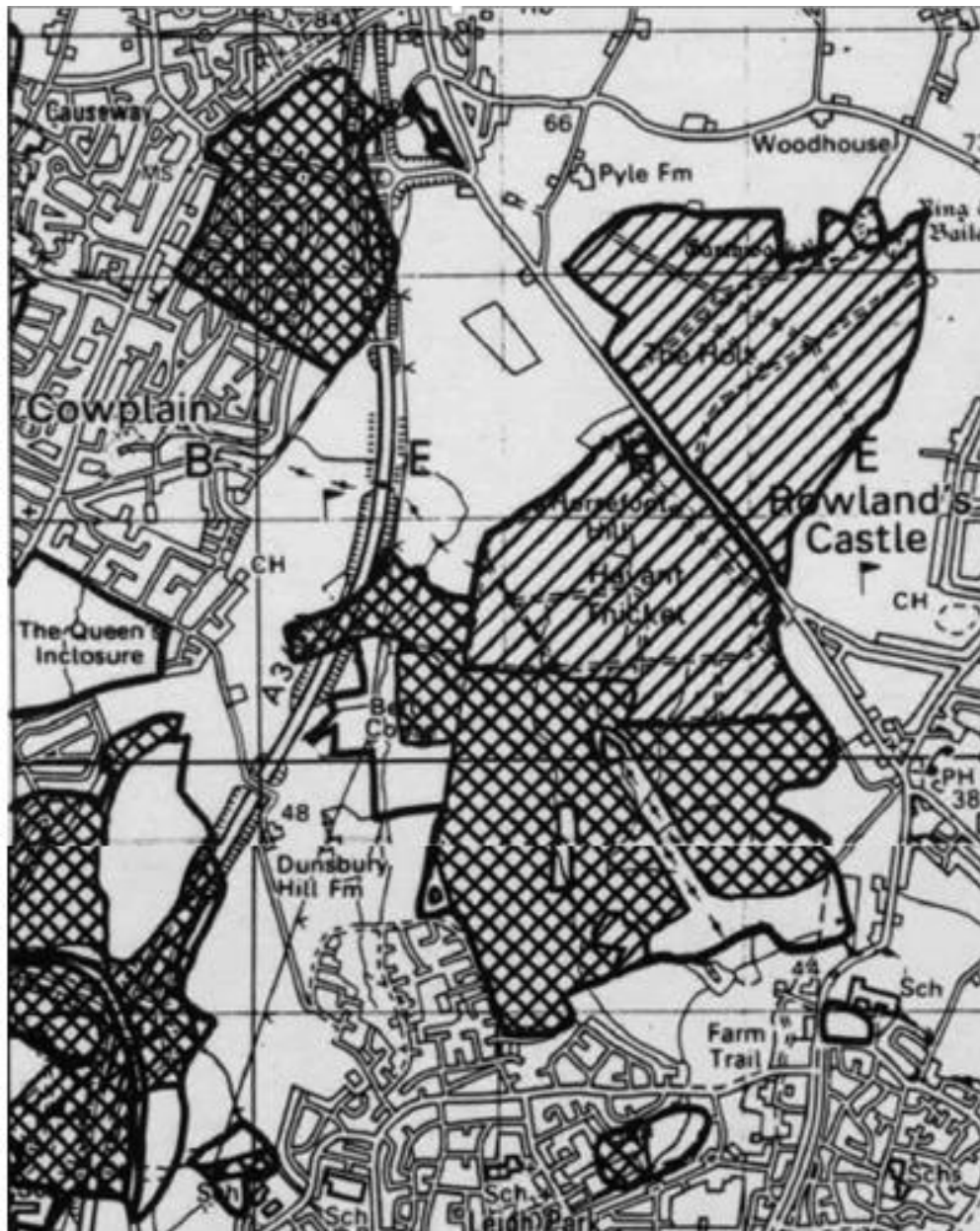
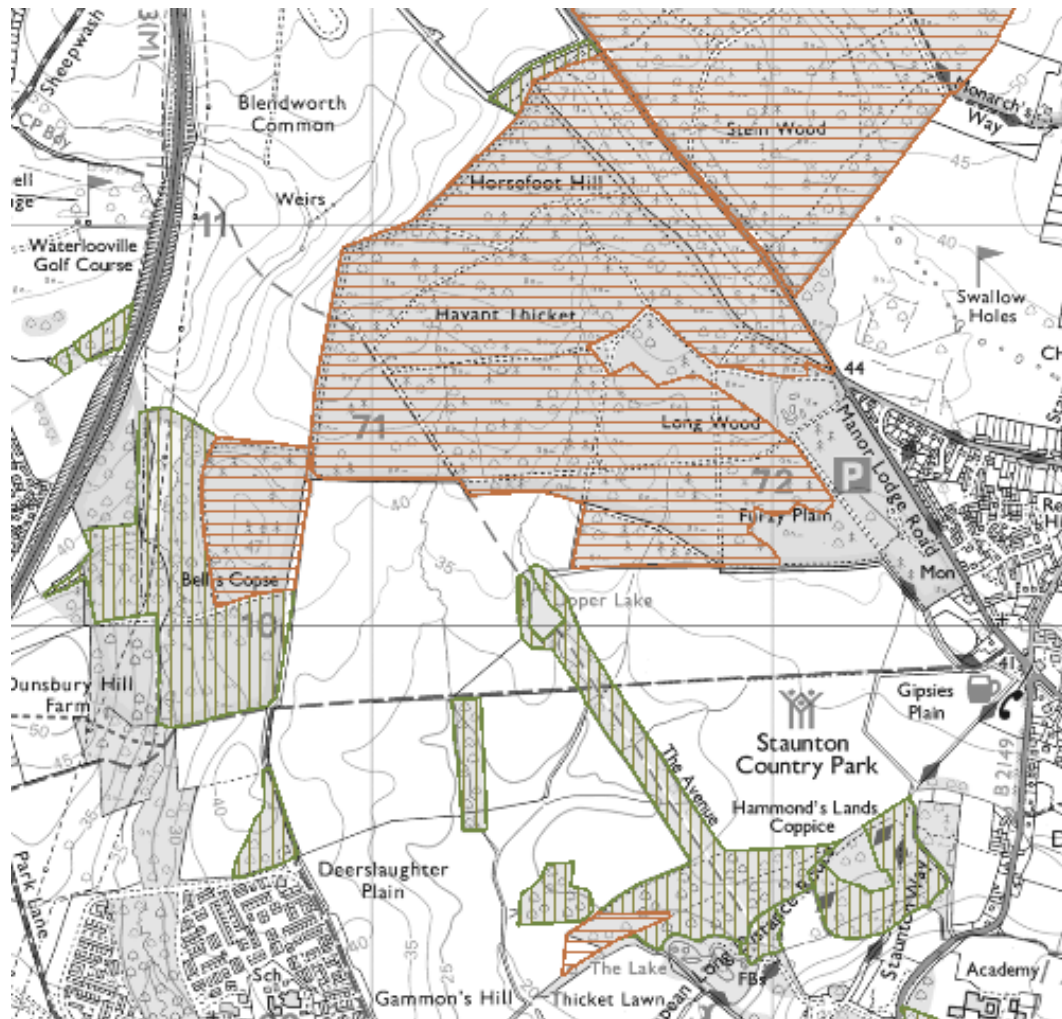


Fig 1.3b: ancient woodland inventory (revised provisional) for area covered in this report. Horizontal brown are Ancient Replanted Woodland (ARP) and vertical green is ancient and semi-natural woodland (ASNW). Accessed November 2019.



2 Methods

Introduction

2.1 This Methods section is sub-divided into the following:

- Reviewing Ancient Woodland Status;
- Lichen Survey and Assessment;
- Veteran Tree Definition; and
- Condition Assessment of Woodland Plots.

Reviewing Ancient Woodland Status

2.2 The review of the ancient woodland status makes reference to the following:

- Definition of Ancient and Recent Woodland;
- Criteria for the identification of provisional ancient woodland sites;
- Historic documents (primarily maps); and
- Results of Botanical Surveys (ECOSA, 2012 and 2019).

Definition of Ancient and Recent Woodland for the Inventory of Ancient Woodland

2.3 The concept of ancient/recent woodland and the Inventory of Ancient Woodland emerged in the late 1970s through work by, amongst others, Rackham and Peterken (Barnes and Williamson, 2015). George Peterken, in his Woodland Conservation and Management (1981 and 1993), summarised the concept of ancient/recent woodland - for practical purposes - as follows:

“Primary woodland is a useful hypothetical concept, not an identifiable state, so it is desirable to employ an alternative concept for practical purposes. A distinction is therefore drawn between ‘Ancient’ and ‘Recent’ woodland, defined according to their origins before and after a threshold date, respectively. The most convenient date for this threshold is about the year 1600 ..., because maps first become available and plantation forestry becomes important from about that time.”

2.4 Peterken’s description was the base for definitions and forms of ancient woodland that were given in the first provisional Inventories of Ancient Woodland reports (e.g. HCC, 1995 for Hampshire). Subsequent ad hoc revisions to the Inventory that have been published have provided revised descriptions of the definition of ancient/recent woodland and their various forms.

2.5 Natural England’s guidance definitions of ancient/recent woodland with respect to the Ancient Woodland inventory is given in its ‘*A Handbook for updating the Ancient Woodland Inventory for England*’ (Sansum and Bannister, 2018). The Handbook uses a 2014 definition of ancient/recent woodland that is from Natural England’s guidance on ‘*Ancient woodland, ancient trees and veteran trees: protecting them from development*’. The latest iteration of the Natural England guidance – 2018 – is given below as its current position on ancient woodland:

“Ancient woodland

Ancient woodland takes hundreds of years to establish and is defined as an irreplaceable habitat. It’s important for its:

- *wildlife (which include rare and threatened species)*
- *soils*
- *recreational value*
- *cultural, historical and landscape value*

It's any area that's been wooded continuously since at least 1600 AD. It includes:

- *ancient semi-natural woodland mainly made up of trees and shrubs native to the site, usually arising from natural regeneration*
- *plantations on ancient woodland sites - replanted with conifer or broadleaved trees that retain ancient woodland features, such as undisturbed soil, ground flora and fungi*

They have equal protection in the National Planning Policy Framework (NPPF).

Other distinct forms of ancient woodland are:

- *wood pastures identified as ancient*
- *historic parkland, which is protected as a heritage asset in the NPPF*

Many of these do not appear on the Ancient Woodland Inventory because their low tree density did not register as woodland on historic maps.

You should give consideration to wood pasture identified as ancient in planning decisions in the same way as other ancient woodland.

'Wooded continuously' does not mean there's been a continuous tree cover across the whole site. Not all trees in the woodland have to be old. Open space, both temporary and permanent, is an important component of ancient woodlands.'

- 2.6 The Natural England statement above needs some clarification in that it does not mention coppice woodlands. In brief, there are three basic 'forms' of ancient woodland: coppice woodland; pasture woodland (some of which is also called wood pasture) and parkland (where the parkland, or areas of the parkland, have a sufficiently high tree density). Note that all these forms can also be recent woodland.
- 2.7 As stated above, woodland may have come down to us from 1600 more or less intact –if so they are labelled as ancient semi-natural woodland (ASNW). If an original 1600 woodland has since been cleared and re-stocked with conifer or broad-leaved trees, the site could be considered as a plantation on an ancient woodland site (PAWS).
- 2.8 Both categories - ASNW and PAWS - are mapped on the ancient woodland inventory though note that PAWS are, on the inventory, labelled/called 'Ancient Replanted Woodland' (ARP). The inventory is available for public view on the government's MAGIC website.
- 2.9 Note that this simple two way division – ASNW and PAWS/ARP – is not clear cut: not all plantations on cleared sites are recorded as PAWS. Cleared sites that are planted with 'native' species –even if not of local provenance – are recorded and mapped as 'ancient semi-natural woodland'.
- 2.10 The ancient woodland inventory has always been, and remains, 'provisional'.

Criteria for identifying ancient woodland

- 2.11 Each of the six plots in this report have been reviewed against these Natural England criteria:

It's any area that's been wooded continuously since at least 1600 AD. It includes:

- *ancient semi-natural woodland mainly made up of trees and shrubs native to the site, usually arising from natural regeneration*
- *plantations on ancient woodland sites - replanted with conifer or broadleaved trees that retain ancient woodland features, such as undisturbed soil, ground flora and fungi "*

When does an ancient woodland cease to be an ancient woodland?

- 3.1 Many ancient woodlands have been affected by clearance for various purposes, including agriculture and conversion to plantations. With regard to the latter, the consequences for the ancient woodland ecosystem can range from negligible to severe (e.g. Rackham, 2006); some lead to the destruction of the ancient woodland and others don't. Whilst there are criteria for identifying ancient woodland, there are no objective or specific criteria to assess when an ancient woodland that has been cleared and replanted ceases to be an ancient woodland.

Historic Documents

- 2.12 The following are the main historic documents examined for woodland history:

- Map of Hampshire (Faden/Milne) 1791;
- Ordnance Survey Drawings 1806;
- 1st edition 1 inch to the mile OS 10 April 1810;
- Greenwoods Map of the County of Southampton 1826;
- Tithe maps c. 1840;
- 25/6 inches to the mile OS maps from the County Series (from the 1st edition surveyed in the 1860s to the final revisions in the 1930s;
- Land Utilisation Survey 1937; and
- Aerial imagery (for some of the plots 1946; 1954; 1960 and 1981).

Botanical Information

- 2.13 Botanical information used in the review is taken from the botany vegetation reports compiled by ECOSA as part of their studies into the proposed Havant Thicket Reservoir Site (ECOSA, 2012 and Norton/ECOSA, 2019). All six sites were visited by Sanderson and Cross in November 2019.

Lichen Survey and Assessment

- 2.14 The six woodland plots were scoped by the authors of this report for habitat that could support lichen species and communities of conservation interest. Areas with potential for these two lichen features were then surveyed in more detail searching for trees with lichens, targeting species of conservation interest, defined here as:

- species of national and local importance (RDB); and
- habitat quality indicators (in this location these are species listed on the Southern Oceanic Woodland Index [SOWI] – see SSSI Guidelines (Sanderson et al., 2018).

- 2.15 The lichen communities of conservation interest were identified in the field based on the surveyor's experience. Further details on the lichen survey and assessment methods are given in the Lichen Report in Appendix 1.

Veteran Trees: Definition and Survey

Introduction

- 2.16 An unexpected discovery during the 2019 lichen survey of the Avenue was finding Oaks *Quercus robur* older than the enclosure (c.1870) of Havant, i.e. pre-enclosure Oaks dating from the unenclosed pasture woodland. Until now, it was believed that all the Oaks in the Avenue post-dated the enclosure and that the oldest Oaks were those planted following enclosure.
- 2.17 The pre-enclosure Oaks are, in this report, considered to be ‘veteran’ trees and the rationale for this is set out below.

Definition of Veteran Trees as Recorded for this Survey

- 2.18 The definition and interpretation of ‘veteran’ trees for this report is based on surveyor experience and draws from the following documents:
- Rackham’s Trees and woodland in the British Landscape (1990);
 - Harding & Alexander (1993);
 - Law of Forests, Trees and Hedges (Mynors, 2011);
 - Lonsdale (2013); and
 - Natural England’s Guidance on Ancient Woodland (2018 revision).
- 2.19 Natural England has guidance on the protection of veteran tree (Guidance: Ancient woodland, ancient trees and veteran trees: protecting them from development at gov.uk, 5 November 2018) in the context of development and that guidance includes the following definition of veteran trees:

“Ancient and veteran trees

Ancient and veteran trees can be individual trees or groups of trees within wood pastures, historic parkland, hedgerows, orchards, parks or other areas. They are often found outside ancient woodlands. They are irreplaceable habitats with some or all of the following characteristics.

Ancient trees

An ancient tree is exceptionally valuable. Attributes can include its:

- *great age*
- *size*
- *condition*
- *biodiversity value as a result of significant wood decay and the habitat created from the ageing process*
- *cultural and heritage value*

Very few trees of any species become ancient.

Veteran trees

All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value.”

- 2.20 The veteran tree definition above means that veteran trees include ancient trees and some other younger trees – ‘*not all veteran trees are ancient*’ (see quote above); those veteran trees that are not ancient are younger trees with decay features. These younger veteran trees are called, in this report, ‘post-mature’ trees. The ‘flow-diagram’ below sets out our interpretation of veteran trees.



- 2.21 This characterisation is also covered in the lichen report in Appendix 1. It is based on ideas in Harding and Alexander (1993) and is also followed in Mynors in his ‘The Law of Trees, Forests and Hedges (Mynors, 2011, 2nd edition).
- 2.22 To expand a little on the above, we consider, broadly, that the mature phase corresponds to having economic value (as timber) and that the post-mature phase corresponds with the decline in its economic value as indicated by decay, damage, exploitation by birds, invertebrates etc. This process and the associated stages are described by Oliver Rackham in his *Trees and Woodlands in the British Landscape*’ (Rackham, 1990, revised edition) under his section on ‘The Longevity of Trees’:
- “Middle-aged and old trees are poorly understood. Foresters are concerned with trees in the first quarter, at most, of their life-span. Middle-aged trees are more difficult to understand - human life isn’t long enough – and have no commercial interest. The grower of an oak for timber will think about felling it as ‘mature’ at 100 years; after 150 years it becomes a store of capital increasingly at risk from decay; if still standing at 200 years it may be cut down on the plea that it is ‘dangerous’; but if left alone it may live to the age of 400 or much more.”*
- 2.23 The actual age that a tree goes through each stage, and for how long it persists in it, will vary according to, amongst others, location, genetics, species, changes in the abundance and composition of local animal populations etc. Given that this is a process, there can be no specific or precise ages, sizes or amount of decay/damage, etc. that can be used to define exactly when a tree becomes a veteran tree (which applies equally to when a post-mature tree becomes ancient).
- 2.24 Peterken and Rose (1993) set out some of the features associated with old trees in pasture woodland landscapes and research, surveying and interpreting this habitat is ongoing.

Veteran Trees and the NPPF

- 2.25 National Planning and Policy Framework (NPPF, 19 Feb 2019) follows the NE Guidance in part but defines a veteran tree the same as an ancient tree:

Ancient or veteran tree: *A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.*

Irreplaceable habitat: *Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.*

[Source NPPF 2019 pps 64 and 67 respectively]

Recording Pre-enclosure Oaks in the Avenue

- 2.26 Pre-enclosure Oaks in the Avenue were identified according to surveyor experience and the tree size (trees with a girth above 2.5m were considered) and architecture (trees with open crowns, trees with veteran features such as branch die back, rot holes etc.). Presence of lichen indicator species were also used but not all pre-enclosure Oaks had the indicator lichen species on them (mostly due to shade).
- 2.27 Locations of veteran trees were mapped using hand held Garmin 62/64. 10 figure grid references were recorded though the accuracy for this equipment means that the location recorded is likely to be in the region of +/- 10m for each location

Other Potential Veteran Trees

- 2.28 The five plots other than the Avenue were assessed and visited to check for the presence of veteran trees. Only one plot - Blendworth fragment – had old trees present and these are discussed in the results section.

Condition of Woodland Plots

- 2.29 There is no formal system – in Hampshire - to determine the condition of ancient woodlands that are not in a Site of Special Scientific Interest (SSSIs). The SSSIs have ‘Condition Assessment’ processes and these are reliant on the woodlands having formally identified and described features of interest with associated condition targets.
- 2.30 In the absence of a formal process, a subjective interpretation of the condition of the six woodland plots has been made and based on the original form of the woodland, its recent history and botanical data from ECOSA (ECOSA, 2012 and Norton/ECOSA, 2019).

3 Results: review of ancient woodland status

Introduction

- 3.2 This section considers evidence for the landscape history of the study area in the context of the two criteria that define ancient woodland: 1). was the site woodland in 1600 and 2) has that site been continuously wooded since then.

Ancient Woodland Criterion 1: was the site/area woodland in 1600?

Overview

- 3.3 There are no detailed maps from 1600 (or before) that depict the landscape of the study area and this is a feature common to ancient woodland studies. In lieu of maps from 1600, the Ordnance Survey drawing (OSD) - and its associated engraved Old Series 1 inch to the mile map – are the base maps used in this report for interpreting the potential for a woodland to have been present in 1600. An assessment of the OSD is set out below with the following map extracts:

- Fig 3.1: the OSD depicting the landscape in c. 1806;
- Fig 3.2: the 6 inches to the mile OS map from c. 1870 (used to show the relative accuracy of the OSD);
- Fig 3.3: the OSD georeferenced with modern street map to show Havant Thicket area in relation to the modern landscape;
- Fig 3.4: a comparison of the OSD with the 1791 Milne Map of Hampshire; and
- Fig 3.5: the engraved 1 inch to the mile OS map derived from the 2 inch to the mile OSD.

The Ordnance Survey drawing and the landscape in 1806

- 3.4 The Ordnance Survey drawing (OSD) that includes the Havant area is Sheet 82 (Blendworth) and is drawn at a scale of 2 inches to the mile. An extract from this OSD sheet is given in Fig 3.1 below. Named features on the OSD to help orientation are: Blendworth Common (north of the study area for this report); Bell's Copse (to the west) and Red Hill Brick Kilns to the east. The area that was to become known as Havant Thicket lies between these three though not known by that name at the time.
- 3.5 This drawing shows that the Havant Thicket area is a pasture woodland complex with trees and drifts. More open, habitat towards its eastern side near Red Brick Kiln. Drifts/glades spread through the pasture woodland (much as they do today in intact pasture woodland complexes such as the New Forest). It is clear from this drawing that the surveyors recorded the Havant Thicket area (in 1806 was common land/Havant Chase) as a pasture woodland complex.

Ordnance Survey drawing and the 6 inches to the Mile OS map

- 3.6 To give an idea of the relative accuracy of the OSD, an extract from the 6 inches to the mile map (one of the most accurate maps ever created) is given in Fig 3.2 for comparison. Whilst these are not the same landscapes because much enclosure happened between the two we can see details that are common to both: note, for example, the 'bite' out of the northern edge of The Holt; and note the pattern of less wooded/unwooded land and their drifts on the eastern side of the Thicket.

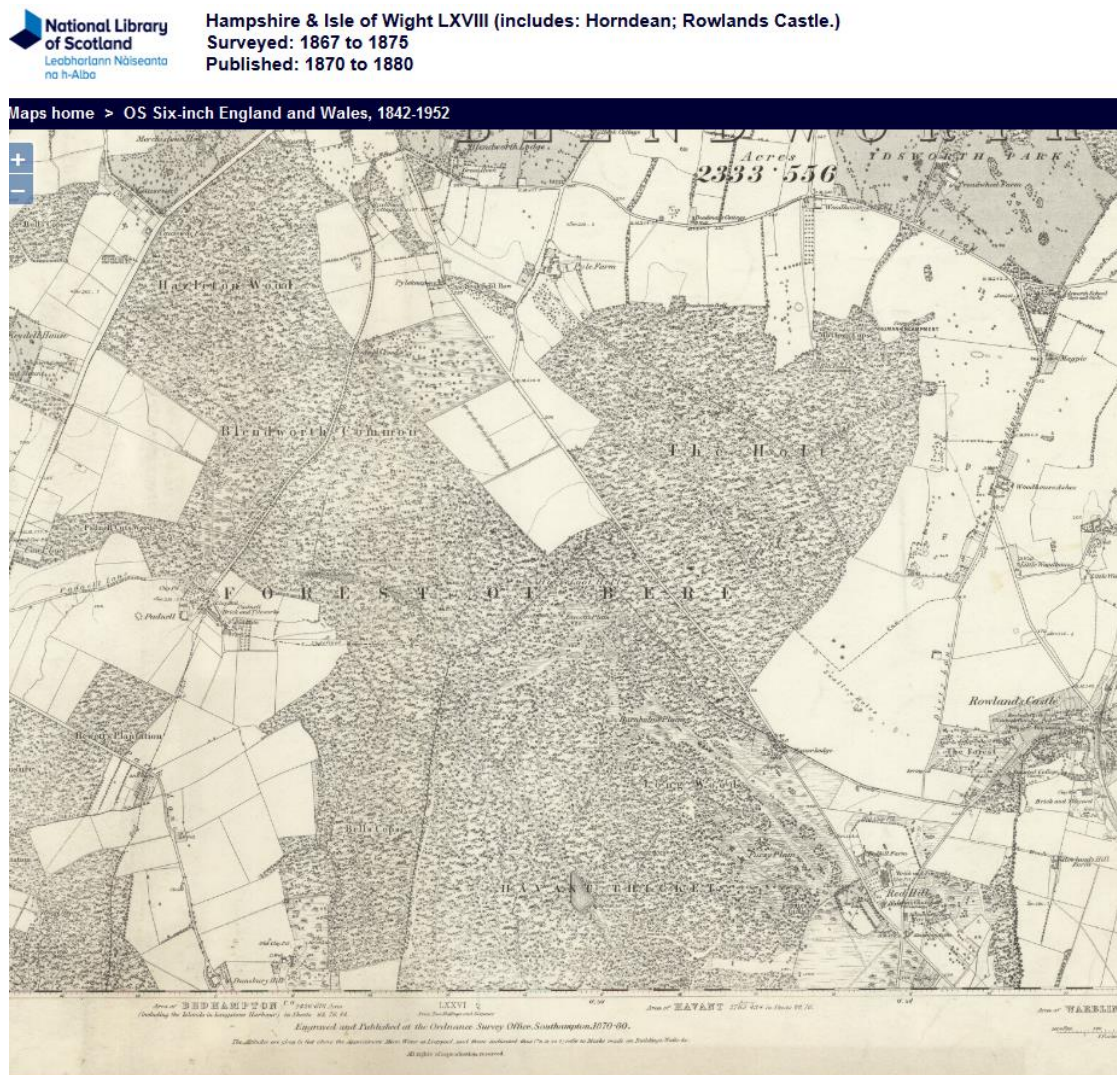
Fig 3.1: extract from the Ordnance Survey drawing Sheet 82 (dated 1806) showing the historic landscape of the Havant common/Havant Chase area and adjacent land, including Blendworth Common before its enclosure. Bell's Copse is named, as is Holt Wood. Other place names include 'Red Hill Brick Kiln' shown as an enclosed area (close to the area known as Gypsy Plain but which is not named on this map).



Map sourced from the British Library/Wikimedia Commons <https://commons.wikimedia.org>.

This file is licensed under the Open Government Licence (OGL) version 1.0.

Fig 3.2: extract from the Ordnance Survey 6 inches to the mile map (surveyed 1867 to 1875 and published between 1870 to 1880) showing Havant Thicket and the adjacent landscape (e.g. the enclosed Blendworth Common). Note that the legal 'Forest of Bere' had ceased to exist by this time.



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The Ordnance Survey drawing of 1806 over a modern Street Map

- 3.7 Figs 3.3a to 3.3d cover approximately the same area of landscape over and around the Havant Thicket area. Fig 3.3a is an extract from OSD sheet 82. This was georeferenced over the equivalent area of the Open Street map shown in Fig 3.3c. Figs 3.3b and 3.3d are the same figure and show the OSD laid over the top of the Open Street map but faded to allow details of both maps to be seen. The purpose of this sequence of paired figures 3.3a-b and 3.3c-d is to show the spatial relationship of the historic and modern landscape. One specific location - Upper Lake in the Avenue - is pointed at by the red arrow.
- 3.8 These maps show that all The Avenue, Middle Clearing, Round Wood, The Corsican Pine Plantation are within the historic pasture woodland complex of this landscape and that the Bell Copse fragment is within the ancient enclosed Bell Copse. The Blendworth fragment is located at the northern edge of the pasture woodland complex; given that it is such a small area of landscape, it cannot be certain whether it lay within pasture woodland or immediately to its north.

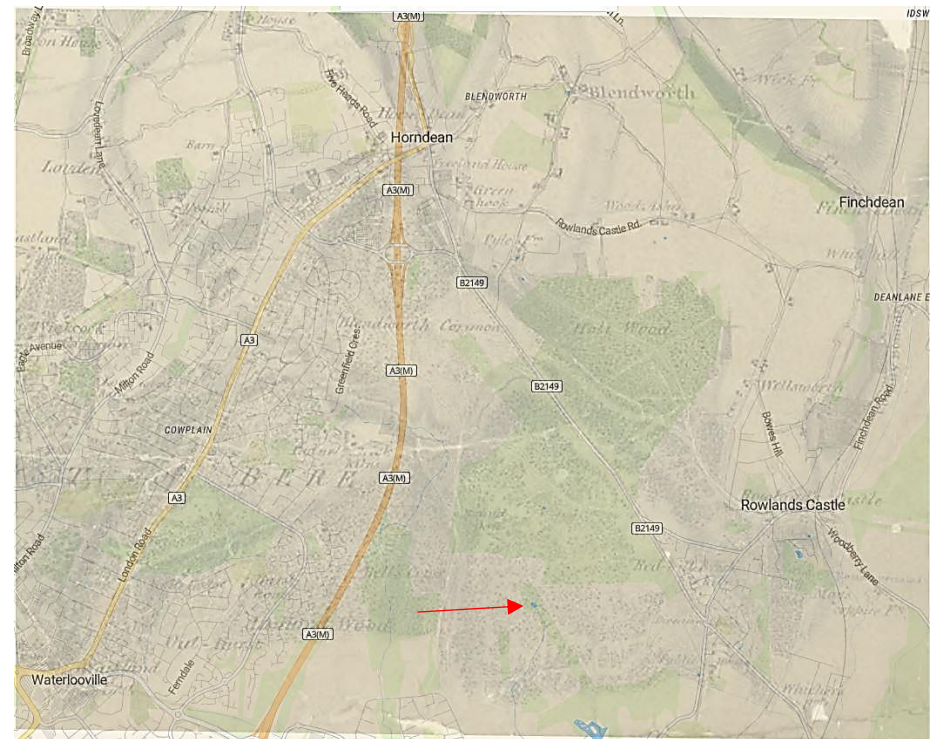
Figs 3.3a and 3.3b below show the same area of landscape. Fig 3.3.a is the OSD from 1806. Fig 3.3b is the OSD georeferenced and laid over the modern street map. The OSD has been faded to allow the modern features (e.g. the A3 (M) road).

The red arrow points to the Upper Lake at the northern end of the Avenue. Note that the upper lake did not exist at the time of the OSD in 1806

Fig 3.3a: Extract from Ordnance Survey drawing (OSD) Extract 1806.



Fig 3.3b: OSD georeferenced over Open Street Map.



OSD sourced from the British Library/Wikimedia Commons

<https://commons.wikimedia.org>.

This file is licensed under the Open Government Licence (OGL) version 1.0.

Figs 3.3c and 3.3d below show the same area of landscape. Fig 3.3c is the modern open street map. Fig 3.3d is the OSD georeferenced and laid over the modern street map. The OSD has been faded to allow the modern features (e.g. the A3 (M) road).

The red arrow points to the Upper Lake at the northern end of the Avenue. Note that the upper lake did not exist at the time of the OSD in 1806

Fig 3.3c: Modern Open Street Map used as the base for georeferencing the OSD.

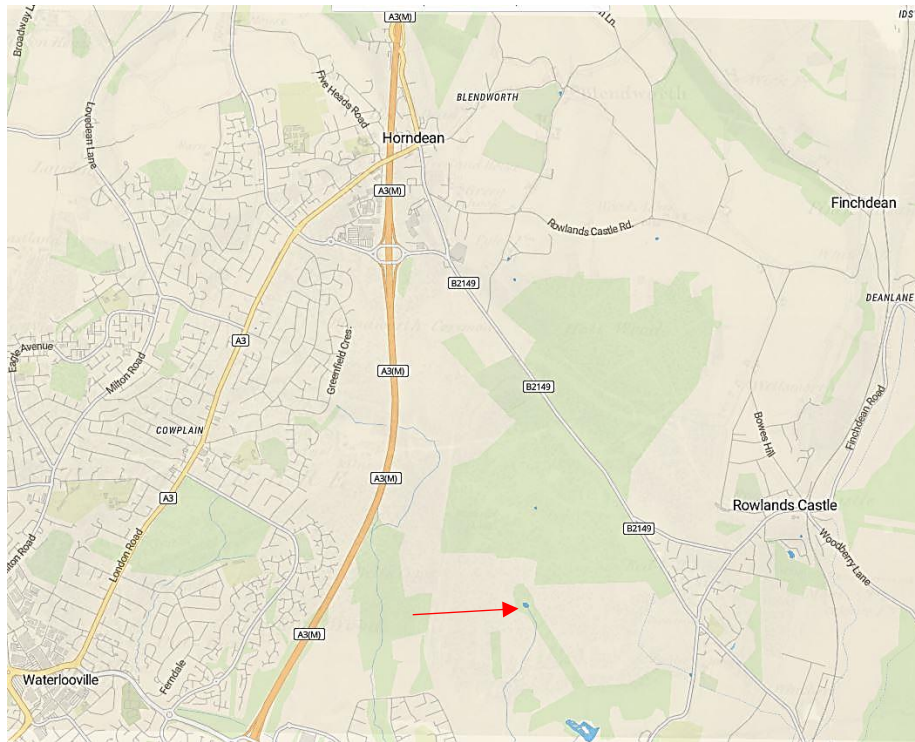
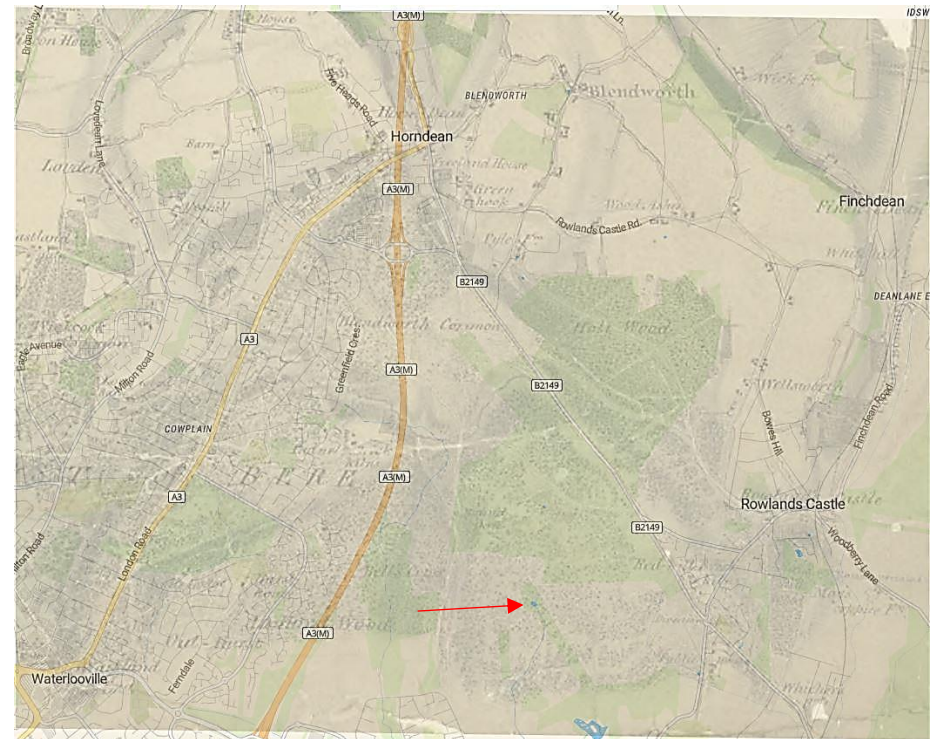


Fig 3.3d: The OSD dated 1806 georeferenced over Open Street Map (note that this fig is the same as Fig 3.3b above).



The OSD and the Milne Map from 1791

- 3.9 A map earlier than the OSD/1 inch to the mile OS exists; this is the Milne Map of Hampshire - its full title is '*HAMPSHIRE, or the County of Southampton, including the ISLE OF WIGHT. Surveyed by Thos. Milne in the years 1788, 89 & 90 executed and Published at the private expense of the Proprietor W. FADEN, Geographer to His MAJESTY, Charing Cross Decr. 20th. 1791*'.
- 3.10 The Milne map is a valuable map of the Hampshire landscape with much important information. The Milne map has been made available in superb quality at the 'old hampshire mapped' website (Norgate, 2006) and can be magnified many times way beyond its published scale of 1 inch to the mile. This capability to magnify can, however, draw us in to read or interpret too much in the landscape depicted by Milne. There is no readily available guidance on interpreting the Milne Hampshire map, though some guidance on its interpretation can be taken from MacNair and Williamson (2010) who examined and interpreted, in detail, the Faden/Milne for Norfolk (surveyed and printed just after the Hampshire map but similar in quality).
- 3.11 Given that the Ordnance Survey and the Milne map are so close in time to each other, 1791 and 1806, and that there were no massive changes to the landscape in this period, we can examine these maps together to try and understand what they are showing.
- 3.12 Figs 3.4a and b show a similar area of landscape from the Milne map and the OSD, respectively, at approximately relative scales, i.e. the OSD at 2 inches to the mile is twice the scale of Milne at 1 inch to the mile (the relative scale was set by the distance between Blendworth and Finchstead shown by the red bar in each map).
- 3.13 In comparing these two maps, we consider that the OSD is a more accurate portrayal of the landscape than the Milne Map. This is based in part on the larger scale of the OSD, that it was a drawing rather than an engraving and that the very accurate 6 inches to mile OS map correlates with the OSD. The Ordnance Survey had more resources than Milne and had different mapping objectives, each of which contributes to the OSD depicting a more realistic landscape than Milne.
- 3.14 That is not to say that Milne is wrong; we can say from his map that Havant Thicket is more wooded to the west and that it is unwooded/less wooded to the east –broadly what the OSD and 6 inches to the mile maps show. What we cannot tell from Milne is where that boundary is with any accuracy.

This is a detailed historical map of the Blendworth area. The map shows the Blendworth Common, Blendworth Fort, and Blendworth Castle. The Blendworth Common is a large, open area with a grid of fields. The Blendworth Fort is a large, rectangular structure with a central tower. The Blendworth Castle is a large, rectangular structure with a central tower. The map also shows the River, Blendworth Village, and Blendworth Church. A red line is drawn across the map, connecting the Blendworth Common to the Blendworth Castle.

This historical map depicts the Blendworth area, featuring the Blendworth Common, Blendworth Fort, and Blendworth Castle. A red line highlights a specific path or boundary. The map includes a scale bar at the bottom.

[illegible]

Fig 3.5a: Extract from Sheet 11 of the Old Series 1 inch to the mile OS map. Published 10th April 1810. Source: GB Historical GIS/University of Portsmouth, History of Havant in Hampshire | Map and description, *A Vision of Britain through Time*).

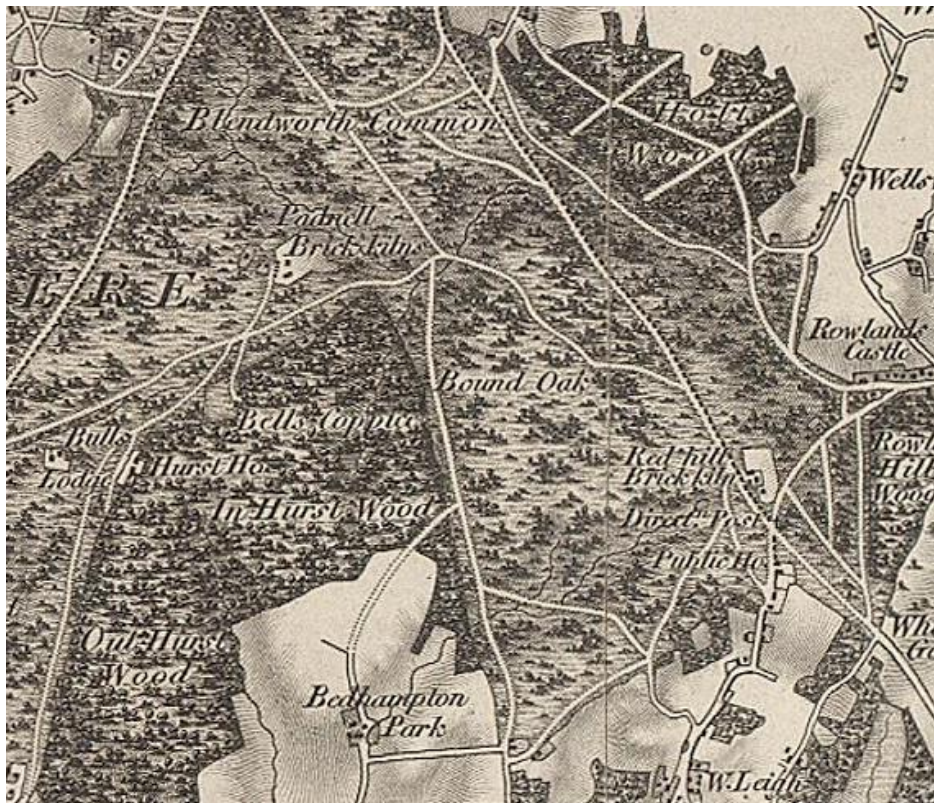


Fig 3.5b: Extract from Sheet 11 of the Old Series 1 inch to the mile OS map. Published 1810. Source Old Hampshire Mapped (Norgate, 2006). © Martin and Jean Norgate: 2006



The OSD (1806) and the Engraved 1 inch to the Mile OS map (1810)

- 3.15 The 1 inch to the mile OS map for the Havant area was compiled by collating information from the OSD (and other field data), reducing the scale to inch to the mile and then engraving the final map onto a copper plate for printing. This 1 inch map became Sheet 11 and was published on the 10th April 1810. An extract from this map is given in Figs 3.5a and b above. Two variants of the extract are shown – they are from the same engraving though the method of printing and reproduction makes them look different.
- 3.16 Though the OSD and the 1 inch have much detail and information in common (e.g. the roads) , there are differences owing, in part, to the different scales and the complexities of engraving copper plates versus drawing. Of particular relevance here is how the engraved map has had to simplify the complex patterns of the habitats on Havant Thicket area and Blendworth Common into a uniform symbol across applied to both Havant Thicket area and Blendworth Common – compare Fig 3.1 with 3.5.
- 3.17 The two extracts show how the engravers have had to ‘simplify’ the complex pattern of pasture woodland of Havant and the relatively treeless Blendworth Common as drawn on the OSD Thicket.

Summary: was the site/area woodland in 1600?

- 3.18 There are no maps dating to 1600 or before. We have interpreted the Ordnance Survey drawing (dated 1806), the Mile map (1791) and the land use pattern (e.g. the common lands of Havant and Blendworth Parishes) for the likely landscape in 1600.
- 3.19 The Avenue, Middle Clearing, Round Wood and The Corsican Pine Plantation areas were all originally within an ancient pasture woodland complex on Havant Common (this was the area largely known as Havant Chase and Havant Thicket). Pasture woodlands on commons are ancient habitats and would have been present there in 1600.
- 3.20 Bell’s Copse fragment, part of the larger Bell’s Copse, is assumed to have been an anciently enclosed landscape. Bell’s Copse is probably an ancient coppice woodland likely to have been present in 1600 (though of unknown age). No detailed information for the medieval composition of this area of Bedhampton Parish is available.
- 3.21 The Blendworth fragment is on the ancient common lands of Blendworth parish. It’s habitat on the OSD is unclear (see Fig 3.1) – it may have been on the edge of a pasture woodland or it may have been heathy, rough grazing. It is impossible to say with any confidence whether the Blendworth fragment was woodland in 1600 or not – all we can say is that this area was certainly on ancient, uncultivated ground.

Ancient Woodland Criterion 2: has the site been continuously wooded since 1600?

Introduction

3.22 Evidence for this criterion included reviewing maps published after the since the Ordnance Survey drawing (OSD) of 1806 and its related 1 inch to the mile OS map (1810). Maps examined were:

- Greenwood's Map of the County of Southampton (1826);
- Tithe maps for Havant, Blendworth and Bedhampton (all c. 1840);
- The 25/6 inches to the mile map County Series from 1st edition to final revision (c. 1860s to 1930s); and
- Land Utilisation Survey of England (c. 1937).

3.23 Aerial photographs from 1946, 1954, 1960 and 1981 (in Viney, 2012) were examined and reproduced in Appendix 2 of this report. Note that not all areas are in all the images and that the Blendworth fragment lies outside of the areas of all the aerial photographs.

Woodland Plots in Havant Parish

Introduction

3.24 The pasture woodland in Havant parish continued until its enclosure in c.1868. Following enclosure, the pasture woodland was converted to a plantation, most likely all oak. Grazing was removed at this time though was reintroduced later (1970s?) when substantial areas of the plantations were cleared and converted to agricultural grasslands.

The Avenue

3.25 The Avenue was part of an ancient pasture woodland complex on Havant Common until c. 1870 when it was enclosed. The Avenue itself was created in the later part of the 20th century by removing all the oak plantation around it leaving 'The Avenue' as a long strip of woodland surrounding a central ride. The Avenue has probably not been grazed since the enclosure.

3.26 The Avenue has continued as a woodland habitat, modified by the inclusion of planted oaks and also the cessation of grazing, since enclosure and has remnants of the ancient pasture woodland in it.

Middle Clearing

3.27 The area that became known as Middle Clearing was part of the ancient pasture woodland of Havant Common until its enclosure. Following enclosure, the pasture woodland was cleared and 1895 revision of the 25 inches to the mile map shows that the area that was to become Middle Clearing as 'plain white' i.e. unwooded ground and not even rough grazing. The next revision – 1907 - shows Middle Ground area as a mixed woodland, which must have been planted between 1895 and 1907. The name Middle Clearing first appears on this 1907 revision.

3.28 The 1946 aerial shows the Middle Clearing as scattered trees and grassland habitat – but not cultivated land – and so the woodland depicted on the 1907 revision must have been partially harvested or failed. The 1954 aerial (Appendix 2) shows Middle clearing planted again and it is this woodland that is now present today. Middle Clearing has been used by cattle for grazing and shelter from (probably) the 1970s up to the present day.

3.29 There are no surviving ancient pasture woodland tree and shrub vegetation remaining. There is no ancient woodland ground vegetation surviving. The ground vegetation is species-poor grassland and dominated by species characteristic of fertile ground (see quadrat data and species lists in ECOSA, 2012). A few ancient woodland vascular plants (16 species – Norton/ECOSA 2019) are present in low numbers and in restricted locations (mainly stream sides and a bank).

3.30 Whilst this area was originally part of an ancient pasture woodland complex, the post-enclosure clearances, plantations and, later, modern cattle grazing/shelter have left almost nothing of the original ancient woodland ecosystem. What is present now is a c.70 year old oak plantation over a species-poor, fertile grassland with a few relict features present – what is present today is not an ancient pasture woodland.

Round Wood

3.31 The area that became known as Round Wood was part of the ancient pasture woodland of Havant Common until its enclosure. Following enclosure this area was cleared of its pasture woodland and converted to a broad-leaved (oak) plantation. The 1895 revision of the 25 inches to the mile map (c.1898) shows the future Round Wood as part of the extensive post-enclosure plantation and the same on the 1907 revision.

3.32 The 1946 aerial shows the area that was to become Round Wood as part of a larger area of a young broad-leaved plantation with some scattered older/larger trees. The post-enclosure woodland must have been harvested some years before 1946 and replanted. This larger area of young plantation was then itself largely removed leaving the odd-shaped area that is today called ‘Round Wood’. Round Wood is has been used by cattle for grazing and shelter since (probably) the 1970s until the present day.

3.33 There are no surviving ancient pasture woodland tree and shrub vegetation remaining in Round Wood. There is no ancient woodland ground vegetation surviving. The ground vegetation is species-poor grassland with dominated by species characteristic of fertile ground (see quadrat data and species lists in ECOSA, 2012). A few ancient woodland vascular plants (7 species – Norton/ECOSA 2019) are present in low numbers and in restricted locations.

3.34 Whilst this area was originally part of an ancient pasture woodland complex, the post-enclosure clearances, plantations and, later, modern cattle grazing have left almost nothing of the original ancient woodland ecosystem. What is present now is mostly a c.80-90 year old oak plantation, in which some of the larger trees may predate the main plantation, over a species-poor, fertile grassland with few relict features present – this is not an ancient pasture woodland.

Corsican Pine Plantation (The Triangle)

3.35 The area that is now called the ‘Corsican Pine plantation’ was part of the ancient pasture woodland of Havant Common until its enclosure. Following enclosure this area was cleared of its pasture woodland and converted to a broad-leaved (oak) plantation, as can be seen on the 1895 and 1907 revisions of the 25 inches to the mile OS map.

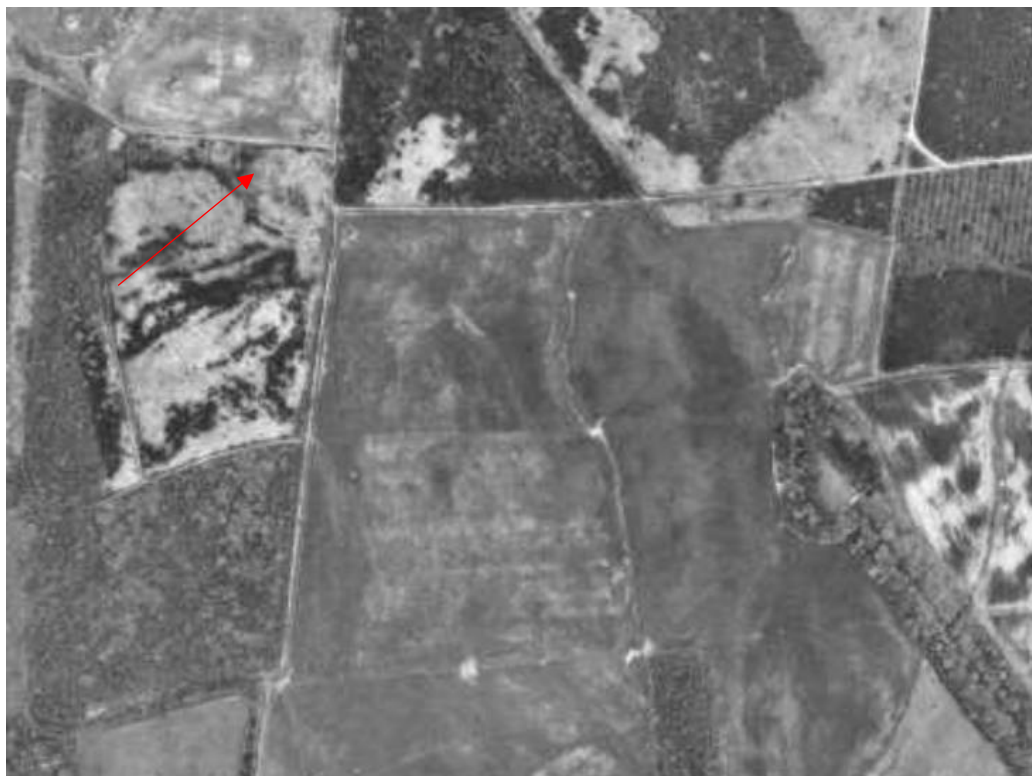
3.36 The 1946 aerial shows this area as broad-leaved plantation. The 1960 aerial shows the woodland seen in 1946 almost wholly harvested with the land shown as vegetated and not /bare ground. The 1981 aerial shows the Corsican Pine plantation has been established and that remains present to this day. This area was excluded from modern cattle grazing.

- 3.37 From the aerial photography, the felling between 1954 and 1960 removed the trees of the post-enclosure woodland but the ground flora and soil remained more or less intact. . It is not known what was done to this area to prepare it for the Corsican Pine plantation. .
- 3.38 This area has gone through some disturbance on at least three occasions - conversion of pasture woodland to oak plantation, felling and removal of the post enclosure woodland and preparation for and establishing a Corsican Pine plantation.
- 3.39 The plot is now a Corsican Pine plantation over a developing tree and shrub layer with a dense understory of Bramble-Bracken *Rubus fruticosus agg.-Pteridium aquilinum*. 16 ancient woodland vascular plants have been recorded from the area, albeit in limited numbers and distribution. Whilst there is no surviving ancient pasture woodland vegetation there is a relict flora. The ground cover indicates that the soils are less damaged than those in Middle Clearing and Round Wood. This area accords with the description of a PAWS – a plantation on an ancient woodland site with relict features.

Bell's Copse Fragment

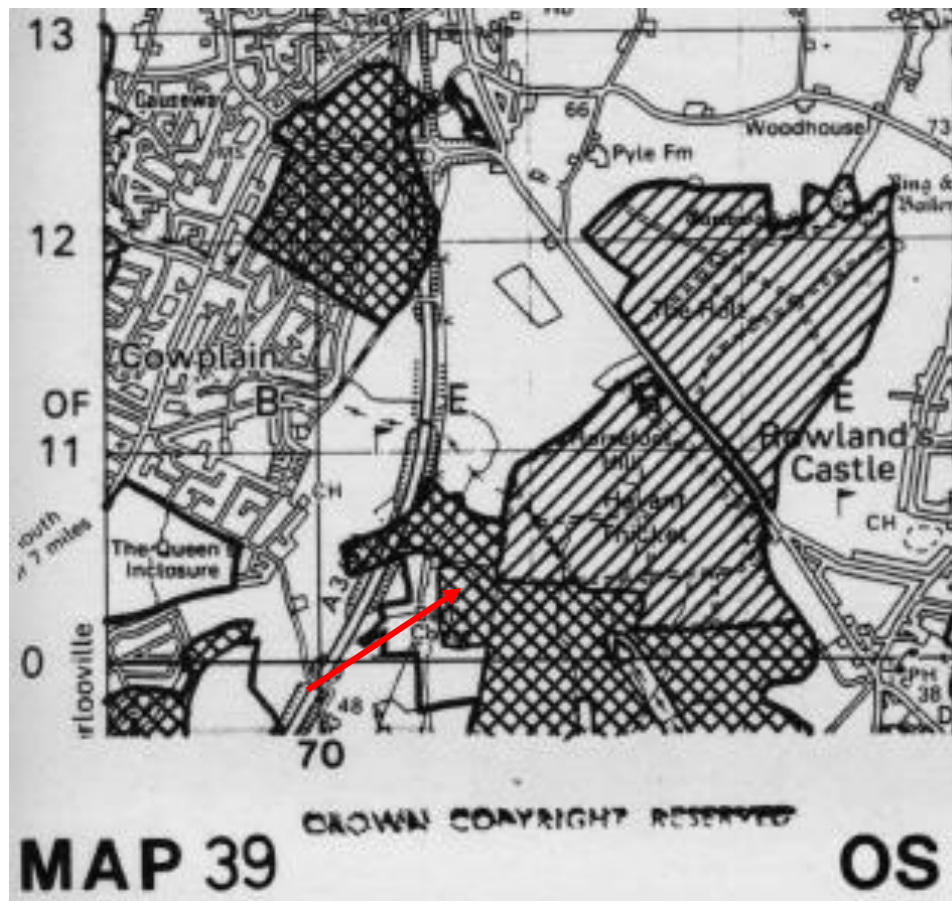
- 3.40 Bell's Copse fragment is shown on all editions of the 25/6 inch OS map (from 1860s up to the 1930s) as broad-leaved woodland and part of the larger Bell's Copse. It is also recorded as woodland on the tithe map (c. 1840). The 1960 aerial shows the Bell's Copse fragment still as woodland (trees and scrub) within the larger area of Bell's Copse. Not long after, however, in the 1970s, the Bell's Copse fragment, including the fragment, was cleared. An extract from a 1981 aerial photo shows the Bell's Copse area a few years after the clearance.

Fig 3.6: Extract from 1981 aerial showing clearance of Bell's Copse, including the Bell's Copse fragment (location indicated by red arrow).



- 3.41 Bell's Copse was considered for the original provisional ancient woodland inventory for Hampshire (HCC, 1995) but mapped as 'woodland cleared since the production of the First Series OS maps c. 1920' shown as cross hatching on the extract below in Fig 3.7.

Fig 3.7: Extract from 1995 provisional woodland inventory for Hampshire (HCC, 1995). Bell's Copse is shown as cleared woodland. Location of Bell's Copse indicated by red arrow.



- 3.42 Since the 1995 inventory, Bell's Copse has been added as an ancient woodland site under the Ancient Replanted Woodland (ARP) category - the reasons and grounds for this are unpublished.
- 3.43 Following the clearance in the 1970's, part of this area was planted with conifer. Scrub and heathland habitats established but succession to woodland has been constrained by a number of fires (presumed vandalism). The area is now with relict conifer trees, scrub and rank, heathy grassland communities. There is no detailed survey information on the flora of this area (recent information is for larger areas of the Copse).
- 3.44 Whilst there is little remaining of the original copse ancient woodland ecosystem - presumably it would have had old coppice stools and complex tree communities and complex ground vegetation. However, the species present and the type of communities regenerating (ECOSA, 2012 and Norton/ECOSA, 2019) indicate that the soil, whilst damaged, has not been fundamentally altered it. The Bell's Copse fragment is not now an ancient coppice woodland but does fit the description of a PAWS.

Blendworth Fragment

- 3.45 This plot is, on the Ordnance Survey drawing (1806), part of the common lands of Blendworth parish and its habitat then would have been either pasture woodland or more open, heathy grassland – it is not possible to say which on existing map evidence. Blendworth Parish was enclosed in c. 1814 and the Blendworth fragment with it. The tithe map of c. 1840 for this parish records the Blendworth fragment as part of a larger area with the state of cultivation as ‘rough’. Rough is interpreted here as being uncultivated land – but neither woodland nor pasture – that had no tithe (or had a nominal tithe). It is not known whether scattered trees would have been part of the ‘rough’ but it was not woodland.
- 3.46 The first edition of the 6 inch to the mile OS map shows the Blendworth fragment as a mixed woodland planted on the ‘rough’. This plot continues as woodland to the present day. The western half of the fragment has relict Sweet Chestnut stools that are survivors from the Victorian planting.
- 3.47 Whilst we know that the Blendworth fragment has been woodland since at least 1870, its listing as ‘rough’ on the tithe map (and uncertainty regarding whether it was in the pasture woodland or open heathy landscape on the OSD – see above) leave the origins of this plot relatively undetermined. The Norton survey (2019 for woodland W7), although not comprehensive, did not record a rich and complex ground layer typical of ancient woodland but instead recorded a relatively species-poor ground flora with few ancient woodland vascular plants.
- 3.48 The Blendworth fragment was not on the original Inventory (see Fig3.7) but has been added since as ‘ancient semi-natural woodland’. We do not know what grounds this has been on but if whoever revised the Inventory did it by looking at the 1870 1st edition 6 inch map (see Fig 3.2) and the 1810 1 inch to the mile OS map (see Fig 3.5) it would be understandable. If however you look at the 1806 OSD (see Fig 3.1), where the fragment appears to be on the northern edge of a pasture woodland, and the 1840 tithe information, where the fragment is described as ‘rough’ and not woodland, it is far from certain that this area was woodland in 1600 and remained continuously so since then.
- 3.49 What we seem to have here is a woodland (plantation) dating back with certainty to the mid-19th century. The OSD and tithe indicate non-woodland habitat at least in the early to mid-part of the 1800s though a few trees may have been present then (though not enough to record it as woodland on the tithe map). Bearing in mind that the area here has now been wooded for at least 150 years, the vegetation and flora now present (Norton/ECOSA, 2019) is not strongly indicative of an ancient woodland. Following the resources used in this report, the Blendworth fragment is, on balance, probably not ancient woodland.

4 Field Work Results

Lichen Survey and Assessment

Previous surveys at the Avenue

- 4.1 Neil Sanderson carried out a survey in 1994 (Sanderson, 1994) of the lichen interest of The Avenue and Thicket Bottom (area of woodland to the south of The Avenue). The summary of the lichen survey and assessment is given in Fig 4.1 below:

Fig 4.1: Extract from 1994 report (Sanderson, 1994) with Para 3.2 summarising the lichen interest of The Avenue and Thicket Bottom.

3.2 Epiphytes

A total of 25 lichen species, two mosses and two Liverworts were recorded from The Avenue and Thicket Bottom. The lichen flora in Thicket Bottom is somewhat depressed by the shade of the full canopy while that of The Avenue is more affected by air pollution due to its lack of shelter. The current flora is clearly recovering from past pollution as some pollution-sensitive species were seen. One small, stunted *Parmelia reticulata* thallus had the appearance of a recolonizing plant rather than a relic species.

In terms of ancient woodland species four species on Dr Rose's ancient woodland indicator list (New Index of Ecological Continuity - NIEC) [Rose 1992] were recorded. Two species *Schismatoma niveum* and *Arthopyrenia ranunculospora* were recorded only from the area to be flooded while the other two, *Athonia vinosa* and *Phaeographis inusta* was found on one old Hazel bush, the others on mature Oaks. Their distribution is shown on map 4.

This is not a high total and the species involved are ones which can slowly be recolonized woodlands after severe disturbance unlike more sensitive lichens which cannot be recolonized at all as far as is known. A total of 4 NIEC species is fairly typical of derelict coppices on ancient sites in South Hampshire.

- 4.2 Of these two areas, The Avenue was surveyed in 2019 with a summary of the survey results given below and the full report in Appendix 1). The results of the 1994 survey were used for the pre-survey research for the 2019 work and were included in the analysis and interpretation of the nature conservation value of The Avenue.

2019 Survey

- 4.3 A lichen survey, or scoping, was carried out on the 6 woodland plots by Neil Sanderson, with Andrew Cross, on 6th November 2019. The full report of the 2019 lichen survey is given in Appendix 1. The following is an extract from the report summarising the value, extent of interest and the nature conservation significance:

“Value of [The Avenue]

The Avenue scores nine using the Southern Oceanic Woodland Index (SOWI) for all data from 1994 and 2019, with a score of eight using the 2019 data only. These scores are well below the threshold for SSSI quality in the area, which is an SOWI score of 20. No threatened or Section 41 species were recorded. The Avenue includes at least nine veteran trees with lichen interest, which are most likely to originate as pre-enclosure trees (Table 2). There are also other similar older veteran trees but these are mostly too shaded to support lichen interest.

Table 2: Veteran Oaks with Lichen Interest in the Avenue

Tree Number	No. of lichen species of conservation interest
HT002	3
HT003	2
HT004	1
HT008	1
HT009	1
HT010	1
HT013	1
HT015	1
HT017	1

The assemblage and the veteran Oak that they grow on are a noteworthy feature inherited from the sites past as an old growth pasture woodland and is best regarded as a supporting feature of the county level interest of The Avenue as a surviving area of ancient woodland.

Extent of Interest

The results from Sanderson (1994) indicate that some lichen interest extends into the Thicket Bottom area south of the Avenue, but this area was not looked at in 2019. The 1994 results suggest that this was not the richest part of the site, and that the majority of the lichen interest is within the reservoir site.

Context in South East Hampshire

There is limited survival of lichen assemblages from the now lost pasture woodlands of the Forest of Bere and adjacent commons such as Havant Thicket ..., but some have been recorded. Queens Inclosure (SU6910) and Creech Walk (SU6411) have comparable assemblages with a total score of nine in the SOWI. Much richer, but more distant, is West Walk (SU6013) which scores 20 in total in the SOWI. The survival of moderately rich old woodland lichen assemblages from the [former Forest of Bere and attached commons] is rare, as far as is known, and The Avenue is one of only four significant sites recorded."

Pre-enclosure/Veteran Trees

The Avenue

- 4.4 Of the six plots examined in for this report, only the Avenue had old trees present. Most of these were identified during the lichen survey on the 6th November 2019 with a few additional trees identified on a second site visit by Andrew Cross on 17th November. All these trees were looked at in detail for lichen species and communities of conservation interest.
- 4.5 A total of eighteen (18) pre-enclosure trees were recorded. Of these 9 supported lichens of conservation interest, whilst the other nine trees had no lichens of conservation interest largely due to shade/and or ivy. These trees are shown as red and blue dots respectively on Fig 4.2 below.
- 4.6 These trees are probably in the earliest stages of the post mature/veteran stage of their life. Relatively few features of decay are present across the assemblage of trees though there is some branch die back, exposure of lignum, rot holes and saproxylic fungi present.

Blendworth Fragment

- 4.7 A moderately large Oak stub with a girth of 233cm is present on the Blendworth/Havant parish boundary bank. This was last cut some time ago and the poles are beyond their standard cycle. This tree is not a veteran tree but is a ‘character tree’ associated with a historical feature.

Photo 4.1: Oak stub (girth of stub is c.233cm) on historic parish boundary between Blendworth and Havant Parishes. Location approx. SU713113.



- 4.8 Note that there are a considerable number of Yews in Idsworth Parish, which, in this area, lies immediately to the south-east of the Blendworth fragment as well as some in the fragment itself. This population of yews has trees of various sizes and presumably ages. Given the longevity of yews, it is difficult to assess whether any of these are veterans - they do however form a distinct feature in the landscape and the oldest (in Idsworth) are likely to have some connection with the former pasture woodland landscape in this area. The yews in this part of Idsworth Common were surveyed by Norton and Milner (2012).

Assessment in a Planning Context

- 4.9 The National Planning Policy Framework (NPPF, 2018) introduces the term ‘exceptional’ for veteran trees. ‘Exceptional’ for the post-mature/veteran trees of The Avenue, means a population of trees in the earliest part of the veteran stage of their lives. Associated with this is that the trees have lichens – albeit a limited number of species - indicative of ecological continuity with old growth pasture woodlands. The exceptional nature of the woodland resource of The Avenue, including its trees and lichens – has been recognised as being of County Value.

Fig 4.2: location of eighteen pre-enclosure/veteran trees in the Avenue. A dot indicates a single tree; red dots (nine) are for trees with lichen interest (see Lichen report in Appendix 1) and blue dots (nine) are for trees without lichen interest.



5 Assessment of the Condition of the Woodland Plots

Introduction

Methods and Sources of Information

- 5.1 In contrast to the formal guidance on assessing legally designated sites (e.g. Sites of Special Scientific Interest), there are no equivalent methods and criteria that should be used to assess the condition of small, local woodlands with no national conservation designation (see also Methodology Section above).
- 5.2 The system used below is a subjective one and is here set out for guidance and discussion for the woodlands reviewed in this report only. The condition is assessed with respect to the historic woodland type (e.g. pasture woodland/coppice) and draws on information from the following:
- Landscape History;
 - Presence and type of semi-natural woodland communities;
 - Ground vegetation and presence of ancient woodland vascular plants;
 - Extent of disturbance to soil; and
 - The presence of veteran trees and lichens of conservation interest.
- 5.3 The condition of a woodland is summarised as favourable or unfavourable.
- 5.4 The detailed botanical work carried by John Norton/ECOSA (2012 and 2019) covered flora and vegetation for all the plots in this report. For ease of cross-referring, the plot numbers in the Norton/ECOSA (2019) report and the plot names are:
- W1 – The Avenue;
 - W2 – Middle Clearing;
 - W3 – Round Wood;
 - W7 - the Blendworth fragment
 - W11 - Corsican Pine Plantation (The Triangle); and
 - H1 - Bell's Copse fragment.
- 5.5 All these locations are shown on the ECOSA Map C6 - Target Notes and Broad Vegetation Areas (Norton/ECOSA, 2019).
- 5.6 Each of the six woodland plots were visited in November 2019 by Sanderson and Cross. Field observation of the condition of the woodlands were made and these were later used in conjunction with the results from the detailed botanical work carried out by ECOSA/Norton (2012 and 2019) as well as Sanderson's earlier work on the Site (Sanderson, 1994).

Landscape History

- 5.7 Information on landscape history is based on the work and references given in this report. The condition of the modern wood is considered with respect to its historic woodland type.

Presence of semi-natural woodland communities

- 5.8 For woodland communities, we refer, where appropriate, to Peterken Stand Types (PST) (Peterken, 1993) and woodland communities described in the British Plant Communities Vol 1 Woodlands and

scrub (Rodwell, 1991). The condition is considered with respect to the semi-natural stands of the ancient woodland origin of the plot.

Ground vegetation and presence of ancient woodland vascular plants

- 5.9 Information for the condition assessment from here includes consideration of whether the ground vegetation (with its associated ancient woodland vascular plants) is referable to ancient woodland types or not. Information on the presence and abundance of ancient woodland plants in the four woodland in Havant parish is taken from Norton/ECOSA (2019) and reproduced in Table 5.1 below.

Extent of disturbance to soil

- 5.10 No detailed work on soils but plot history and land use collated to give an overview of soil disturbance then used to contribute information as to the condition of the plot.

The presence of veteran trees and lichens of conservation interest

- 5.11 Given the history of ancient pasture woodland ecosystems in this area that would have had veteran trees and a diverse lichen flora, these two features are also considered in the condition, where appropriate, of the plots.

Table 5.1: Copy of Table C1 (Summary of on-site ANSW and PAWS woodland in relation to ancient woodland indicator species) from Norton, 2019. Note that for this table, the areas of the plots have been rounded up and that the Avenue area has been changed by splitting the woodland from Upper Lake and by excluding the central ride (made ground).

Woodland Block	Ancient Woodland Indicators	Size (Hectares)	Habitat Description and Summary Evaluation
The Avenue	37: Abundant 0, Frequent 2, Locally frequent or abundant 4, Occasional 2, Rare or R/LF 29. Bluebell (rare) only observed in one small area west of Upper Lake	c.6.2 ha (excluding the central track which is made ground)	A narrow strip of semi-natural, broadleaved woodland. A small watercourse runs south from Upper Lake at the northern end. Three small streams also traverse the strip but the banks are heavily shaded. The canopy is largely composed of middle aged to mature standards of pedunculate oak of similar age (oldest originally planted in about 1870) which are quite closely spaced... Throughout most of the wood the tree and shrub layer is densely shaded and the ground flora is not well developed or rich in species. Where there is greater light penetration there is more diversity in the ground flora, for example along the central track.
Upper Lake (in the Avenue)		0.65	The pond margins support rushes and wetland species
Middle Clearing	16: Abundant 2, Frequent 1, Occasional 2, Rare or R/LF 11; no bluebell observed	c. 2.2 ha	Middle Clearing is a small rectangular single species plantation (c.1950) of young to semi-mature, pedunculate oak. The Oaks are densely spaced and produce heavy shade. There is a sparse shrub layer and grassy field layer. A stream enters at the north-west corner exiting in the south east. The ground flora is impoverished, ancient woodland indicator herbs are rare.
Round Wood	7: Abundant 0, Frequent 1, Locally Abundant 0, Locally Frequent 0. Occasional 2, Rare or R/LF 4; no bluebell observed	c. 2ha	Round wood is a small densely-spaced young to semi-mature single species pedunculate oak plantation (c.1950), with a very sparse shrub layer and grassy field layer. The ground flora is impoverished, ancient woodland indicator herbs are rare.
Corsican Pine Plantation (The Triangle)	16: Abundant 0, Frequent 0, Locally frequent or abundant 3, Occasional 2, Rare or R/LF 11, bluebell rare	c. 3.6 ha	Maturing Corsican pine plantation (c.1960). Narrow fringe of semi-natural species along the southern and northern edges and a line of willow bushes and mature oak trees along a ditch and bank marking the western boundary and part way along the northern boundary. A minor stream cuts through the east of the area. The centre of the pine wood is shaded with mostly bramble, bracken and ivy as ground vegetation, but there are some scattered herbs mainly around the perimeter of the block, sections of the stream and in the south east. In the north west corner of the area there is a small beech plantation.

The Avenue

- 5.12 The Avenue is a complex woodland habitat though one that is a far less diverse now than when it was a pasture woodland on the unenclosed Havant Common (Havant Chase/Havant Thicket). Examples of what has been lost include; grazing and all its associated influences on the pasture woodland ecosystem (trees, ground flora, regeneration, shade etc.); simplification of woodland structure (no glades or drifts with scrub edges); reduced tree competition; reduced range of tree ages; limited survival of old growth epiphytes etc.

Table 5.2: Features of The Avenue

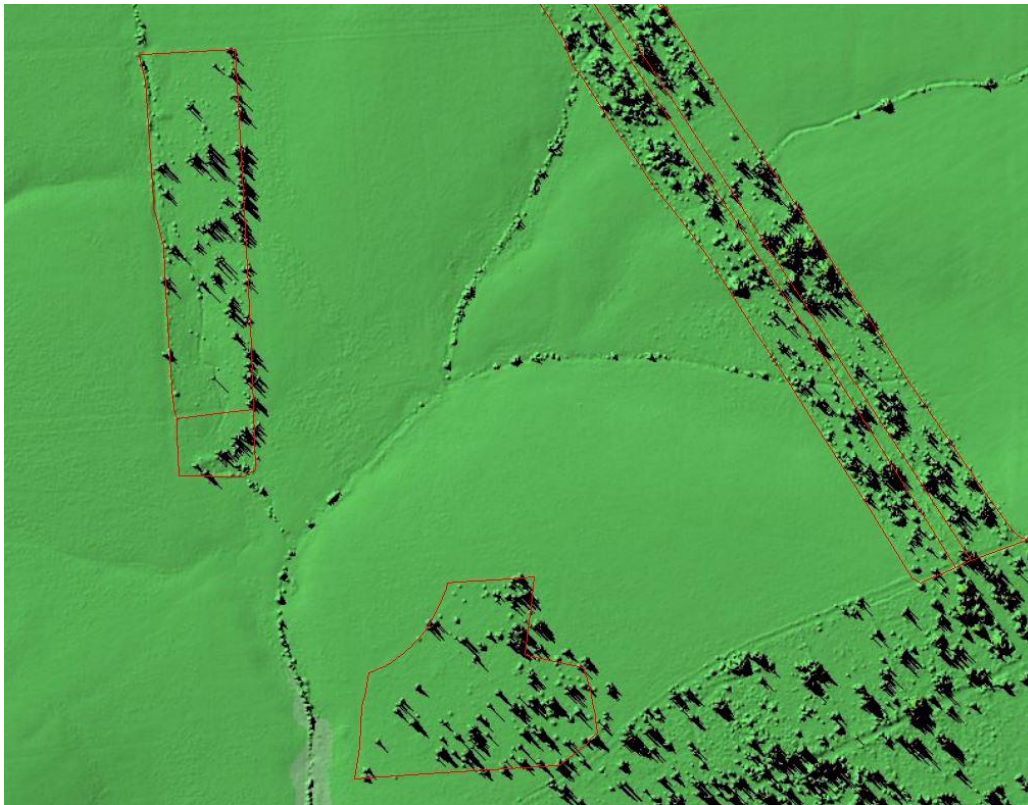
Feature	Comment
Landscape History	Descended from an unenclosed pasture woodland ecosystem and though modified still has relict pasture woodland features. Relict trees and ground flora present. Locally modified by Victorian planting of Black Pine and Oak. Ungrazed (since 1870?).
Presence of semi-natural woodland communities;	Recognisable Peterken Stand Types present (e.g. 6Dc and 6Db Lowland Hazel-Oak and Birch-Oak respectively (Sanderson, 1994) and NVC woodland communities derived from ancient pasture woodland.
Ground flora and ancient woodland vascular plants	37 AWVP species recorded. A shaded, ungrazed ground vegetation that is in places bare ground or otherwise largely dominated by Bracken-Bramble
Extent of Disturbance to soil	The soils here appear to be relatively undisturbed other than adjacent to Upper Lake and the main track, the latter which appears to be composed of imported material.
Lichens and Veteran Trees	19 pre-enclosure trees (veteran trees) were recorded by Sanderson and Cross in 2019. Lichen species indicating ecological continuity with the pre-enclosure ancient pasture woodland ecosystem occur in The Avenue (see Lichen report in Appendix 1).

- 5.13 The Avenue is now an ungrazed, little managed woodland with a 'high forest' structure. Much of the woodland ground layer is shaded suppressing the abundance and diversity of the ground flora. Where light gets through, Bracken –Bramble scrub is locally prominent, again affecting the ground flora. Localised patches of dense regeneration of trees and shrubs shades the lower trunks of mature trees.
- 5.14 The Avenue is in unfavourable condition and that condition will be maintained for the foreseeable future in the absence of specific management.

Middle Clearing

- 5.15 This area of former pasture woodland is now a near monocultures of youngish (c.70 years), planted oak trees. The ground flora is one of an herb-poor agricultural grassland rather than a woodland ground flora and vegetation composed of forbs and with few ancient woodland vascular plants prominent. The grassland is dominated by Common and Creeping Bents and Rough Meadow-grass. The species-poor grassland that dominates most of this woodland floor is probably a result of cattle using the area for grazing and shelter over the past decades.

Fig 5.3: Middle Clearing and Round Wood over LIDAR 1m/2m DSM.



- 5.16 Norton describes the vegetation of the Middle Clearing as:

“Middle Clearing is a rectangular single species plantation of semi-mature pedunculate oak planted in around 1950, with a sparse shrub layer and grassy, species poor field layer. A stream enters at the north-west corner, runs along part of the western boundary, and then meanders through the southern half of the wood, exiting at the south-east boundary. ... There is also an old boundary bank along at least part of the western edge of the wood. Soils are poorly-draining in the southern half of the wood. During previous surveys cattle had access to the wood and had poached some of the wet areas; but there was no grazing in 2018.

*The Oaks are densely planted, semi-mature (roughly 30-40 centimetres. Diameter at Breast Height (DBH) and produce heavy shade over much of the wood. There is a sparse shrub layer of hazel and hawthorn with occasional holly. The field layer is largely species poor, being dominated by grasses, especially rough meadow-grass and floating sweet-grass, with abundant remote sedge and wood sedge and occasional soft rush. Similar vegetation occurs in the stream channel, where it is shaded under trees. Some ancient woodland herbs and other species occur underneath the trees, notably southern wood-rush *Luzula forsteri* (in at least two places), slender *St John's-wort*, bitter-vetch and primrose. Wood Anemone and bush vetch *Vicia sepium* occur on the boundary bank near the north-west corner. Nearby, a sunny section of this bank also supports some woodland and dry grassland species, including betony, barren strawberry *Potentilla sterilis*, tormentil and heath speedwell.”*

Table 5.3: Features of the Middle Clearing

Feature	Comment
Landscape History	Originally part of an unenclosed pasture woodland ecosystem. This strip of land was cleared after 1870 and shown as a treeless plot on the 1895 OS 25 inch map. The 1907 OS 25 inch map shows it as a mixed woodland that must have been planted soon after 1895. This mixed woodland was thinned/cleared (or possibly failed) by 1946 (see Appendix 2 for aerial photo) and then planted up as an oak plantation by 1954. Grazed and used for shelter by cattle (from unknown date, possibly the 1970s) to the present day.
Presence of semi-natural woodland communities	There is no recognisable Peterken Stand Types present and no old semi-natural NVC woodland community in the canopy, shrub or ground layer.
Ground vegetation and ancient woodland vascular plants	The woodland present is a plantation over a fertile, species-poor grassland rather than a woodland vegetation. 16 AWVP species recorded with varying degrees of abundance though most are rare and not part of a woodland community.
Extent of Disturbance to soil	Soil will have been disturbed when the pasture woodland was cleared and the various plantations established. How extensive this has been is difficult to tell because of the influence from the cattle grazing. .
Lichens and Veteran Trees	There are no veteran trees in Middle Clearing and there is no lichen interest.

- 5.17 There is very little surviving of the ancient pasture woodland to assess its condition. The current woodland - a plantation - is in unfavourable condition as a woodland because of, for example, the lack of diversity in the woodland canopy, the near absence of a shrub layers, and the ground flora being largely a fertile, species-poor herb-poor grassland.
- 5.18 Intensive use of the Clearing by cattle has led, or contributed significantly, to the development of grassland ground vegetation rather than a woodland ground flora. In the absence of any specific management, the unfavourable condition of Middle Clearing will continue into the foreseeable future.

Round Wood

5.19 This area of former pasture woodland is now a young oak plantation with a sparse holly *Ilex aquifolium* understory. In contrast to Middle Clearing, which is a younger, more uniform oak plantation, there is some difference in the sizes of the oaks here. The largest of the oaks was about 2.30m girth but these larger trees were not common. Most of the oaks were a lot smaller at about 1.5m girth. The different sizes in the canopy can be seen on the 1954 aerial in Appendix 2

5.20 The ground vegetation in Round Wood is one of a fertile, species-poor agricultural grassland rather than one of woodland vegetation. The grassland is dominated by Common Bent, Cock's-foot, Rough Meadow-grass and Yorkshire Fog (see Norton 2019) with few other herbaceous species. Ancient woodland vascular plants are generally rare with 7 species recorded.

5.21 Norton (2019) describes the vegetation of the Round Wood as:

“Round Wood is a maturing, densely-spaced single species oak plantation with a sparse shrub layer and very species poor grassy field layer. It is unfenced and was grazed by cattle in 2008, but not in 2018....

*The oak trees range from 25-50 centimetres DBH and the canopy cover is approximately 80 percent. The shrub layer is composed of sparse holly and hawthorn, with some butcher's-broom *Ruscus aculeatus*. There is a three-metre diameter patch of dwarf gorse on the western margin.*

*The field layer is dominated by grasses, especially rough meadow-grass, Yorkshire-fog and creeping bent. Herbs include abundant wood dock *Rumex sanguineus* and occasional broad-leaved willowherb *Epilobium montanum*, greater stitchwort and dog-violets *Viola* species, with locally frequent three-nerved sandwort *Moehringia trinervia*. Other woodland indicator species recorded include remote sedge, wood sedge and giant fescue. Despite a number of years survey effort only 7 AWVP have been observed at low density.”*

Table 5.4: Features of Round Wood

Feature	Comment
Landscape History	Originally part of an unenclosed pasture woodland ecosystem though little, if none, of that is present today. The pasture woodland was cleared after 1870. Round Wood was created between 1946 and 1954 by cutting its shape out from a more extensive young plantation. Grazed by cattle (from unknown date, possibly the 1970s).
Presence of semi-natural woodland communities	No recognisable semi-natural NVC woodland community or Peterken Stand Types present. The woodland present is ‘artificial’ in that it is a plantation over a highly modified woodland ground flora that is a species-poor grassland vegetation rather than a woodland vegetation.
Ground vegetation and ancient woodland vascular plants;	7 AWVP species present growing amongst a fertile herb-poor pasture
Extent of Disturbance to soil	Soil will have been disturbed when the pasture woodland was cleared and the oak plantation established. How extensive this has been is difficult to tell because of the influence from the cattle grazing. .
Lichens and Veteran Trees	There are no veteran trees in Round Wood and there is no lichen interest.

5.22 Round Wood cannot be assessed for the condition of its ancient pasture woodland as almost nothing remains of that; what is assessed here is the recent oak plantation. Round Wood is in unfavourable