

Ancient Woodland Inventory amendment request report: “Havant Thicket” – (grid reference SU715104)

Dr Marion Bryant, Natural England, Polwhele, Newquay Road, Truro, TR4 9AD.

16 April 2020

Ancient woodlands are defined as woods that have existed continuously since 1600AD (Spencer and Kirby 1992). Ancient woodland covers approximately 2.6% of England and includes two categories, ancient semi-natural woods (ASNW), which are predominantly native trees and shrubs, and plantations on ancient woodland sites (PAWS), where the natural tree canopy has been felled and replanted with plantation species. PAWS are valued because they retain interest and can be restored back to ancient semi-natural woodland. Ancient woodland is an irreplaceable habitat – once lost, it cannot be recreated.

Ancient woodland is protected under the National Planning Policy Framework (MHCLG 2012), which gives planners guidance on how to consider ancient woodland and veteran trees in development decisions.

Natural England and Forestry Commission’s standing advice on ancient woodland and veteran trees (Defra 2018) aims to help planners in their decision-making and can be found online (see references below).

The Ancient Woodland Inventory (AWI) represents Natural England’s best assessment of the extent and distribution of ancient woodland, but revisions may occur as and when new evidence is brought forward. Natural England have been asked to examine an evidenced case for the removal from the Ancient Woodland Inventory of the woodland blocks around Havant Thicket referred to as: Middle Clearing, Round Wood and The Blendworth Fragment, centred around grid reference SU715104. This document summarises an assessment of the evidence presented to Natural England.

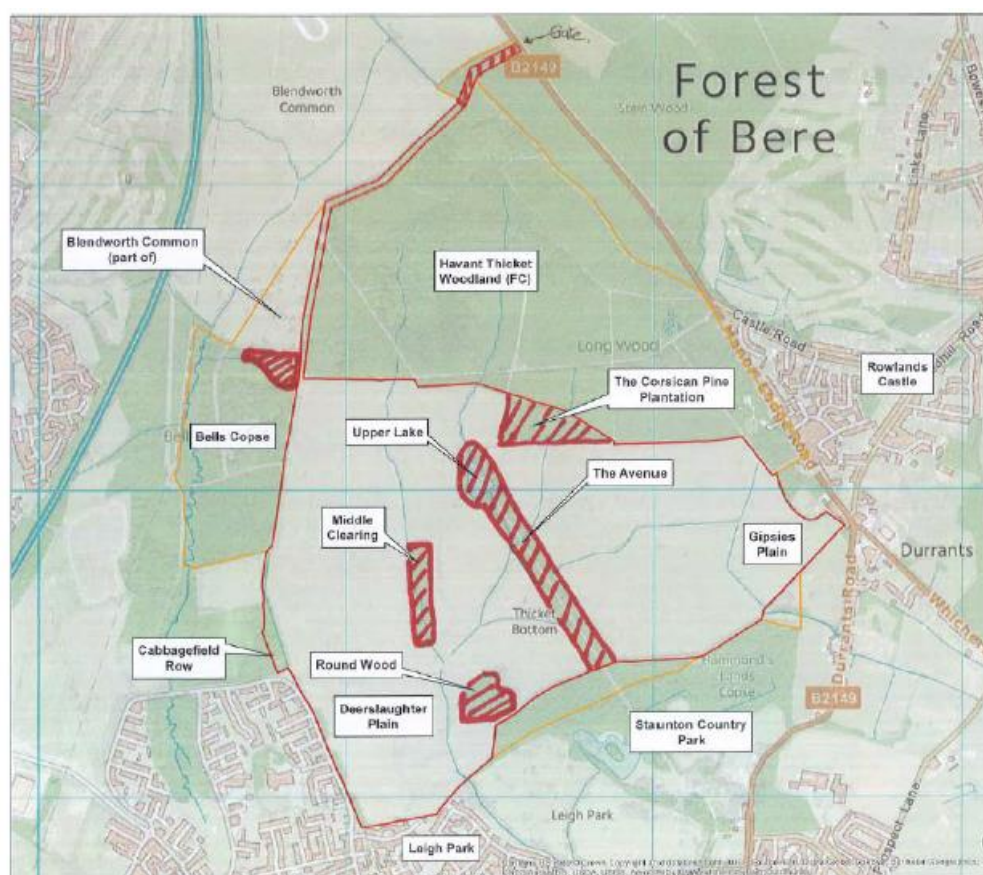
The context of this case is that Portsmouth Water Ltd. are responsible for preparing a planning application for the development of a winter storage reservoir. The woodland blocks lie within or adjacent to the development area and will potentially be lost to, or impacted by the development. The question of the ancient status of these woodlands has implications for the development of a suitable compensation package.

Cross and Sanderson (2020) in their report titled ‘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’, present an evidenced case for removal of the woodland blocks around Havant Thicket referred to as: Middle Clearing, Round Wood and the Blendworth Fragment.

Cross and Sanderson (2020) also examined woodland blocks referred to as: The Avenue, Corsican Pine Plantation and Bell’s Copse Fragment, which they conclude are ancient woodland. This accords with my previous report (Bryant, 2018 – appended to this report), which examined evidence previously presented by Portsmouth Water Ltd. on the status of four woodland blocks south of Havant Thicket: Corsican pine plantation, Round Wood, The Avenue, and Middle Clearing. In this report I concluded that all four woodland blocks constitute ancient woodland. I have previously examined evidence for the Bell’s Copse Fragment, presented by Portsmouth Water in e-mail correspondence, and have concluded that this site is

also ancient woodland. Thus Cross and Sanderson (2020) come to the same conclusion of ancient woodland status for The Avenue, Corsican Pine Plantation and Bell's Copse Fragment. However, they conclude that Middle Clearing, Round Wood and The Blendworth Fragment are not ancient woodland. This report is therefore concerned primarily with examining their evidence for these three contended sites. It should be noted that I have not previously examined evidence for The Blendworth Fragment.

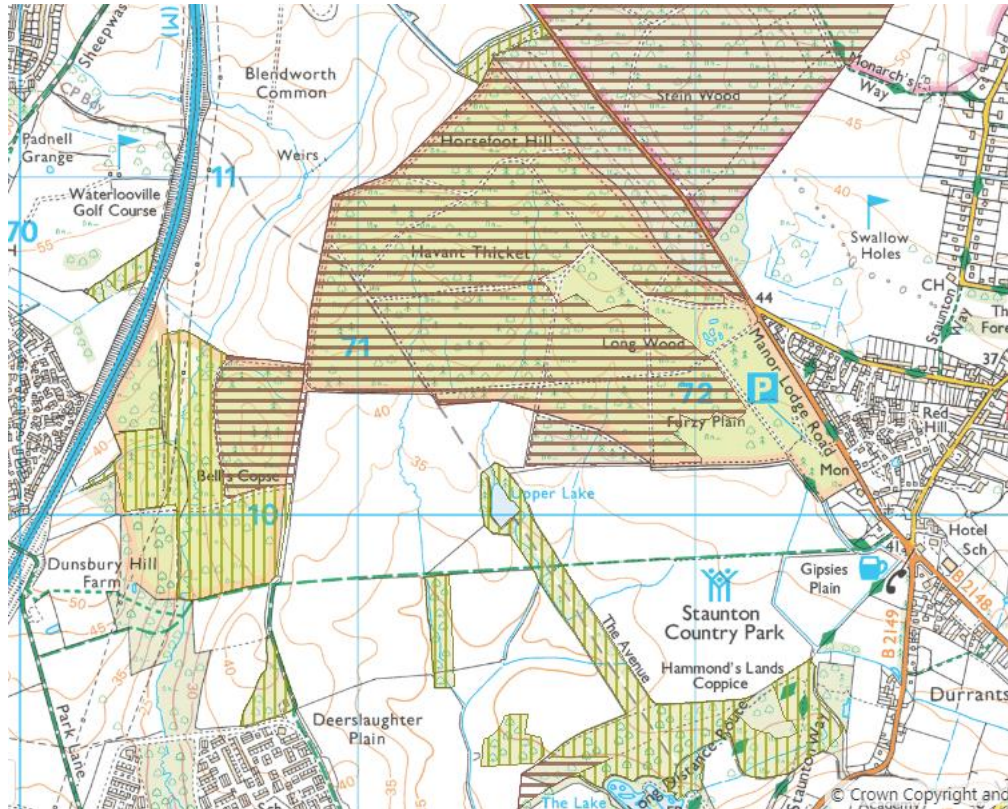
Location map (Cross and Sanderson, 2020) showing, in red hatching, the woodland blocks around Havant Thicket: The Blendworth Fragment, Bell's Copse Fragment, The Corsican Pine Plantation, The Avenue, Middle Clearing and Round Wood. Please note that The Blendworth Fragment is incorrectly marked on this map – and should be shown as the woodland strip immediately to the north of the northern-most hatched area on the map.



Havant Thicket – current situation on the ancient woodland inventory

The woodland blocks around Havant Thicket: The Blendworth Fragment, Bell's Copse Fragment, The Corsican Pine Plantation, The Avenue, Middle Clearing and Round Wood are currently included on the ancient woodland inventory.

Location map showing the current AWI. Green hatching shows ASNW and brown hatching shows PAWS. Note that the correct mapping of The Blendworth Fragment is shown as the ASNW in the top centre of the map, and to the north of the Havant Thicket PAWS woodland block.



Cross and Sanderson (2020) refer to significant difference between the original and current AWI for the woodland blocks – see table reproduced below. An explanation of these differences is provided below.

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.

The classification of Round Wood was changed following my previous assessment of the area (Bryant, 2018), when I discovered that this site had been incorrectly classified as PAWS on the AWI.

Middle Clearing was on the original AWI as ASNW and therefore has remained unchanged in terms of its status on the inventory.

The relevant area of Bell's Copse first appears on the AWI in 2012 as part of the Southeast Survey update as ASNW. Why this is marked as 'woodland cleared since the production of the First Series OS 1:25000 maps c. 1920' in the original AWI map is unclear. The original AWI datasheet comments that Bell's Copse is shown as 'well wooded' – it does however, below the Bell's Copse entry, refer to an area of land grubbed for agriculture at 'Cabbage field row' – this is some distance to the south of Bell's Copse at SU707095. One can only speculate that this was the source of confusion which lead to the area being incorrectly omitted from the original inventory. There is no evidence for clearance of Bell's Copse from the historic map record, the site appearing consistently wooded on all maps sources on www.old-maps.co.uk between 1866 and 1992.

The Blendworth Fragment also first appears on the AWI in 2012 as part of the Southeast Survey update as ASNW. As this site is less than 2ha, the size cut off for the original AWI, it would not have been included if it was treated separately to the adjacent Havant Thicket woodland block.

Assessment of the map and historical evidence

Cross and Sanderson's (2020) executive summary for the three sites in contention:

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.**

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.**

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.**

Cross and Sanderson's (2020) acknowledge that Middle Clearing and Round Wood were originally part of the ancient pasture woodland complex. Ancient wood pasture is a type of ancient woodland, which is included on the ancient woodland inventory. The 'history of clearance, replanting and - in more recent times – was part of a modern grazing system' warrants further examination to see if wooded continuity is broken. There is no evidence from the historic mapping to suggest that wooded continuity has been broken for any significant period of time. Middle Clearing is shown as open on OS maps dating 1895-1899; on all other maps it is shown as wooded – the interpretation being clearance followed by replanting. Thus Middle

Clearing and Round Wood have wooded continuity according to the mapping evidence.

The historic mapping evidence shows that all three woodland blocks were part of the ancient pasture woodland complex before enclosure (in 1868 for Havant Common (also known as Havant Chase / Havant Thicket) and in 1816 for Blendworth Common). Tree distribution on the pre-enclosure maps will by the nature of the pasture woodland complex and the nature of the map in question, be variously depicted, and make exact conclusions as to the treed nature of any part of the site at any time problematic. However, such conclusions are unnecessary as it is the identification of the ancient pasture woodland complex and its habitat continuity on undisturbed soils, which is important. Cross and Sanderson (2020) acknowledge that the Blendworth fragment was certainly on ancient, uncultivated ground. With No evidence of a significant break in wooded continuity post-enclosure, one can conclude that the mapping evidence supports the sites as ancient woodland.

The contention appears to lie in the survey evidence of what is currently extant, in the way of vegetation, including trees, and lichens, which is discussed in the next section.

Field surveys and remotely sensed data

Cross and Sanderson (2020) present lichen (Sanderson, 2019), vegetation and veteran tree survey data plus LIDAR images and aerial photographs taken between 1946 and 1981 from Viney (2012). Vegetation data is drawn from surveys undertaken by ECOSA (ECOSA, 2012 and Norton/ECOSA, 2019) and observations by Cross and Sanderson from November 2019.

Lichen survey

Of the three contended woods the Blendworth Fragment was not surveyed in the lichen survey and Middle Clearing and Round Wood were found to have no notable lichen interest.

Veteran tree survey

No veteran trees were recorded in the three contended woods. Although a moderately large oak stub with a girth of 233cm is present on the Blendworth/Havant parish boundary bank, which is identified as a 'character tree' rather than a veteran.

Vegetation survey

Sixteen ancient woodland indicator species, two of which are described as abundant, were found in Middle Clearing. These ancient woodland indicator species are described as present in low numbers and in restricted locations. The ground flora is described as species poor, fertile grassland with a few relict features present.

Round Wood ground vegetation is described as species-poor grassland dominated by species characteristic of fertile ground; with a few ancient woodland vascular plants (7 species – Norton/ECOSA 2019) present in low numbers and in restricted locations.

The Blendworth Fragment is reported to have an NVC community referable to W10a / W10c that is species-poor. The total number of ancient woodland indicator species is unknown, but four are mentioned in Norton/ECOSA (2019).

Sixteen ancient woodland indicator species is a relatively high number for such a small and relatively isolated block of woodland as Middle Clearing. The same number of ancient woodland indicator species was found in the Corsican Pine Planation, which Cross and Sanderson (2020) conclude is ancient woodland.

Cross and Sanderson (2020) note that the Blendworth fragment is in unfavourable and probably declining condition. Woodland condition has no bearing on ancient woodland status, as condition can be improved and sites have the potential to be restored. Also their November site visit is not a suitable time to conduct woodland survey / assessment.

LIDAR

The LIDAR images presented are a mixture of 1m/2m DTM (Digital Terrain Model) and DSM (Digital Surface Model) (EA Open Government Data). Flight dates and projections are not specified.

The LIDAR image, showing all the sites, shows that all three woodland blocks have a rough / textured ground appearance like the other ancient woodlands in the vicinity, an indication of relatively undisturbed soils; and are readily distinguishable from the surrounding improved arable land, which has a smooth surface.

Aerial photography

The aerial photographs taken between 1946 and 1981 indicate various clearances, replanting and regeneration events, effecting the woodland blocks, reflecting the nature of woodland management in the area. There is no evidence of soil removal / destruction. Note that the Blendworth fragment is not covered by the aerial photography.

Discussion of survey evidence

Cross and Sanderson (2020) conclude 'little survives to justify an ancient woodland status' and 'so little survives of the biological heritage of this plot, it is difficult to describe it as ancient woodland' for Middle Clearing and Round Wood, respectively. And of the Blendworth Fragment: 'surveys by Norton (2019) record vegetation not really characteristic of ancient woodland'.

Cross and Sanderson (2020) say that 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. This is because many, if not most, ancient woodland sites have been cleared and replanted multiple times during their history; PAWS sites would not exist if ancient woodland that has been cleared and replanted could be considered as not ancient. Disturbance due to forestry clearance and replanting can be severe and negatively impact on the survival of ancient woodland features, such as ground flora; however, only where soil profiles have been removed or destroyed in some way would we consider a site as no longer constituting ancient woodland. PAWS woods with intact soil profiles have the potential to be restored to ASNW and are included in the ancient woodland inventory.

The management history of these woodland blocks is one of significant intervention, of clearances and replanting, plus grazing and fragmentation in an impermeable arable landscape. With this management history coupled with the small and fragmented nature of the woodland blocks, one would only expect to find

impoverished ground floras with relatively low numbers of ancient woodland indicator species. This makes the sixteen ancient woodland indicator species found in Middle Clearing of even greater note. The survey evidence is in accordance with disturbed woodlands of ancient origin.

Conclusion

There has not been sufficient evidence submitted, which follows Natural England's evidence standard, for the removal of the three woodland blocks around the present day Havant Thicket: Middle Clearing, Round Wood and The Blendworth Fragment, from the Ancient Woodland Inventory. Therefore the sites will remain on the inventory.

References

Cross A.M. and Sanderson N.A. (2020) 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.

Defra (2018) Ancient Woodland and Veteran Trees: protecting them from development. <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

MHCLG (2012) National Planning Policy Framework
https://www.gov.uk/guidance/national-planning-policy-framework/11-conserving-and-enhancing-the-natural-environment#paragraph_118

Sansum, P. and Bannister, N.R. (2018) A Handbook for updating the Ancient Woodland Inventory for England. Natural England.

Spencer, J.W. and Kirby, K.J. (1992) The Ancient woodland inventory. Biological Conservation

Appendix:

Report by Dr Marion Bryant (2018) - on examination of evidence for the status of 4 woodland blocks south of Havant Thicket, presented by Portsmouth Water Ltd. in reports: Havant Thicket winter storage reservoir site. Site History. 2012. Portsmouth Water, and Havant Thicket winter storage reservoir site. Vegetation report. 2012. Portsmouth Water.

Amendment to the Ancient Woodland Inventory: "Havant Thicket" – (grid reference SU717096)

Dr Marion Bryant, Natural England, Polwhele, Newquay Road, Truro, TR4 9AD.

4 December 2018

Ancient woodlands are defined as woods that have existed continuously since 1600AD (Spencer and Kirby 1992). Ancient woodland covers approximately 2.6% of England and includes two categories, ancient semi-natural woods (ASNW), which are predominantly native trees and shrubs, and plantations on ancient woodland sites (PAWS), where the natural tree canopy has been felled and replanted with plantation species. PAWS are valued because they retain interest and can be restored back to ancient semi-natural woodland. Ancient woodland is an irreplaceable habitat – once lost, it cannot be recreated.

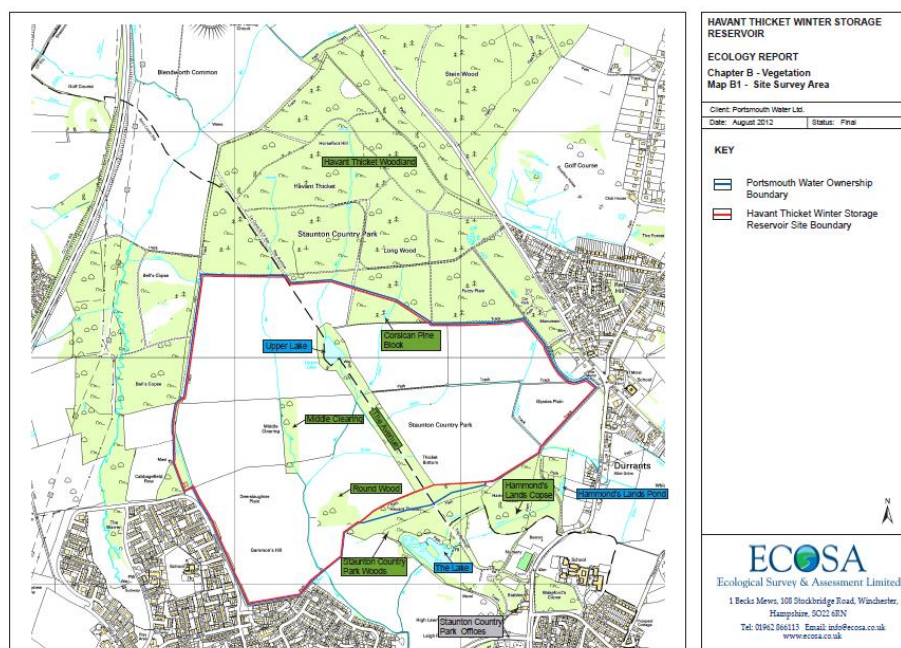
Ancient woodland is protected under the National Planning Policy Framework (MHCLG 2012), which gives planners guidance on how to consider ancient woodland and veteran trees in development decisions.

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The Ancient Woodland Inventory represents Natural England's best assessment of the extent and distribution of ancient woodland, but revisions may occur as and when new evidence is brought forward. Natural England have been asked to amend the Ancient Woodland Inventory to remove the woodland blocks south of Havant Thicket referred to as: the Corsican pine plantation, Round Wood, The Avenue, and Middle Clearing, centred around grid reference SU717096.

The context of this case is that Portsmouth water are responsible for the development of a winter storage reservoir, which has extant planning permission. The development area is outlined on the location map below; all four woodland blocks lie within this area and would be lost to the development. The question of the ancient status of these woodlands has implications for the development of a suitable compensation package. Portsmouth water have presented an evidenced case for the removal of the ancient status from these woodland blocks. This document summarises an assessment of the evidence presented to Natural England.

Location map showing the woodland blocks south of Havant Thicket: Corsican pine plantation, Round Wood, The Avenue, and Middle Clearing.



Havant Thicket – current situation on the ancient woodland inventory

The woodland blocks south of Havant Thicket: Corsican pine plantation, Round Wood, The Avenue, and Middle Clearing are currently included on the inventory.

Assessment of the map and historical evidence

The woodland blocks south of Havant Thicket (SU717096) are included on the all map sources on www.old-maps.co.uk between 1870 and 1991; however, they are part of the formerly much larger area of Havant Thicket, until 1946, after which time, phased clearance of woodland reveals the blocks in their present form as mapped in 1991. The consistency of their presence between these times is not in question.

While the relevant areas of Havant Thicket are clearly shown as woodland on the above maps, older historic maps show a more open vegetation structure. These maps are presented in Portsmouth Water (2012), listed below, and examples of them are shown below.

Appendix A – Pre-1860 Historic Maps & Leigh Park Estate Maps up to 1874

Figure 3: 1759 Isaac Taylor one inch map of Hampshire

Figure 4: 1791 Thomas Milne one inch map of Hampshire

Figure 5: Forest of Bere as described in a 1688 perambulation (John Pile)

Figure 6a: 1792-1800 Map of Leigh Park (John Pile 1994)

Figure 6b: Areas of common pasture land prior to enclosure in 1870 (John Pile 2005)

Figure 7a: 1810 OS first series one inch map

Figure 7b: Extract of map in the Sales Catalogue 1819 (Staunton Purchase)

Figure 8: 1833 Map of Parishes of Warblington, Havant and Bedhampton (I.T & C. Lewis)

Figure 9a & b: Extracts of the 1842 Tithe Map for the Parish of Havant

Figure 10: 1842 Map of Havant Manor by C. Lewis

Figure 11a: 1860 Map of Sales Particulars for Leigh Park Estate

Figure 11b: Extract of map from Sales Catalogue 1861 (Stone purchase)

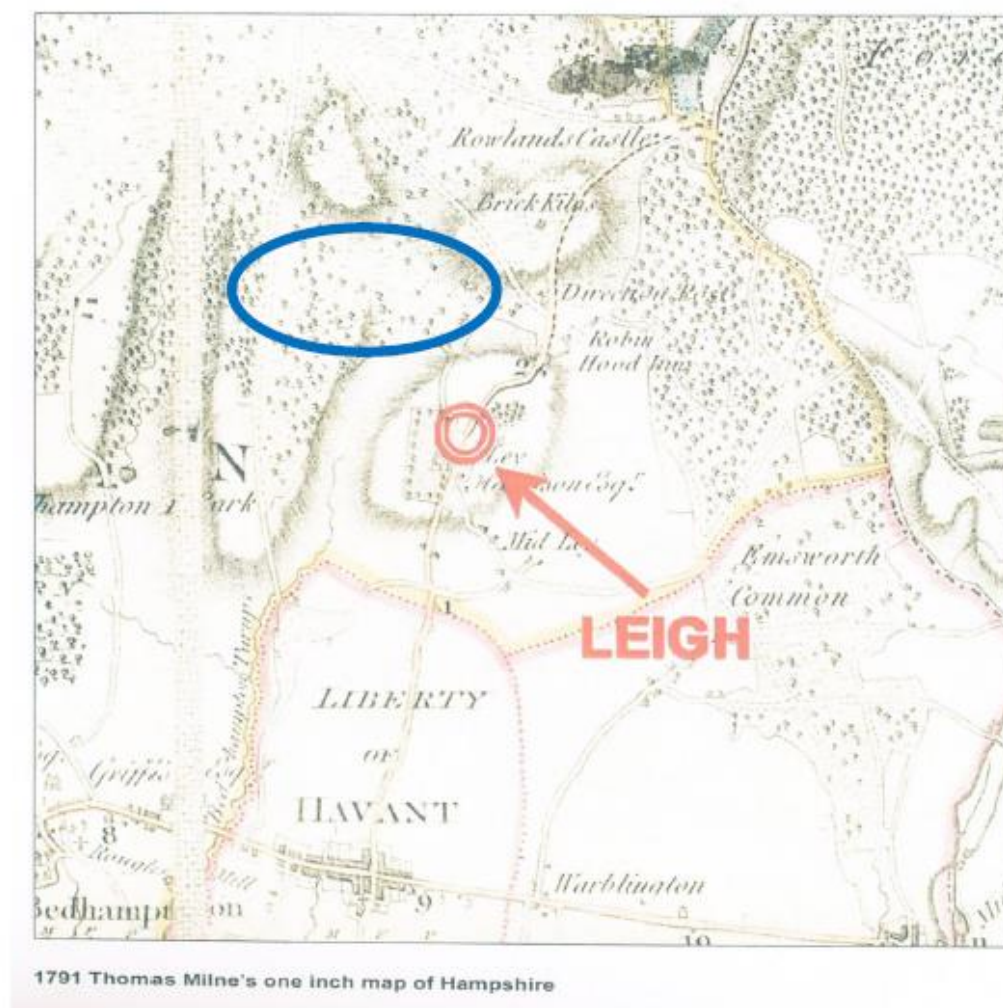
Figure 12a: 1874 Plan of the Freehold Estate distinguished as Leigh Park

Figure 12b: Extract of map from Sales Catalogue 1874 (Fitzwygram purchase)

The 1759 Isaac Taylor one inch map of Hampshire depicts the approximate area as open land named as Havant Chase.

Thomas Milne's 1791 one-inch map of Hampshire, showing scattered trees.

Source: Staunton Country Park Historic Study, Volume 1, May 2004, Gifford & Partners Ltd.



— Approximate location of proposed reservoir boundary

The woodland blocks in question are located approximately within the blue circle indicating the approximate location of the proposed reservoir.

In the tithe map for the Parish of Havant 1842. (Source Hampshire Records office ref. 21M65/F7/110/2) the area is depicted as open land with scattered trees and described in the tithe apportionment as 'wood and pasture'.

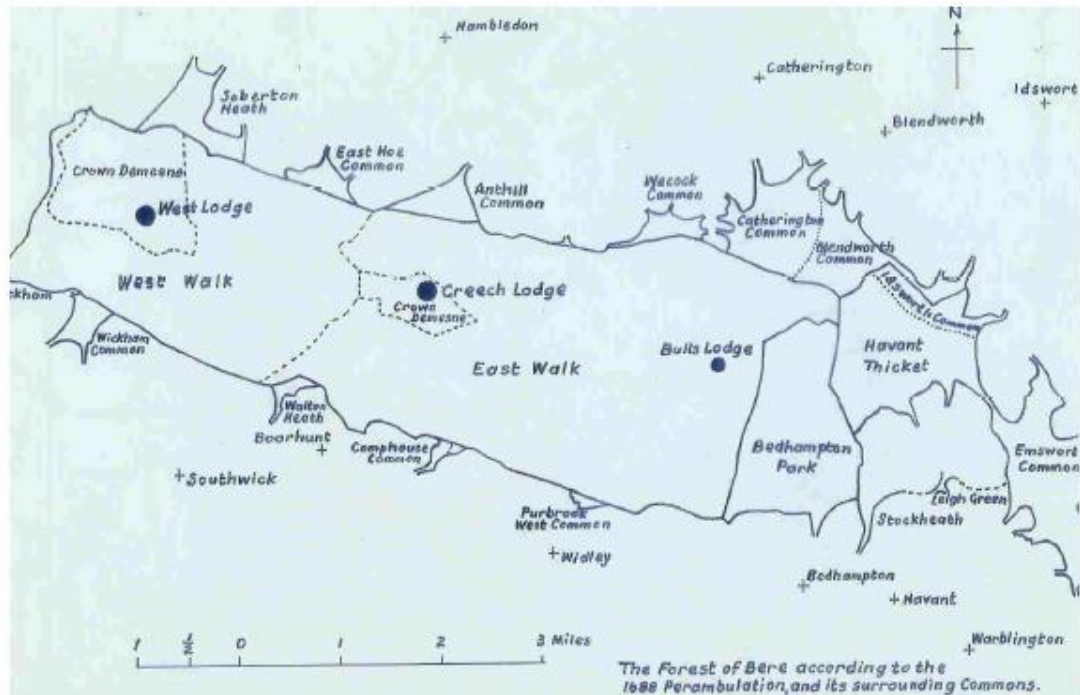
Exert from the OS First Series map Hampshire 1810, scale 1:63360. The blue circle denotes the approximate location of the reservoir boundary.



The OS First Series map Hampshire of 1810 shows a treed landscape which is more open than that of Bells Coppice to the west.

Both exerts below are recent interpretations of historic documentation by the historian J. Pile and are presented in Portsmouth Water (2012).

Forest of Bere as described in1668 preambulation (J Pile, 2001).



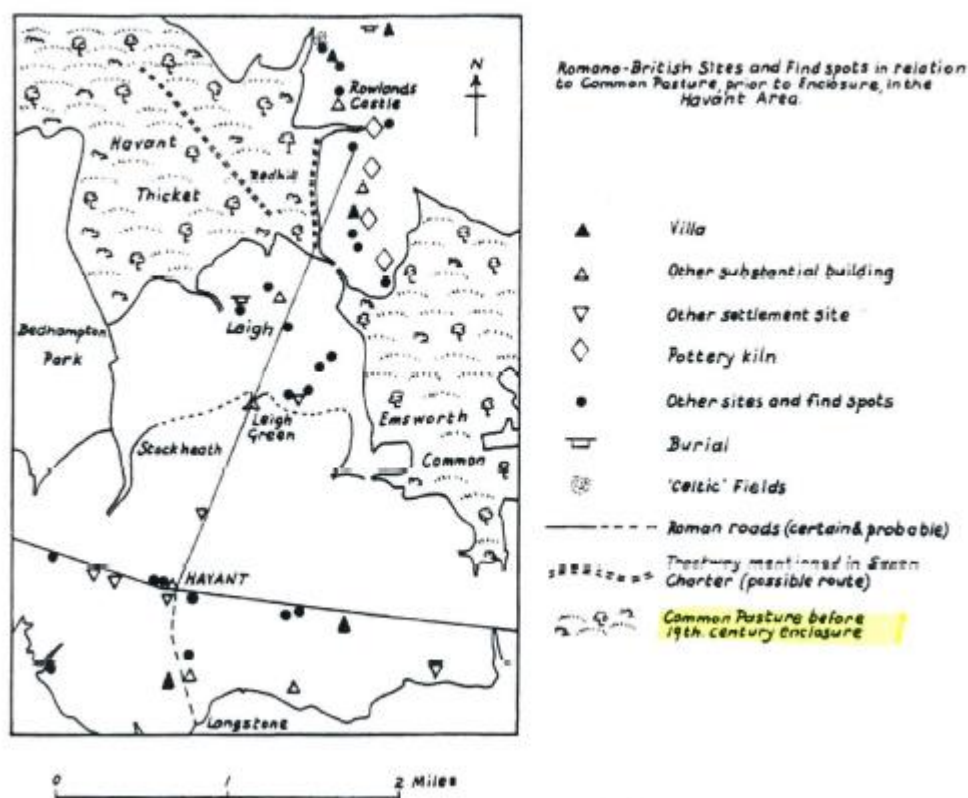
Note: This map was produced by John Pile a local historian in 2011. The outline of the Forest of Bere is based on his interpretation of the 1688 perambulation of the Forest, as printed in the Thirteenth Report of the Commissioners appointed to enquire into the State and Condition of the Woods, Forests, and Landed Revenues of the Crown [etc.] 1792. This report dealt entirely with the Forest of Bere. Other principle sources for the map included the Forest of Bere enclosure award and map 1814 (Hampshire Records Office), and various maps included in the Clarke Jervoise archive (Hampshire Records Office). The outline of Bedhampton Park is based on the Bedhampton Tithe Map. JP advised that although disparted when the Tithe map was drawn, land formerly within the Park was exempt from the standard tithe title charges, but subject to a modus; this enabled him to recreate the boundaries of the medieval deer park with considerable accuracy.

John Pile confirmed that the Manor of Havant was entirely within the old ecclesiastical parish as shown on the Lewis map of 1833 (Figure 8). Havant Thicket (formerly also known as Havant Chase) was within the Manor of Havant. In the 1688 perambulation Havant Thicket was not within the Forest of bere.

John Pile also concluded that Havant Thicket was likely to have been part of the Forest of Bere in Norman times.

Areas of common pasture land prior to enclosure in 1870.

Source: Romano-British and Saxon Commons, The evidence from Leigh, Havant, John Pile, 2005
Published in Hampshire Field Club and Archaeological Society Newsletter 43, Spring 2005



The map indicates that the land at Havant Thicket, north of Leigh was common pasture land with scattered trees before enclosure in 1870.

From Portsmouth Water, 2012: Prior to enclosure in 1870 the site was part of the wastes of the Manor of Havant. From 1800 the area was leased by the owners of the mansion house at Leigh, but copyholders still had the right to graze animals across Havant Thicket. As the level of grazing reduced more tree growth occurred and this would have been supplemented by planting undertaken by the new lease holder.

The English heritage entry for the Historic Park and Garden summarises the historic development of the park. The English heritage text indicated that; "During the medieval period, the land at Leigh Park comprised woodland and pasture which lay adjacent to the ancient royal forest of Bere. Havant thicket was described by another source as a 'large tract of land containing about 800 statute acres was formerly a chace (Havant Chace) or privileged place for deer and beasts of the forest'.

In 1810 a study of Agriculture in Hampshire made by Charles Vancouver described Havant Thicket, owned by the Bishops of Winchester, as being an example of the best managed woodland he had seen.

The interpretation of the historic evidence, in Portsmouth Water (2012): Initially the habitat developed from a largely open landscape (1759 map – Figure 3) to what was most likely a grazed heath / grassland with scattered trees (1791 map – Figure 4),

and eventually into wood pasture, with glades, rides and open heathland areas (1867 map – Figure 13). Following enclosure in 1870 the land was fully incorporated into the Leigh Park Estate. The area was planted with oak in compartments. The habitat became a managed woodland for timber, shooting and recreational pursuits. Most of the area was cleared of trees prior to 1954.

The above interpretation of the development of the nature of the vegetation structure is not in question, as while the older maps are less reliable than the more recent OS maps, in terms of accuracy of location and depiction of features, the volume of evidence here indicates the continuous presence of wood pasture with varying, but not dense tree cover, prior to enclosure in 1870, when woodland was established as part of the Leigh Park Estate. To summarise, the historic evidence that indicates that the area in question was part of the Forest of Bere in Norman times and more recently was part of the wastes of the Manor of Havant, and later incorporated into the Leigh Park Estate supporting the long established habitat continuity at this site.

The situation with respect to the ancient woodland inventory is that ancient wood pasture (i.e. that with habitat continuity since 1600AD) is a form of ancient woodland that should be included on the ancient woodland inventory as outlined in Spencer and Kirby (1992) and Sansum and Bannister (2018). In practice this has been applied inconsistently across the country. However, it is Natural England's view that the woodland blocks in this case were correctly included on the original Hampshire ancient woodland inventory.

Field surveys

Field survey of the woodland blocks has been undertaken by Portsmouth Water (2012) over 3 years which has identified generally impoverished ground floras with between 3 and 9 ancient woodland indicator species, most at low levels of abundance, with bluebell only occurring rarely. These low levels of ancient woodland indicator species reflects the modified nature of these woodland blocks.

Round Wood is an oak plantation (Portsmouth Water, 2012) which has been categorised as PAWS woodland on the inventory. As oak is a native species this should be classed as ASNW.

Conclusion

There has not been sufficient evidence submitted, which follows Natural England's evidence standard, for the removal of the four woodland blocks south of the present day Havant Thicket: the Corsican pine plantation, Round Wood, The Avenue, and Middle Clearing, from the Ancient Woodland Inventory. Therefore the sites will remain on the inventory.

Round Wood has been categorised as PAWS woodland on the inventory and evidence shows that it is ASNW. The ancient woodland inventory will be amended accordingly. Please note that there may be a delay in amending the Magic database to reflect this decision.

References

Defra (2018) Ancient Woodland and Veteran Trees: protecting them from development. <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

Havant Thicket winter storage reservoir site. Site History. 2012. Portsmouth Water.

Havant Thicket winter storage reservoir site. Vegetation report. 2012. Portsmouth Water.

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https://www.gov.uk/guidance/national-planning-policy-framework/11-conserving-and-enhancing-the-natural-environment#paragraph_118

Sansum, P. and Bannister, N.R. (2018) A Handbook for updating the Ancient Woodland Inventory for England. Natural England.

Spencer, J.W. and Kirby, K.J. (1992) The Ancient woodland inventory. Biological Conservation