

Dallington Forest Ancient and Veteran Tree Survey 2017



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A report on work carried out concerning Ancient and Veteran* Trees in Dallington Forest by
Trees and Woodlands and Mosaic Mapping *August 2017*

* In general and for simplicity the term veteran will be used in this report though, whilst all ancient trees would be considered veteran, the converse is not true. Think ancient mariner and a young injured soldier – a veteran of a war.

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The Ancient Tree Forum visits Forge Wood, Dallington Forest in March 2017

1. Report Summary

This work is part of The Dallington Forest Project whose mission statement states it is to be an exemplar study of BIODIVERSITY and LANDSCAPE HISTORY.

The survey covered part of Dallington Forest, a landscape of predominantly ancient woodland including planted areas (PAWS) and pasture fields. Characteristic of the Weald, the area exemplifies a well wooded area with a long history of woodland management.

A total of 1014 individual trees and 15 groups of trees were recorded comprising 22 species of tree and shrub. Of these 987 are recorded as alive plus 27 trees as dead. Numerically, beech and oak dominate with 41% and 33 % of the total - all other species contribute either 5% or less of the total. Overall 49% trees are veteran and 6% are ancient

- 57% are coppice, 25% maiden and 12% forked (a subtype of maiden) and 4% natural pollard, all others <1%
- Of the beech – 11% are ancient and 48% are veteran, representing 75% and 40 % of the totals for each age class
- Of the oak – 1.5% are ancient and 37% are veteran, representing 8% and 25 % of the totals for each age class. It is postulated that the high numbers of ancient beech may be contributed to by the influence of landscape design within this area.

Regarding ancient and veteran Oak:

- There is a general association with boundaries and ghylls, with an area of ancient woodland to the SW an exception.
- The majority are coppiced – 80% and 74%.

Regarding ancient and veteran Beech:

- A similar picture to oak, but with a concentration of dispersed ancient trees in the Forge Wood area.
- The majority are coppiced – 59% and 71%.

A clear association of trees both showing stub cut and laid types of management with boundaries is apparent, though there are differences. The distributions suggest, certainly in some cases, that stub cut trees represent ownership boundaries, dividing woodland and former fields. Laid trees, though again associated with boundaries, show a different distribution – in that they are more prevalent in boundaries between fields (and former fields).

There are significant numbers of veteran and ancient trees in the area, with many trees (particularly those in woodland) requiring management to remove competitive growth (haloing) following the cessation of traditional woodland management. Species associated with veteran and ancient trees, particularly those that utilise decaying wood (saprophytic), require some light and warmth. These will benefit from such management provided it is carried out sympathetically. The requirements of epiphytic species and the special ground flora of the ghyll woodlands need to be accommodated as well.

Dallington Forest is poorly recorded for many species groups. Targeted survey for old growth specialists is recommended to understand the importance of this site.

2.1 Background

In 2008 Jamie Simpson was invited by the owners David Walser and Jan Peinkowski to visit a 23 acre plot of woodland within Forge Wood, Dallington (part SSSI – see Appendix V) to advise on and undertake some appropriate management for nature conservation. At that time approximately 13 acres was covered in dense *Rhododendron ponticum* and it was decided to remove this invasive species. Jamie undertook this work over a 2-year period and during that time a number of veteran beech and other impressive trees were revealed. At the end of this task the owners generously decided to give the woodland to Jamie, who then initiated a programme of works to enhance its biodiversity value. This was seen as an ideal opportunity to have a site where best practice and experimental veteran tree management, together with coppicing work - all with long term monitoring - could be undertaken to develop everyone's understanding.

Over the following 5 years restoration works were largely completed and after getting to know the surrounding landscape it became clear that Forge Wood sat within a very large area of continuous and varied woodland. A core area of about 1000 acres centred on Forge Wood was identified and deemed worthy of investigation. This core area is shown with a red line on Map I.

Following further investigation of the landscape this boundary was extended to encompass an unusually large area that has no through roads, little habitation and a varied mosaic of habitats lending it to be considered to be of local and national significance and value. Conveniently delineated by roads and extending to 4300 acres, this became the Dallington Forest Project area – shown in blue on Map I – and includes Binglett's Wood SSSI and part of the Willingford Meadows SSSI.



Map I The Dallington Forest Project Area – note the absence of through roads within the project area

2.2 Aim

The Dallington Forest Project Mission Statement

To be an exemplar study of BIODIVERSITY and LANDSCAPE HISTORY

- *to recognise and highlight the significance of the trees, grasslands and hedgerows both as individuals and as populations within these varied habitats*
- *to establish and promote the ecological value of the project area*
- *to demonstrate and inform others of best practice management for landscape and nature conservation*

Dallington Forest has been a utilitarian landscape for centuries providing many different products. As a result most of the features and habitats that exist today are due to the working of the land and that growing upon it. Continued management is vital for both the future survival of the associated biodiversity and to maintain the connection between the inhabitants and landscape utilisation, but this must be undertaken in a sensitive and considered manner. The area of the Dallington Forest Project can become a highly productive and sustainable landscape if managed correctly. Management that encourages conditions conducive for veteran tree growth and features, as well as actions such as restoring tree laying on boundary banks, are essential if the site's character is to endure.

So to summarise, the project is about emphasising the importance of ancient and veteran trees in wooded landscapes and this tree survey is intended to begin the process of accumulating basic knowledge of these trees within the core part of the project area. An examination of the distribution of trees with veteran characteristics, within the woodland of Dallington Forest and extending into the marginal landscape of the project area will hopefully lead to an examination of their associated biodiversity values. The area has a varied suite of soils and habitats that all interact thus making it enormously important for overall species diversity. The Project aim is to highlight and conserve this richness and attempt to increase appropriate and necessary management, always to the highest standards and latest scientific understanding.



Fig I A view of the varied habitats of the Dallington Forest Project area

3. The Dallington Forest Tree Survey

3.1 Why survey the Dallington Forest Project Area for ancient and veteran trees?

It is often said that, generally, you do not find ancient trees in ancient woodlands. Why is this so?

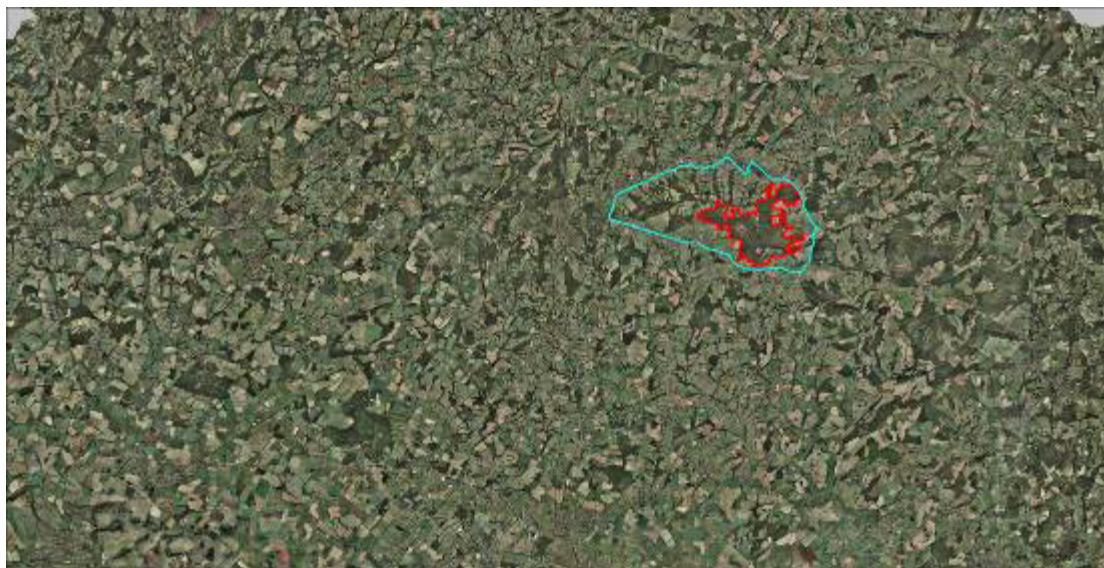
Concentrations of ancient and veteran trees are often associated with wood pastures, parkland, wooded commons and so on, where man's influence on individual trees is often the reason for their longevity and biodiversity importance. The practice of pollarding (management) resolves the conflict between the grazing of animals, be they commoner's stock or parkland herds, and the production of tree derived products, principally timber and wood, as well as mast and leaf fodder.

In managed woodlands the emphasis is on blocks of trees and the (intended) absence of grazing. Coppicing was widespread and is well documented for producing large amounts of wood in an intensive manner that benefits certain species of birds and plants, which are now in decline.

Older trees do occur within coppice compartments as standards but as these are destined for cropping when mature unless abandoned, they are harvested before veteranisation sets in to any great extent.

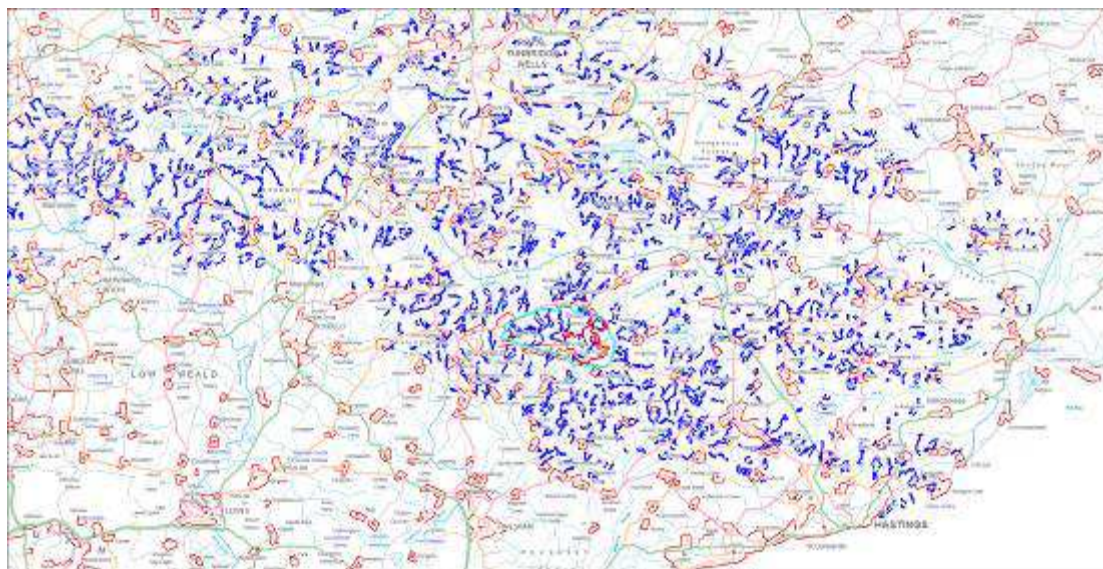
However, the subdivision into compartments (for management) and the extents of woodland (areas within different ownerships) are commonly marked by features such as banks, and often trees managed in specific ways, to aid the demarcation of these boundaries. Varying cutting techniques are employed. These vary from the laying of trees along a boundary (especially where stock-proofing is necessary) to the creation of pollards and stoggles/stub cuts etc. Tithe maps are inventories of parcels of land within a parish, dating to the 19th century. Often the distinction between field and woodland is not shown, but where these parcel boundaries are within woodland, wood-banks and associated veteran trees occur.

So woodland areas, and their interfaces with open countryside, have ancient and veteran trees and it is to explore this that Dallington Forest Project presents an excellent opportunity to study a relatively well-defined area. In fact, the project area, delineated by main roads, includes much of the historic area of Dallington Forest and its relatively undeveloped hinterland (Maps I and II). It allows not just the veteran and ancient tree interest of the woodlands to be studied, but also how this interest connects and extends into the wider area of fields and hedgerows.



Map II The Dallington Forest Project Area in East Sussex with original project area (red) and revised (light blue) – note the density of woodland cover particularly in the east of the area

Another factor is the presence, within this part of SE England of ghyll (or gill)* woodlands (in the SW of the country they are also known as goyles). These are ravine woodlands recognised for their important epiphytic assemblages. Where areas of plantations occur, it is often only the steep sided margins of the streams forming ghyll woodlands that retain their natural vegetation.



Map III The distribution of Ghyll woodlands In the High Weald data from Burnside 2006)

* For consistency, we have adopted the spelling of Ghyll used by Burnside et al (2006), throughout



Fig II Veteran alder alongside the Willingford stream

Although they have been relatively little studied scientifically and their ecological communities are incompletely understood Wealden ghyll woods have been proposed, with ample justification, to be nationally and internationally important for their biodiversity (Rose & Patmore 1997, Burnside et al. 2006). They provide environmental conditions and support assemblages of species that are rarely repeated outside southeast England.

Sansum (2014) writes, “It has been proposed that the ghylls of the High Weald (in reference to East Sussex) 'mark some of the oldest, least disturbed woodland in the south-east' (Marren 1992).” Yet ironically, there is no mention of “veteran” trees or “ancient” trees. This is surprising, as the continuity of habitat they provide has been shown to relate to the richness of assemblages of associated species; obviously this is especially true of saproxylic species, but this can be relevant where epiphytic species are considered. Because of their inherent longevity, providing a long-lived stable environment one would expect them to be exploited by species requiring such substrates.

One of the aspirations of the Dallington Forest Project is to explore associations with these trees and clearly the first step is to explore their distribution in relation to different habitats. This will pave the way to explore, for example, how the proximity of veteran trees to ghylls is reflected in richness of the different groups of associates. The importance of small, often thin areas of woodland, shaws etc is recognised by their inclusion in the Ancient Woodland Inventory revision (see below); a logical extension is to look for individual veteran trees in hedgerows and elsewhere.

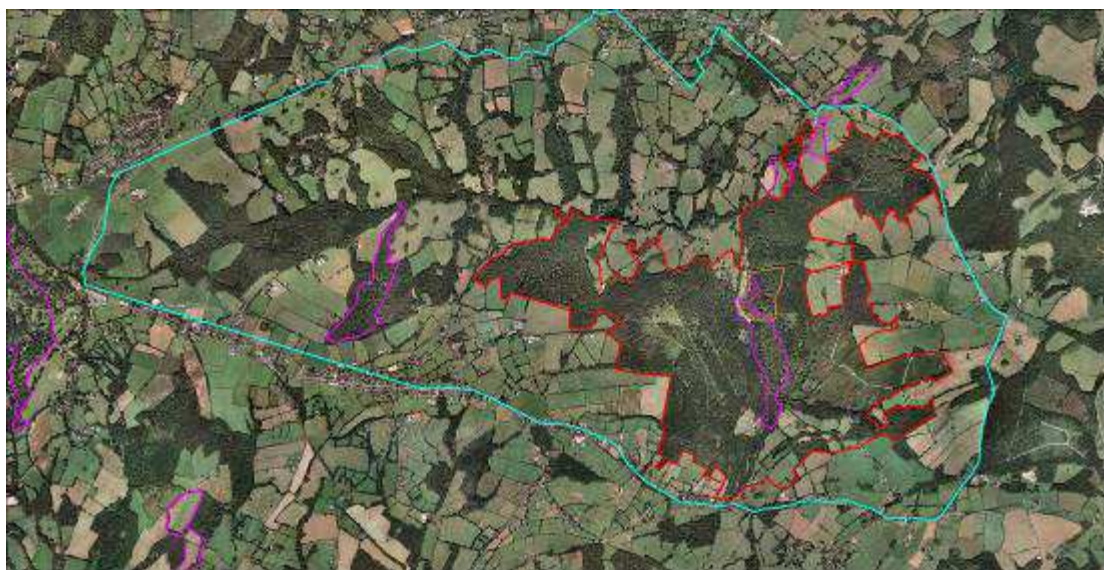
3.2 The varied habitats of the project area

The mosaic of habitats and their connectivity within the Dallington forest project area is what makes it a special and interesting place. The habitats that have been created by soils, topography, aspect and man include streams, heathland, grassland (within the forms of fields, glades and woodland rides), hedgerows and shaws (of varying size), scattered trees (including natural regeneration) and woodland. The woodland types are wide ranging with National vegetation classification types W4, W6, W7, W8, W10, W12, W15, W16 present, even within the ghylls there is great variation. The importance of the woodland types is represented in the different plant assemblages and their probable invertebrate and fungal species associations. Indeed, Sansum (2010) writes “The acidic oak-beech forest and fen alderwood around a gill running through Dallington Forest harbour one of the richest woodland floras in East Sussex”. What is clear, from our survey and observations, is that ancient and veteran trees are present in nearly all of the above habitats and woodland types, and that they will be enhancing the nature conservation value of them. As yet we have seen no written recognition of this or evidence to support their contribution from previous research or articles. Our survey highlights that within some habitats they are more at risk and that essential management of these trees including ensuring a new generation is of great necessity. Conditions for natural regeneration or planting are required to encourage tree species suitable to the soil type to ensure progression to the ancient age class i.e. acidic bilbury heath with veteran pines.

There are abundant archaeological features within the project area. A survey by Nicola Bannister in 2016 of a 23 acre compartment highlighted numerous features including wood banks, charcoal hearths, saw pits, quarries and hollow ways. Increasing the survey area would likely be of benefit to the further understanding of uses of Dallington Forest. These archaeological features are replicated throughout the project area and tree forms are often associated with them. For example, veteran standard trees within coppice woodland, open grown trees within heathland or most commonly laid and stub cut ancient and veteran trees on woodbanks.

Two more interesting features are the conundrum of seemingly open grown beech in replanted ancient woodland and the presence in some parts of numbers of veteran Scots Pine. The suggestion has been made that these might be elements of a designed landscape (Bannister 2016) - see under History, below.

In conclusion, the overall aim of this survey is to highlight the importance of the Dallington Forest Project Area for the number and species diversity of ancient and veteran trees present. It aims to show the range of habitats in which they are found and how veteran trees are an integral component of these. Examples include their role as substrate for epiphytes in ghyll woodland or large diameter decaying wood for invertebrates in open landscapes.



Map IV The Dallington Project Area – showing Forge Wood (orange) and SSSI boundaries (pink)

3.3 How the survey came about

Whilst the woodland restoration programme within Forge Wood was underway a number of experts associated with the Ancient Tree Forum (ATF) visited in order to discuss aspects of veteran tree management within woodland (the focus being more often on wood pastures and parkland). On a number of occasions it was recommended that a veteran tree survey encompassing Forge Wood and the surrounding woodland be carried out in order to ascertain the population size and significance of the veteran trees. It was obvious due to the number, size and form of the trees, particularly of the veteran beech, that the site was important but without comprehensive data it could not be formally recognised and supported. During the Woodland Trust's 'Ancient Tree Hunt' a number of notable trees had been recorded by Alison Wright but this fell short of a true representation of the population, probably in part due to the size of the site and restricted access because of private ownership.

We, the surveyors, have known each other for 10 years through ATF and have worked together on veteran tree mapping projects. We have often discussed the importance of unrecognised sites such as Dallington Forest for veteran trees. In 2016 funding was forthcoming from a private nature conservation trust in order to survey this site and produce a short report. Through Jim Smith Wright, the Woodland Trust's PAWS (Planted Ancient Woodland Site) Officer, we were introduced to the High Weald Area of Outstanding Natural Beauty (AONB) who kindly offered to support the survey by channelling the grant, providing resources, especially GIS data, and contacting site owners.

These indicate that though not a “Royal Forest”, an identifiable area, often referred to as Dallington Forest, existed. That this was to some extent wood-pasture is indicated by these references noted by Gulley.

- In 1280 the herbage of Burwash (Dallington) forest was valued at 5/6/8 and the pannage (available for less than two months p.a.) at 1/6/8;
- Sales of parkland timber were regular — 100 beech from Ashdown 1285, 24 per annum from Dallington chace without wasting it;
- In 1390 rents from asserts in Dallington Forest, poor sandy terrain on the Ashdown Sands, exceeded those of other lands in Burwash.
- In 1334 the Abbot of Robertsbridge, Prior of Hastings and Prebend of Brightling had pasture for unlimited numbers of animals in Dallington

As always, names change or are subject to variation. He notes that (a grant) refers not to Worth Forest but Worth in Brightling, i.e. Dallington. Current maps do not show such a name but an area, now known as Worge, is the place referred to (Bannister 2017 pers. com.).



Map IX The Forests and Chases of central southern England in the late sixteenth century from <http://info.sjc.ox.ac.uk/forests/tw.html>

The value of the forest for pasturage and fodder continued to the early 20th century

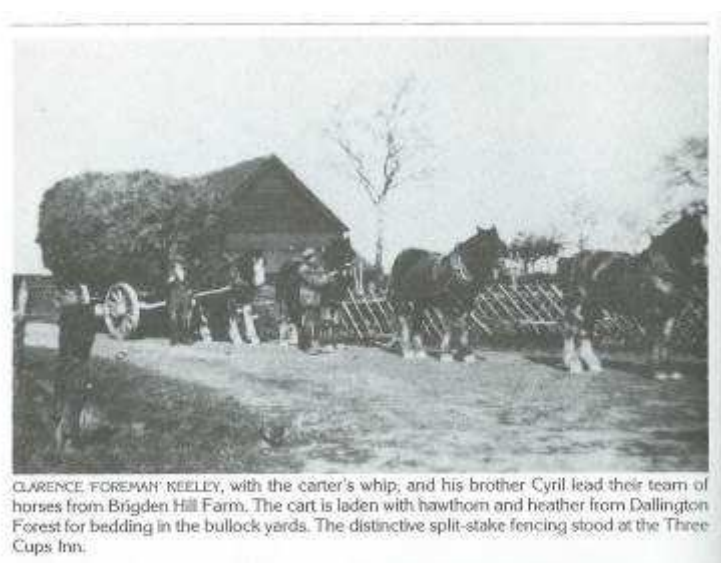
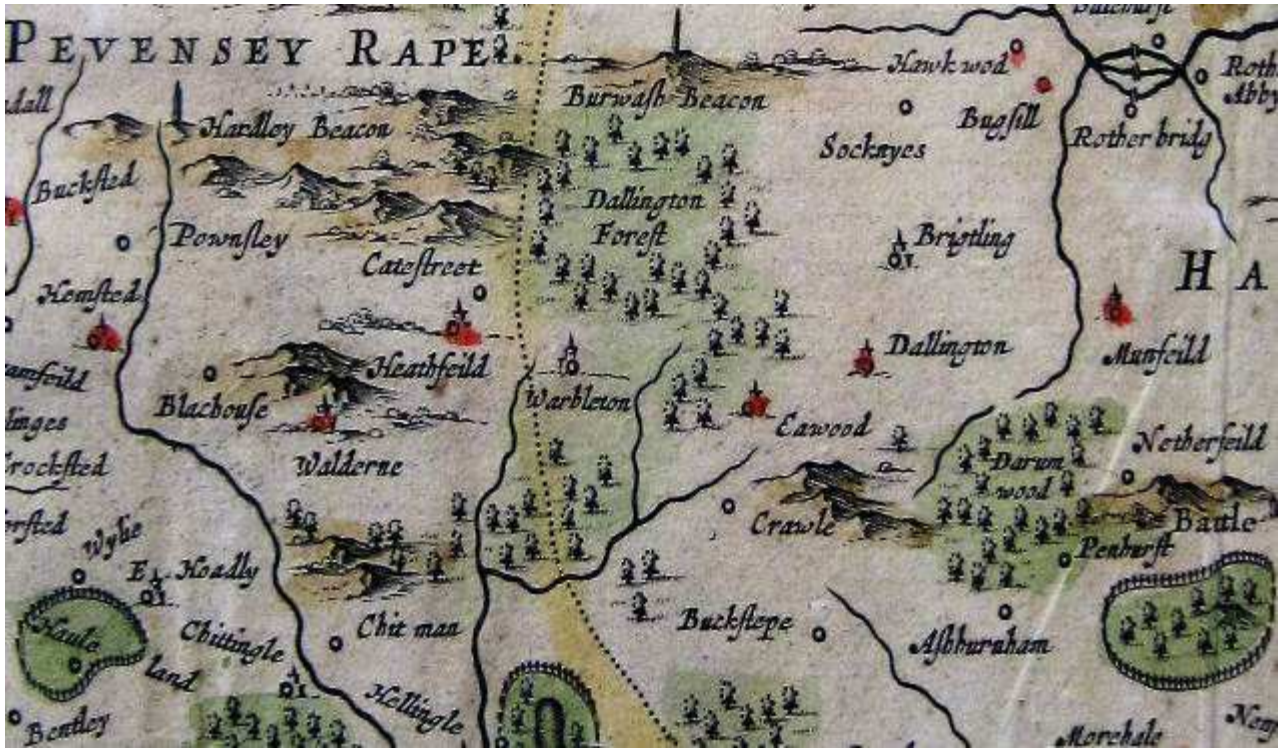
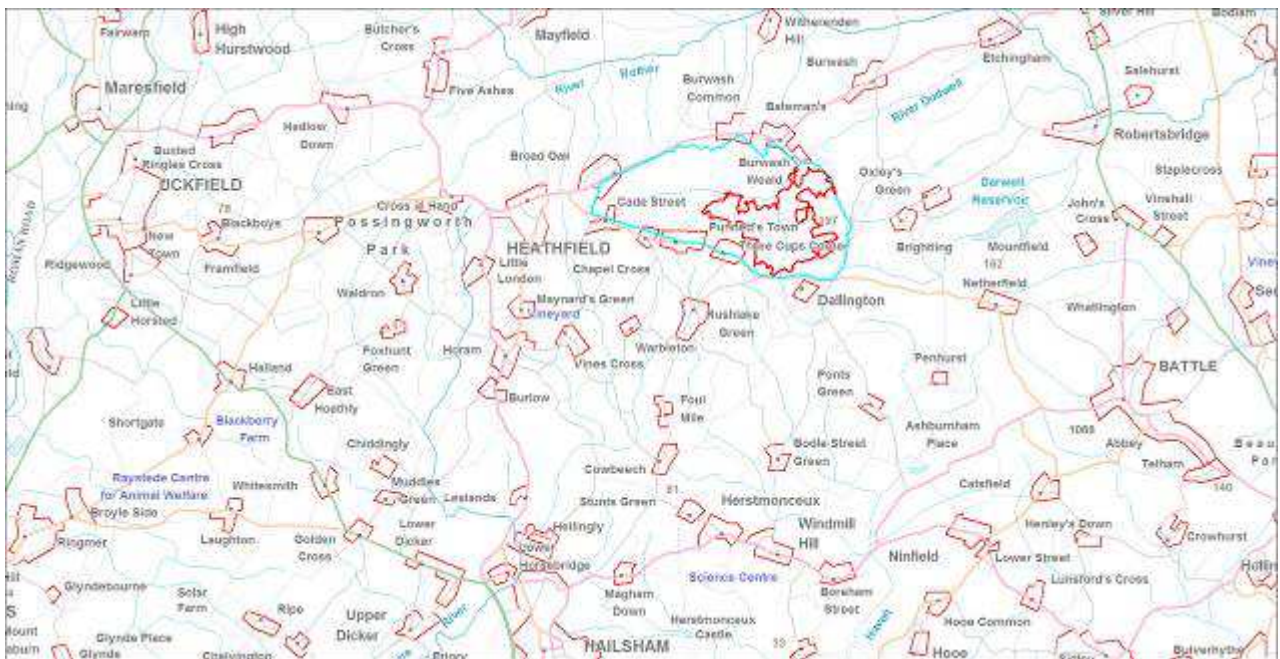


Fig III Transportation of bullock bedding from Dallington Forest (in Gillet 1989)



Map X Dallington Forest shown on a map dated 1585



Map XI A number of current place names can be related to the map above

4.2 The Industrial Era

This period is characterised by a rich industrial archaeology indicating an intense demand on the woodland (Bannister 2016) throughout both the medieval (1066 – 1540) and post-medieval (1540 –1800) periods. Not only does the archaeology, the charcoal hearths and saw pits, reflect the utilisation of trees and woodland, the wood and field banks and hollow ways represent the route ways and boundary features of varying ages



Fig IV Veteran oak coppice stools upon a woodbank



Fig V Vet holly coppice (tree 327) on bank not shown on Dallington Tithe map

To quote Bannister, “The majority of the features identified relate to the management of the woods for fuel the iron industry and then the hop industry. In the early 20th century parts of the wood were planted with exotic trees as part of a gentrification of the Glaziers Estate. The land use history can be traced by the survival of the heritage features within and around Forge Wood.”



Fig VI Holloway on Brightling Down



Fig VII Charcoal platform in Forge Wood

As well as the presence of features such as charcoal platforms and saw pits, the proximity of Glazier's Forge (for smelting iron) and Cox's Mill (corn) and a network of numerous tracks and holloways indicate the intensity and productivity of these woods and neighbourhood that continued, to an extent, into the 20th century.

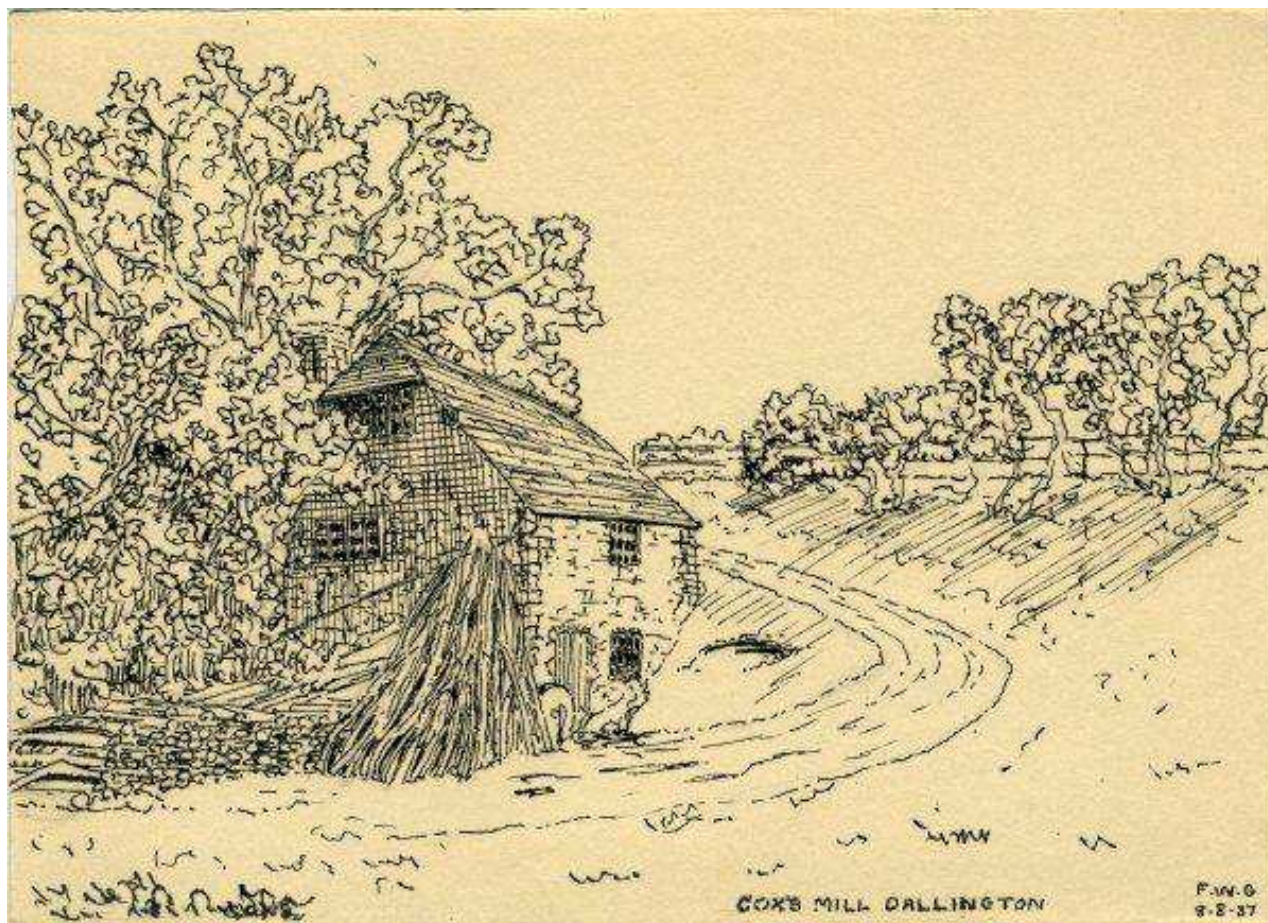


Fig VIII Cox's Mill 1937 Frank William Gregory – note the cordwood stack

4.3 The Ancient Woodland Inventory

An inventory of ancient woodland was first initiated in 1981 but only included woodlands greater than two hectares. In 2004, a pilot project was set up in the Wealden district in East Sussex to produce a complete revision of the inventory, and now including woodlands of less than two hectares. (McKernan & Goldberg 2011)



Fig IX An ancient ash coppice stool in Hook's Wood, a wood omitted from the initial inventory because of its small size

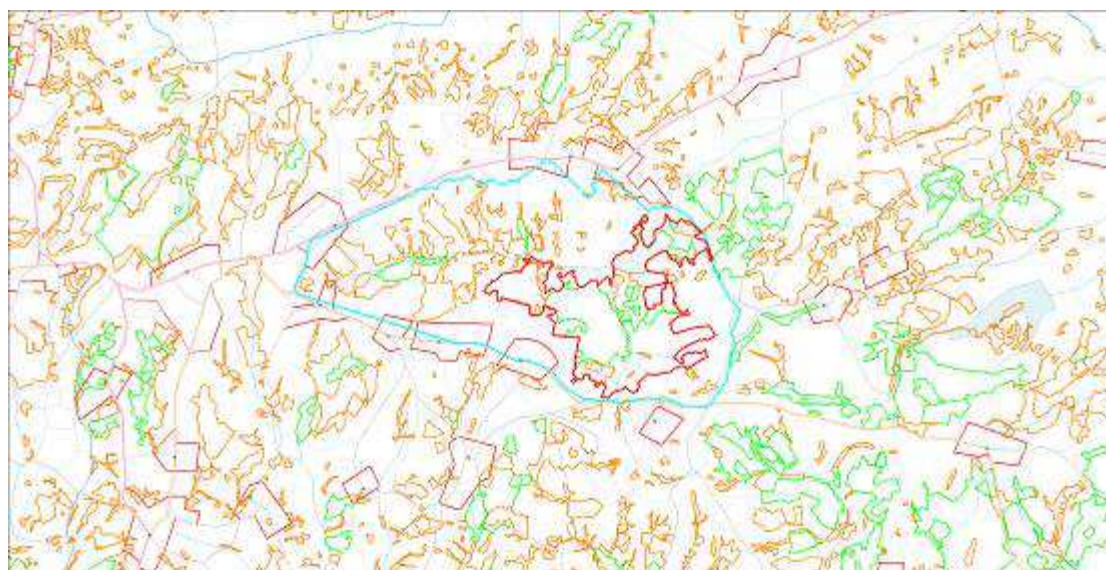
Ancient woodland is land that has had continuous woodland cover since at least 1600 AD (Spencer and Kirby 1992).

Two categories are defined:

Ancient semi-natural woodland - ancient woodland sites that have retained the native tree and shrub cover and have not been planted, although they may have been managed by coppicing or felling and allowed to regenerate naturally.

Ancient replanted woodland - ancient woodland sites where the original native tree cover has been felled and replaced by planting, usually with conifers and usually this century.

The map below shows the extents of these two types in the survey area.



Map XII The Dallington Forest Project Area showing Ancient Woodland (orange) and Planted Ancient Woodland Sites – PAWS (green) (from the Natural England GIS Dataset)

Apart from a block to the west, it can be seen that much of the core project area is classed as planted. Map II, however, shows the majority to be wooded; this difference is explained by the presence of significant plantings that took place on open land.

4.4 Afforestation and Coniferisation

Plantations, (especially on Brightling Down to the east), established before 1880 are shown on early OS mapping (FC lease from Brightling Estate).



Map XIII 1885 OS mapping showing plantations on Brightling Down

4.5 Elements of a Designed Landscape?

Two interesting features are the conundrum of seemingly open grown (wide canopied) beech in replanted ancient woodland and the presence in some parts of numbers of veteran Scots Pine. The suggestion has been made that these might be elements of a designed landscape (Bannister 2016).

The morphology of many of the beech might suggest that they have been cut, perhaps only once or twice. Perhaps some trees, especially candelabra shaped beech (see title page), were cut to encourage crown development when situated in a designed landscape and intended to be seen from a vantage point. Here in Dallington the absence of a focal point such as a large house suggests this explanation may not hold true though trees and tree groups within view of carriage rides were valued for their visual impact. They are clearly not maiden trees; an accurate survey of their distribution may help to explain their origin. A natural event, such as an ice storm that caused widespread crown failure, may be the explanation. Interestingly, a number of beech bear a singular mark. It would be interesting to discover if meaning relating to ownership, timber management or some other reason.



Fig X A mark carved in a number of beech trees



Fig XI A multi-stemmed wide-crowned ancient beech in Forge Wood, now released from competitive growth, a process referred to as haloing.



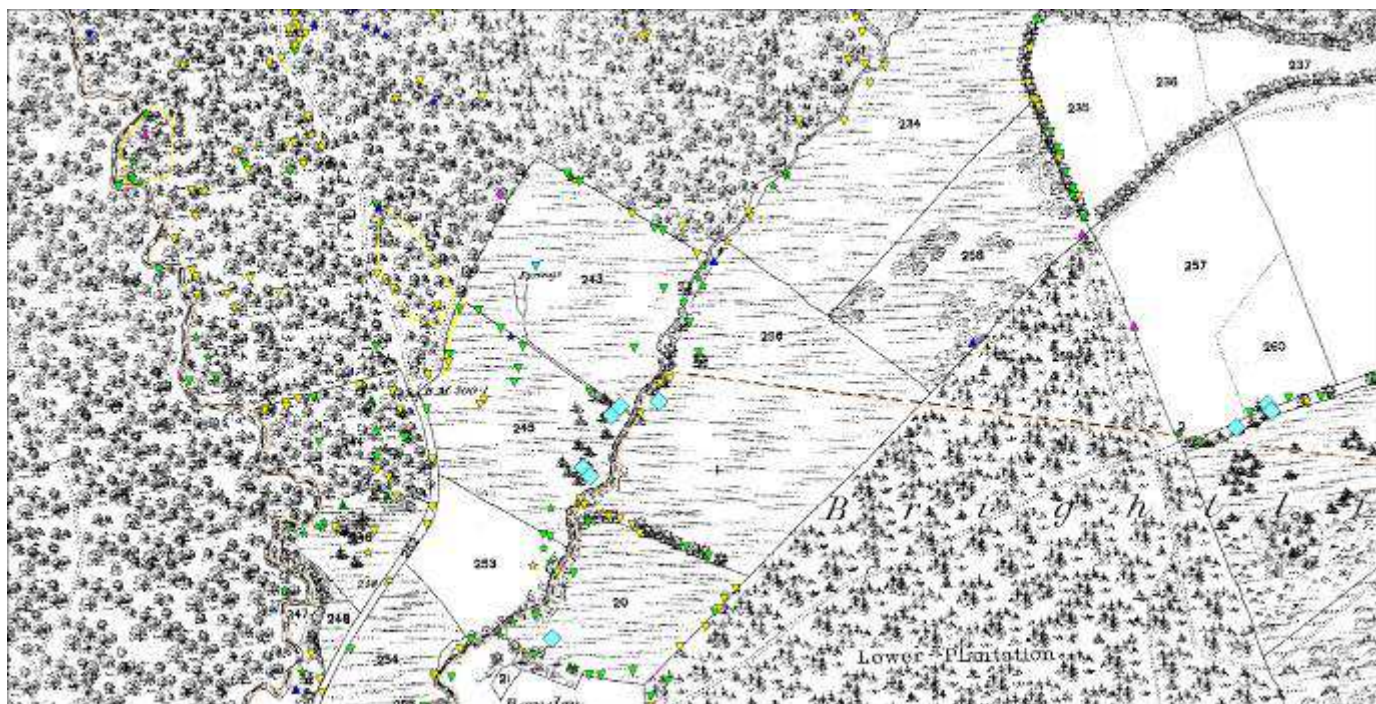
**Fig XII a similar tree, in a conifer plantation.
Once a limb fails, this can often lead to catastrophic failure of others and the abrupt loss of the tree**



Fig XIII The 20th century entrance gates to the Glazier's Forge Estate



Map XIV Locations of surveyed Scots Pine (light blue diamonds) superimposed on 1885 OS mapping



Map XV A group of Scots Pine shown in the open by 1st Epoch OS mapping, now within secondary woodland



Fig XIV Tree number 454 showing secondary woodland that now surrounds it

4.6 Twentieth Century

An aspect of 20th century history is revealed by graffiti in this beech tree.



Fig XV Beech tree with graffiti Number 117 Grid Ref 565450 120310

It is inscribed:

TB
KOLN
1946
POW

presumably by a German prisoner of war from Cologne. GPWW 145 German Prisoner of War Working Camp was situated at Normanhurst Court, Battle, less than 10 miles away, continuing to hold prisoners until 1948.

<http://sussexhistoryforum.co.uk/index.php?topic=1573.0>

5. Survey

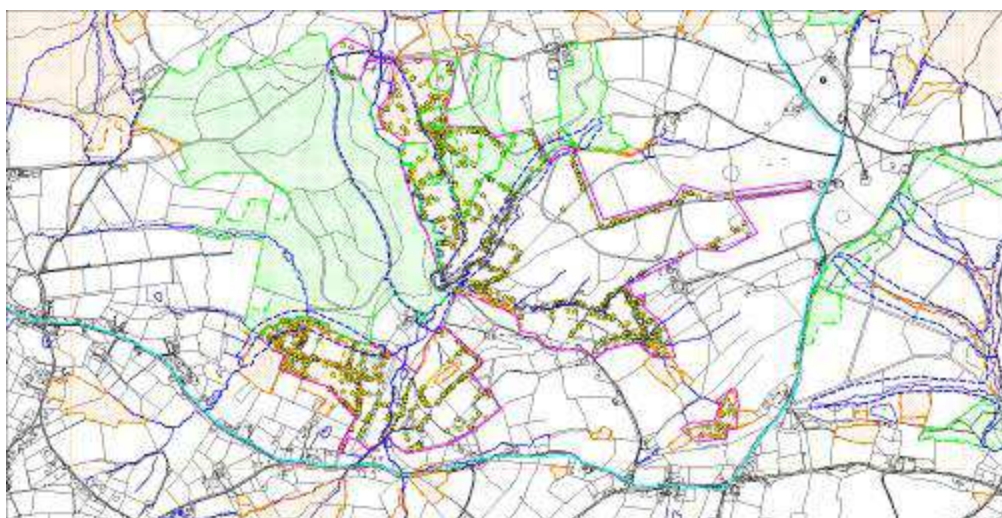
5.1 Survey area

Survey commenced on areas where access has been granted as well as in Forge Wood. In plantations the majority of old boundaries were walked. Winter fieldwork following leaf fall made it easier to locate suitable trees for survey.

The pink line in Map XVI shows the scope of this initial survey. A mix of landscape and habitat types was included such that a range, from areas of conifer plantation to the more complex transitional landscape, was included.

This encompassed ancient and planted ancient woodland areas, intensively coniferised former down, abandoned fields with secondary woodland, ghyll woodlands and farmed landscapes comprising the mix of woodland and farmland typical of the Weald. Throughout the survey area, boundary features were fully investigated.

Ancient and veteran trees were located, their positions mapped and information relating to the trees themselves, their condition, location, surroundings and any specific threats recorded.



Maps XVI and XVII The survey area (pink) with the project area (light blue). Areas of Ancient Woodland (orange) and Planted Ancient Woodland Sites – PAWS (green). Ghyll woodland areas from Burnside 2006 (hatched blue border)

5.2 Survey

5.2a Recording methodology

Recording schemes for veteran trees vary in complexity. At the most complex is the Veteran Trees Initiative's "Specialist Survey Method (SSM)" (Fay and de Berker 1997) comprising three levels of survey. This survey at Dallington, concentrated on the initial questions of "what is there?" "where are they?" and "what threats are they under?" adapted elements from the SSM so that it was easier to focus on peculiarities of the trees encountered whilst carrying out a brief survey. The essence of the survey is that it captured the essentials as efficiently as possible.

The attributes recorded are

- Ownership
- Location (woodland, plantation, wood bank etc)
- Photograph direction (direction in which camera is pointing)
- Species
- Status Live/Dead Standing/Fallen
- Dead tree category – see Appendix 1
- Age class – see Appendix 2
- Tree form – choice of
 - Maiden
 - Forked (form of maiden tree)
 - Natural pollard (leading stem lost through natural causes)
 - Lapsed pollard (out of pollarding cycle)
 - Managed pollard (in cycle or recently cut)
 - Coppice
 - Coppard
- Girth - circumference measured at 1.5 m
 - Measurement height if not 1.5 m
 - Reason if not recorded at 1.5 m
- Estimated girth
 - Reason for estimating
- Other data (see definitions, Appendix I)
 - Stem count (where feasible for coppice stools)
 - Stub cut
 - Laid
 - Layered/layering
- Comments - see abbreviations in Appendix 1 – sometimes mentions significant trees nearby not recorded separately
- Competition (need for halo releasing from neighbouring trees)
 - Priority
 - Desirable
- Bracket fungi (abundance)
- Notes (species when possible)
- Entomological access – decay cavities and/or deadwood suitable for investigation

5.2ii Challenges

There are a number of challenges that need to be met when undertaking a survey of this nature. First and foremost is assigning trees to a specific age class (see Appendix II) and, in particular, deciding whether a tree with some veteran features is worthy of inclusion. As one starts without knowing what will be encountered later in a survey it is inevitable that the search image for categories will shift, especially when trying to discriminate between “mature trees with veteran characteristics” (MV) and those classed simply as “veteran”.

Also, it is possible to find very small (for their species) trees with marked veteran features. Although small, accumulatively they may represent a significant resource for some species, referred to as saproxylic species, associated with decay. However, it is impractical generally to include such trees in a tree survey. An example of such a tree is shown below.



Fig XVII A very small beech tree with extensive decay

Some seemingly insignificant trees such as this ash coppice stool are veteran, but might not meet the “typical” perception of a veteran ash. Yet, the value of a single such tree may be less in ecological terms but cumulatively the habitat within a wood with many such stools will be significant.



Fig XIX An ash stool, originally much larger but still with decaying heartwood

Interestingly, “location” can prove difficult to categorise. For instance, some trees that now appear to be on a woodbank originated, in fact, in a hedgerow, the adjoining fields having reverted to secondary woodland. These inconsistencies render the location data unsuitable for analysis.

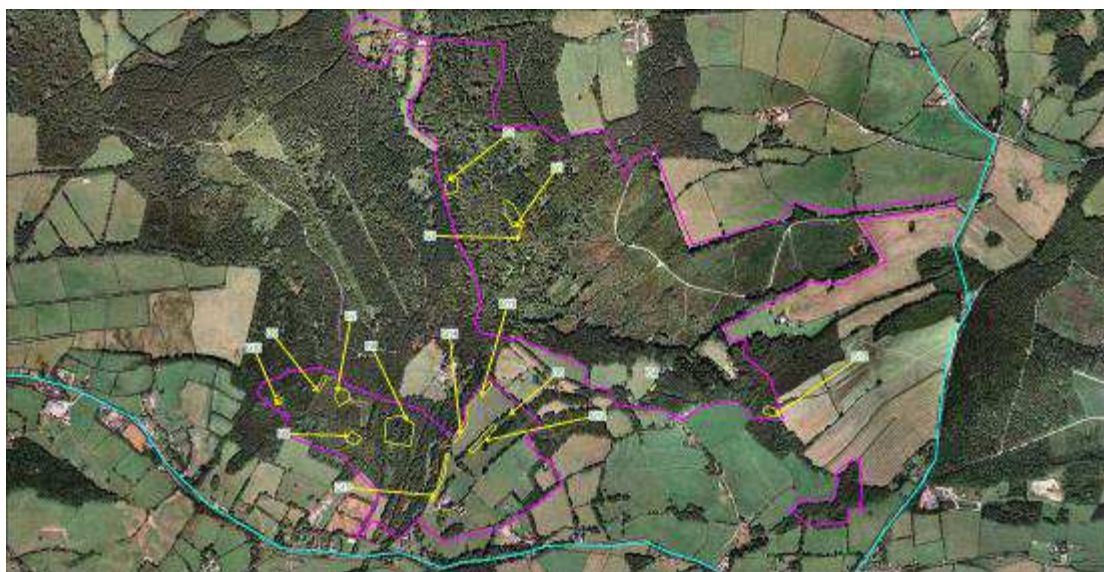


Fig XX Tree 797 on a bank, now within woodland but shown dividing two fields on early OS mapping

5.2b Mapping methodology

Trees were mapped using a GPS system; for details of the methodology – see Appendix III. This process resulted in recording an accurate location for each tree, as a grid reference, and this information has been imported into the data table.

A number of tree groups were created primarily where, for efficiency, a number of trees with similar characteristics could be recorded together. For example, a large number of oak coppice alongside the track leading to Forge Wood and about 50 Scots Pine in a small area of woodland. The data of the extents of these groups is available in a GIS file.



Maps XVIII The extents of the 15 tree groups recorded

5.2c Outputs

All the data for individual trees is assimilated into one data table. Containing grid reference information, this is suitable for importation into Geographical Information System (GIS) programs to permit the data to be interrogated spatially.

The information describing the groups of trees is held in another data table and, as mentioned, spatial data for the groups is also available.

Photographs of each tree are stored as .jpg files.

6. Survey data summary

A total of 1014 trees and 15 groups were recorded. Overall totals for the different species are

Beech	413
Oak	332
Alder	52
Scots	41
Birch	35
Sweet Chestnut	24
Ash	23
Crab	20
Holly	20
Hawthorn	9
Hornbeam	9
Yew	8
Rowan	7
Sallow	6
Alder buckthorn	5
Aspen	4
Cherry	1
Dom Apple	1
Hawthorn var	1
Lime	1
Sycamore	1
Wild Service	1

Totals for Tree Form

Coppice	582
Maiden	257
Forked	120
Natural Pollard	36
Coppard	10
Lapsed Pollard	5
Managed Pollard	2
Stump	2

Totals for Age Class

Ancient	61
Veteran	494
Mature/veteran	408
Mature	46
Young /mature	5

Totals for Tree Status

Standing alive	945
Standing dead	21
Fallen alive	42
Fallen dead	6

Totals for Halo Releasing

Competition Priority	93
Competition Desirable*	460

Tables I - IV

* The high count for “desirable” reflects the prevalence of woodland within the survey area, which would benefit from conservation management.

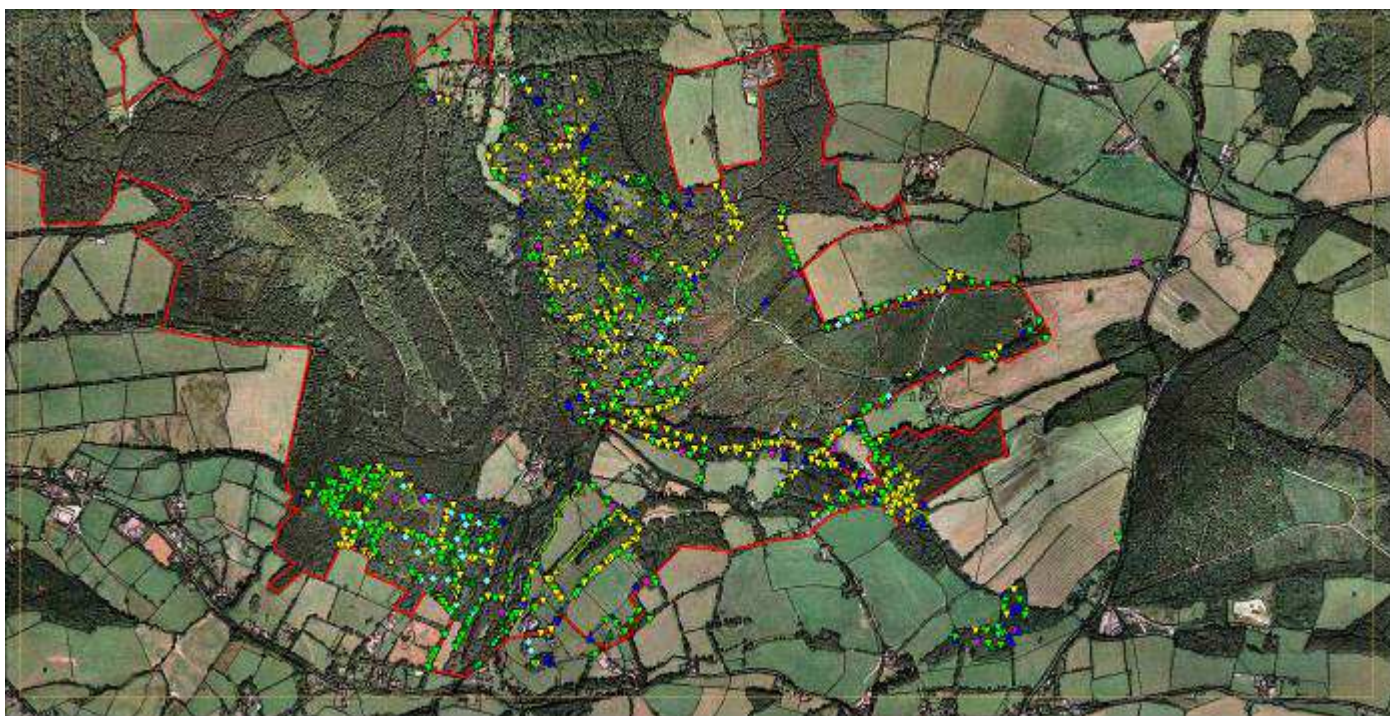


Fig XXI Tree 351 a typical example of a tree that would benefit from removal of some competing growth - the spreading crown indicates it was formerly in a more open situation



Fig XXII Beech tree 1002 One of 24 trees where bracket fungi were recorded

7. Data analysis



Map XIX Distribution map of the species surveyed

Key

★ Alder	(52)
▼ Alder buckthorn	(5)
▲ Ash	(23)
★ Aspen	(4)
▼ Beech	(413)
★ Birch	(35)
▼ Cherry	(1)
▲ Crab	(20)
▲ Dom Apple	(1)
▼ Hawthorn	(9)
▲ Hawthorn var	(1)
▲ Holly	(20)
▼ Hornbeam	(9)
▲ Lime	(1)
▼ Oak	(332)
★ Rowan	(7)
▲ Sallow	(6)
◊ Scots	(41)
★ Sweet Chestnut	(24)
◆ Sycamore	(1)
◆ Wild Service	(1)
◆ Yew	(8)

8. Species distributions

Maps showing locations of individual trees do not show those trees recorded as groups - unless the group location adds to the picture of the species' distribution. The overall distributions of the various species is shown above.

8.1 Species Composition and Age Class

	Age Class	Young Mature	Mature	Mature Veteran	Veteran	Ancient	Total	Percent age	
Species									
Alder		0	0	9	41	2	52	5	52
Alder buckthorn		0	0	1	3	1	5	0	5
Ash		0	0	10	10	3	23	2	23
Aspen		0	0	3	1	0	4	0	4
Beech		1	24	142	200	46	413	41	413
Birch		0	3	14	18	0	35	3	35
Cherry		0	0	1	0	0	1	0	1
Crab		0	0	2	17	1	20	2	20
Dom Apple		0	0	0	1	0	1	0	1
Hawthorn		0	0	0	9	0	9	1	9
Hawthorn var.		0	0	1	0	0	1	0	1
Holly		0	0	9	11	0	20	2	20
Hornbeam		0	0	2	7	0	9	1	9
Lime		1	0	0	0	0	1	0	1
Oak		2	14	187	124	5	332	33	332
Rowan		0	0	4	2	1	7	1	7
Sallow		0	0	0	5	1	6	1	6
Scots		0	0	4	36	1	41	4	41
Sweet Chestnut		0	1	17	6	0	24	2	24
Sycamore		0	1	0	0	0	1	0	1
Wild Service		0	1	0	0	0	1	0	1
Yew		1	2	2	3	0	8	1	8
Total		5	46	408	494	61	1014	100	1014
Percentage		0	5	40	49	6	0	100	

Table V

Observations

- Numerically, beech and oak dominate with 41% and 33 % of the total - all other species contribute either 5% or less of the total.
- Overall 49% trees are veteran and 6% are ancient
- Of the beech – 11% are ancient and 48% are veteran, representing 75% and 40 % of the totals for each age class
- Of the oak – 1.5% are ancient and 37% are veteran, representing 8% and 25 % of the totals for each age class

8.2 Tree Form and Age Class for the principal species

8.2a Tree Form and Age Class – Alder

	Tree Form	Coppard	Coppice	Forked	Lapsed Pollard	Maiden	Managed Pollard	Natural Pollard	Stump	
Age Class										
Ancient			2							2
Veteran			36	1		4				41
Mature Veteran			9							9
			47	1		4				52

Table VI

8.2b Tree Form and Age Class – Beech

	Tree Form	Coppard	Coppice	Forked	Lapsed Pollard	Maiden	Managed Pollard	Natural Pollard	Stump	
Age Class										
Ancient			27	2	3	6	1	7		46
Veteran			142	19	1	26		10	2	200
Mature Veteran		1	75	21		40		5		142
Mature			5	5		14				24
Young Mature			1							1
		1	250	47	4	86	1	22	2	413

Table VII

8.2c Tree Form and Age Class – Oak

	Tree Form	Coppard	Coppice	Forked	Lapsed Pollard	Maiden	Managed Pollard	Natural Pollard	Stump	
Age Class										
Ancient			4			1				5
Veteran		6	88	9		20		1		124
Mature Veteran		2	94	19	1	63		8		187
Mature			1	1		12				14
Young Mature						2				2
		8	187	29	1	98		9		332

Table VIII

8.3 Tree Form and Status

Looking at the two most abundant species, oak and beech

8.3a Tree Form and Status - Ancient Oak

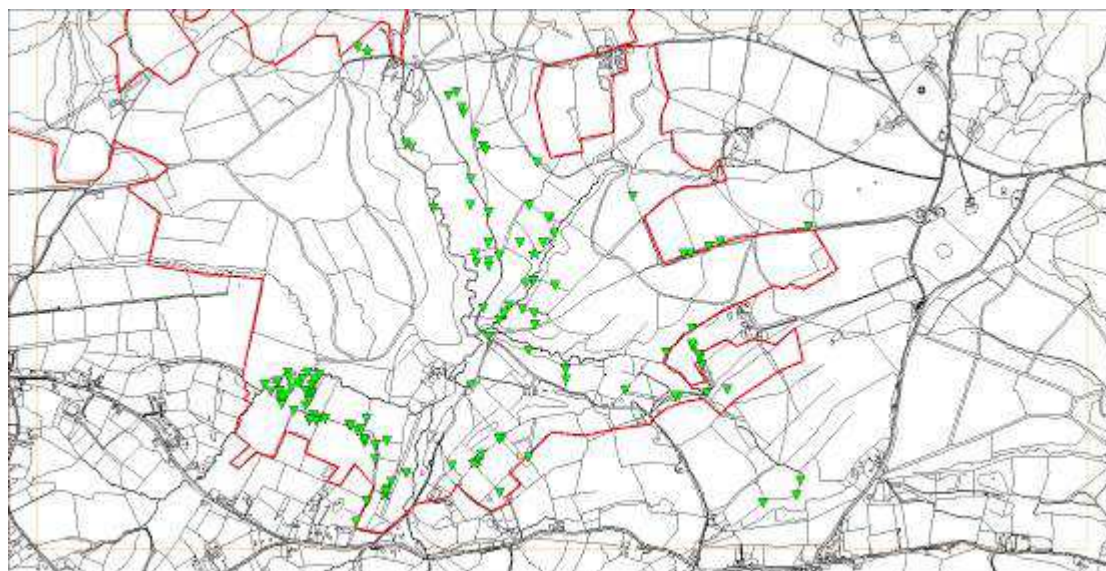
	Standing alive	Total
Coppice	4	4
Maiden	1	1
Total	5	5

Table IX

8.3b Tree Form and Status - Veteran Oak

	Fallen alive	Fallen dead	Standing alive	Standing dead	Total
Coppard			6		6
Coppice	2	1	82	3	88
Forked	2		7		9
Maiden	5		15		20
Natural Pollard			1		1
Total	9	1	111	3	124

Table X



Map XX The distribution of ancient (star) and veteran oak trees (triangle)

Observations

- There is a general association with boundaries and ghylls with an area of ancient woodland to the SW an exception
- Ancient and veteran oak – majority are coppiced – 80% and 74%

8.3c Tree Form and Status - Ancient Beech

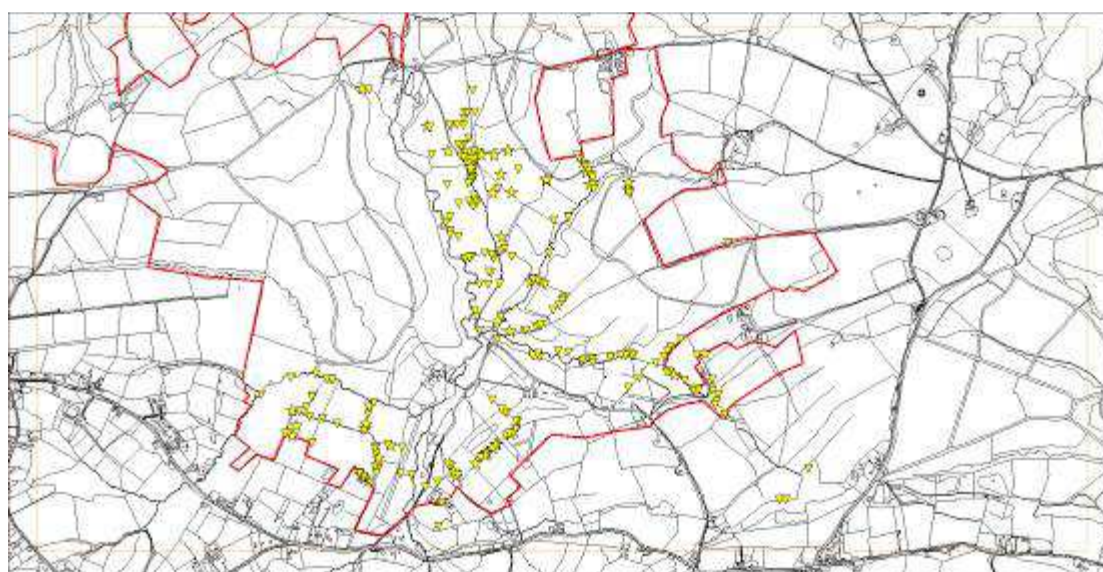
	Fallen alive	Standing alive	Standing dead	Total
Coppice	1	26		27
Forked		1	1	2
Lapsed Pollard		3		3
Maiden		3	3	6
Managed Pollard		1		1
Natural Pollard		6	1	7
Total	1	40	5	46

Table XI

8.3d Tree Form and Status - Veteran Beech

	Fallen alive	Fallen dead	Standing alive	Standing dead	Total
Coppice	6	1	134	1	142
Forked		2	15	2	19
Lapsed Pollard			1		1
Maiden	2		19	5	26
Natural Pollard		1	8	1	10
Stump				2	2
Total	8	4	177	11	200

Table XII



Map XXI The distribution of ancient (star) and veteran beech (triangle)

Observations

- A similar picture to oak, but with a concentration of dispersed ancient trees in the Forge Wood area
- Ancient and veteran beech – majority are coppiced – 59% and 71%

8.4 Tree Form and Management

Intervention using different cutting techniques has produced some spectacular trees (see Appendix I). As well as coppice and pollard trees, two other forms are worth mentioning with regard to their occurrence and distribution.



Fig XXIII A laid coppiced beech (Tree 422) on a woodbank

Stub Cut and Laid trees

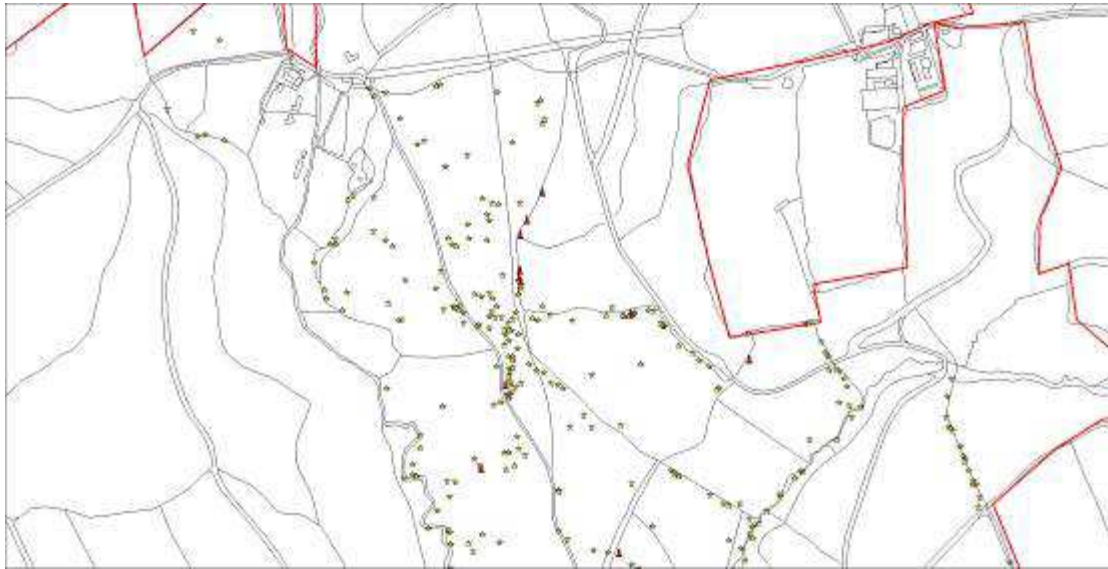
There are 37 stub cut trees, (maybe 4 more) of which 2 are laid. 93 trees (possibly 3 more) have been laid. These comprise the following species:

Ash	4
Beech	11
Crab	1
Hornbeam	1
Oak	19
Sweet Chestnut	1
Total	37

Beech	67
Birch	5
Crab	2
Hawthorn	1
Hornbeam	4
Oak	14
Total	93

Tables XIII and XIV Stub Cut trees and Laid trees by species

A clear association of trees showing these types of management with boundaries is apparent, though there are differences between the two. In this example, stub cut trees possibly represent an ownership boundary, dividing woodland and former fields.

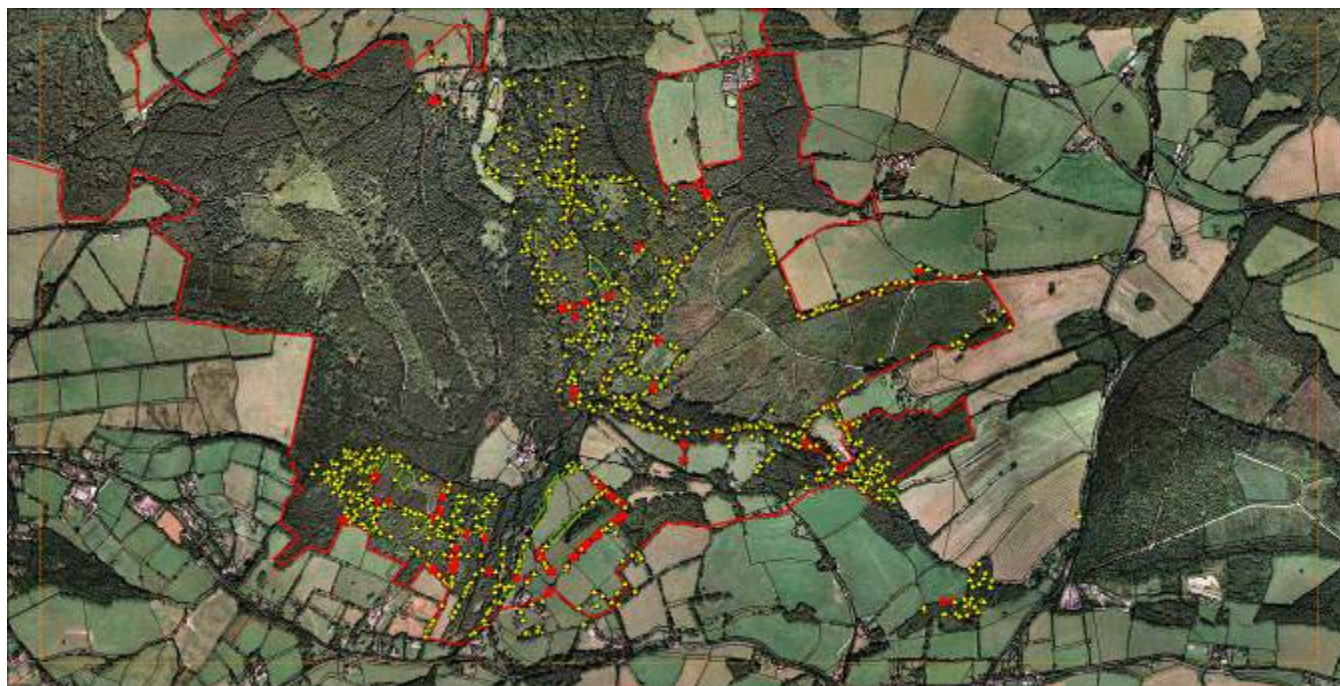


Map XXII Stub cut trees (red) along the ownership boundary of Forge Wood, adjoining a former field to the east

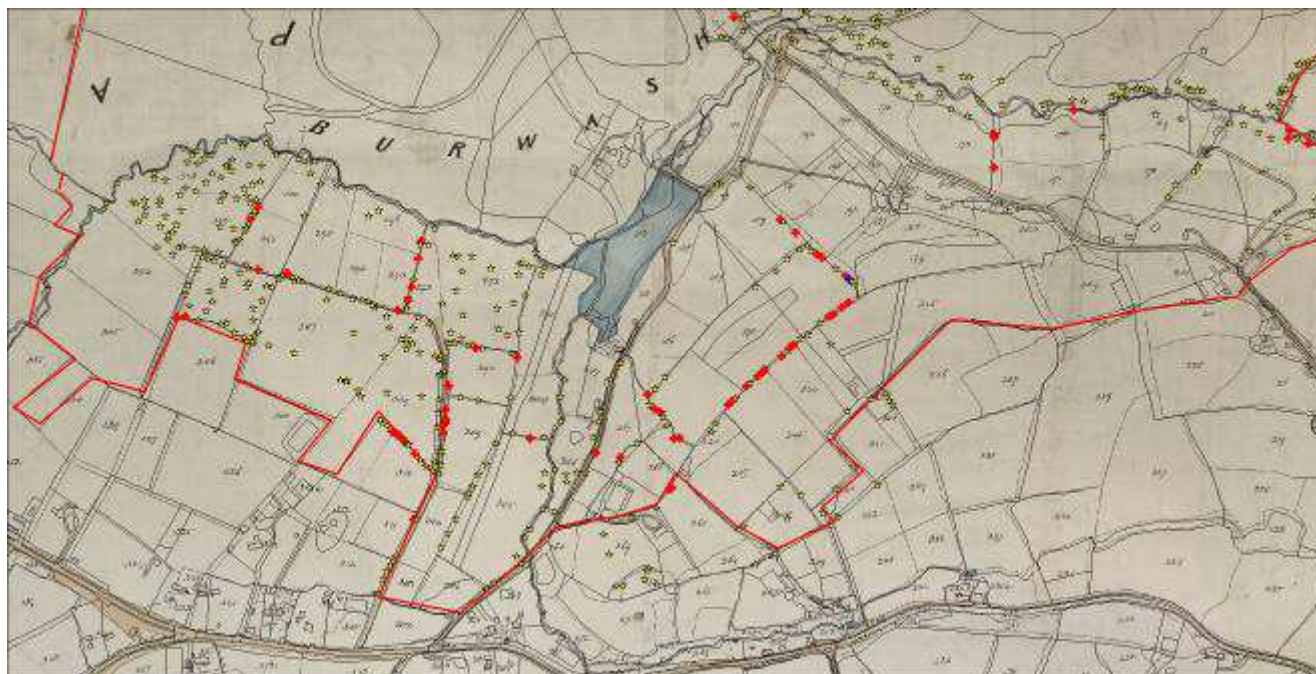


Map XXIII The distribution of stub cut trees throughout the survey area

Laid trees, again associated with boundaries show a different distribution – in that they are more prevalent in boundaries separating fields (and former fields)



Map XXIV The distribution of laid trees throughout the survey area



Map XXV The strong association between laid trees and boundaries to the SW of the survey area is illustrated by superimposing tree locations on the Dallington Tithe Map of 1838



Fig XXIV A laid coppiced beech (Tree 422) on a woodbank – shown separating fields 61 and 86 on the Brightling Tithe



Fig XXV Forge Wood – a working woodland demonstrating management with conservation as a priority

9. Recommendations for future surveys

A lot of trees have been recorded in this survey but there is still a large amount of the project area that requires surveying in order to have a more complete picture of the tree population and further highlight its importance for veteran trees. One of the priorities is to further identify veteran and ancient beech that are of regional importance and are characteristic of the area. Recording emphasis should be placed on forestry plantations where their longevity is under acute threat but an overall aim should be to have the complete data for the project area. This could also act as a sample of the weald to promote its value and as a comparison to other parts of the weald and the country.

Although over 1000 important trees within the surveyed area have been identified, the key work for the future is to ensure they have the appropriate conditions to maintain and enhance their lives. Many of the trees seen are in unfavourable condition and the emphasis must be on altering this status through sensitive management. Also, many of the trees recorded are a legacy of past countryside management practices and a new generation of trees is of great necessity in order to maintain the associated ecology of veteran trees and the old growth character of the project area.

Generally, the main reason that ancient and veteran trees have been highlighted as important in recent times is for their associated biodiversity. Rightly so, the focus has been on the rare fungi, invertebrate and epiphytes that utilise the specific conditions offered by veteran trees, which in many cases are limited to certain veteran tree sites. Decaying wood habitat is of extreme importance within this context and invertebrates of conservation concern are often solely reliant upon it. Some sites such as Richmond Park are designated SSSI's and NNR's for these invertebrate communities. Dallington Forest could be of equal importance but as yet unrecognised due to its large veteran tree population within varied habitats. A survey that addresses the lack of data for saproxylic associates, especially within the beech trees, is of necessity as clearly the habitat is there.



Fig XXVI False ladybird *Endomychus coccineus*
A fungus eater living under the bark of dead or dying trees especially beech and birch

As stated many times in the references the ghyll woodlands of the High Weald harbour rare epiphytic assemblages. Equally stated in ancient tree literature is that veteran trees provide substrate for epiphytic communities through their longevity and low spreading branches. As far as we are aware, there have been no studies of the associations between ghyll woodlands and veteran trees. A survey of lichens on trees would be of conservation value in order to provide baseline data and as a comparison in areas of woodland where haloing of veteran trees has occurred. Perhaps veteran trees offer a stable environment that increases lichens in areas adjacent to ghylls or species diversity through varying conditions within coppice compartments.

Ancient and veteran trees are most commonly found in wood pasture and parkland. Although there are a few possible areas of relict wood pasture in the survey area the majority is woodland of varying types, so bucking the national trend. It is for this reason that the survey area is of importance and interest.

Are woodlands that harbour veteran trees of national importance due to their scarcity? Many of the recorded trees are associated with wood banks and previous management history and is it this that makes this Dallington Forest of significance? Are only a few trees of each layer of previous land management now present, so confusing the picture? And are ancient tree specialists overlooking or undervaluing the significance of wooded ancient tree sites? It is to answer all these questions we need to ensure that surveying of ancient and veteran trees within the Dallington Forest Project area continues. Data could be compared to other places in the country and better our understanding of the varied habitats that these special trees grow in, many of which are present in the project area.

10. References

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Biological Conservation 62: 77-93

11. Further Reading

Papers from:

Read, H. (Ed.) *Pollard and Veteran Tree Management II*, Corporation of London 1996:

- The bryophyte fauna of pollards and pollarded woodland with particular reference to eastern England
K. J. Adams pp 12-16
- The ecological value of tree management and its significance to species of epiphytic moss
P. Reed. pp 17-18

Appendix I

Tree Survey Abbreviations, notes and categories

Habitat Notes

These refer to features on the tree itself noted during the GPS survey

Comment

This is a further note made during the tree survey. These are of a general nature. They mention arboricultural work that has been carried out. In particular, they refer to the veteran features of the tree and are abbreviated as follows.

ADJ	Adjacent		DAM	Damage		LUL	Lost Upper Limb
BSE	Base		DW	Deadwood		NP	Natural Pollard
BS	Basal scarring		F	Fallen		POLL	Pollarded
C	Crown		IMP damage	Impact damage		RR	Red {Brown} Rot
CL	Cut length		L	Limb		S	Standing (dead)
COP							
P	Coppiced		L STR	Lightening strike		to E	East
CR	Crown Reduced		L Top	Lost Top		to N	North
D	Dead		LL	Lost Limb		to S	South
			LLL	Lost Low limb		to W	West

Categories for tree form



Coppice oak



Stub cut (coppard) beech



Beech pollard



Laid coppice beech



Whole tree fallen and alive - layering (phoenix) beech tree



Beech with lower branch touching ground and layering

Dead tree categories

Broken stump and trunk	The tree has fractured and the fallen part of the trunk is evident as well
Broken stump only	Only the upright part of the fractured tree remains
Cut stump and trunk	The tree has been felled and a fallen part of the cut trunk is evident
Cut stump only	The tree has been felled and only the stump is present
Fallen	The tree fell as a whole, sometimes fracturing on impact
Fallen and cut stump	After falling, the trunk was cut just above the rootplate; sometimes the stump righted itself in the hole
Standing	The tree is generally complete, trunk and some limbs remaining upright
Snapped	Broken high up, say at 8 M or more
Stump and cut lengths	The tree has been felled and the fallen part of the trunk has been sectioned
Trunk (cut lengths)	A whole trunk, or one or more cut lengths of trunk, is present but their origin is uncertain

Appendix II

Age Classes

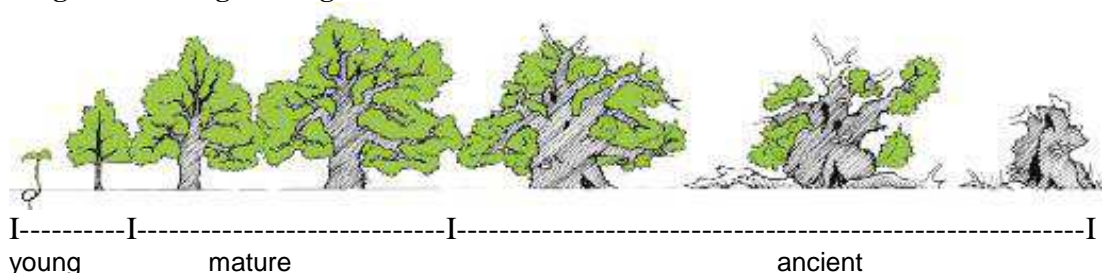
Ancient An ancient tree is one that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species. Its canopy may be small. It will probably have a very wide trunk relative to other trees of the same species and it is very likely that it will be hollow. However, ancient trees grow in so many different environments and have been influenced by so many factors over their long lives that they may not always have large girths. In oak, the tree will have retrenched – its upper canopy will have reduced in size from that when it was at its maximum and will be in the process of being supplanted by a lower or inner crown which may, in turn, degrade leaving just some epicormic shoots on the trunk.

Veteran Veteran is strictly a term describing a tree with habitat features such as wounds or decay. The terms ancient and veteran have been used interchangeably in the past, however, it is important to know what the differences between them. A veteran tree is a survivor that has developed some of the features found on an ancient tree, not necessarily as a consequence of time, but of its life or environment. Ancient veterans are ancient trees, not all veterans are old enough to be ancient. A veteran may be a young tree with a relatively small girth in contrast to an ancient tree, but bearing the ‘scars’ of age such as decay in the trunk, branches or roots, fungal fruiting bodies, or dead wood. Ancient is used as an adjective, veteran as a noun: certain pruning techniques can be employed to artificially “veteranise” a tree. However, given the range of tree forms encountered it can be useful to discriminate between ancient trees and younger trees that have sustained a **large** amount of damage (for example, an otherwise mature tree that has split in two and has extensive decay) and are of high habitat value. In this survey, such trees have been given an age classification labelled as “**Veteran**”.

Mature A tree showing no signs of premature ageing; developing or with, a crown at its maximum extent and vitality.

Mature/Veteran (MV) In the absence of a catastrophic event, or the presence of chronic symptoms of ill health, trees will acquire veteran features gradually and cumulatively. A tree with a **few** such features, whilst maintaining the general appearance of a mature tree, is valuable as a “future veteran” or “successor tree” and worthy therefore of note.

Diagram showing the stages in the life of an ancient tree



Adapted from Ancient Tree Guide No.4: What are ancient, veteran and other trees of special interest?

Appendix III

GPS Methodology

Equipment: That used is the Trimble Pro XR receiving the Beacon differential correction signals. This gives a stated accuracy of ca 1M for real-time operation (allowing navigation/setting out exercises to be undertaken). Trimble Pathfinder Office software is utilised to edit and create export formats (often as a .dxf file) suitable for importing data into GIS or CAD.

Offset measurements are taken using a Leica Disto Classic Laser EDM and Suunto KB 20 compass.

Data collection: The receiver calculates a position each second. Point features comprise a succession of readings taken at the same location. Line features are simply a succession of data points along a traverse-they import as a polyline. An area feature is a closed line. Features can have attribute information attached, and each feature type can constitute a separate GIS layer.

Accuracy and editing: The readings collected for point features are then averaged to give the location and a value for standard deviation is calculated. If this is high (due to signal scatter-multipath-caused by obstruction of the signal of one or more satellites) the pattern of the individual readings can be studied. Sometimes it is clear which are affected and these can be edited to lower the s.d. and increase confidence in the result. If this is not possible, the high s.d. acts as an indicator of an increased likelihood of error. Other filters can be applied to optimise confidence in the data.

Referencing: The positions of one or two clearly identified features, road edges at junctions or similar hard features, were mapped during the survey. When the data is superimposed in GIS over OS derived data these can be used to confirm compatibility of the survey data with the OS dataset. Occasionally, due to differences in the software algorithms employed in the conversion from Lat./Long (used by GPS) to the OS co-ordinate system, this superimposition reveals that a constant offset (in the order of a few metres) needs to be applied. This can be done in the GIS.

Appendix IV

GIS Licences and Sources

SSSI	http://magic.defra.gov.uk/MagicMap.aspx
AWI	http://magic.defra.gov.uk/MagicMap.aspx
Air Photography	High in the Sky 2000
Tithe Mapping	Images from the Centre for Kentish Studies/East Sussex Records Office
OS data – current:	Kent © Crown copyright. All rights reserved. 100019238, (2017) West Sussex © Crown copyright. All rights reserved. 100018485, (2017) Surrey © Crown copyright. All rights reserved. 100019613, (2017)
OS data – 1 st Epoch	As for current OS Data
Ghyll woodland	© High Weald AONB Partnership

Appendix V

SSSI Citation for Dallington Forest

COUNTY: EAST SUSSEX SITE NAME: DALLINGTON FOREST

DISTRICT: ROTHER

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: ROTHER DISTRICT COUNCIL

National Grid Ref: TQ 652208 Area: 16.2 (ha.) 40.0 (ac.)

Ordnance Survey Sheets 1:50,000: 199 1:10,000: TQ 61 SW, SE, WE, NW

Date Notified (Under 1949 Act): 1953 Date of Last Revision: 1965

Date Notified (Under 1981 Act): 1985 Date of Last Revision: Ⓓ

Other Information: There is an extension to this site.

Reasons for Notification:

This site is an area of ancient woodland which lies on fine grained silts, sandstones, shales and mudstones of the Ashdown beds. The main feature of the site is the ghyll woodland which contains a number of plants with an “Atlantic” distribution. This habitat type and its associated flora occur only in The Weald and in the west of Britain. The steep sided ghyll has been created by the vigorous down cutting of Willingford Stream through the geological strata leaving a range of soil types and occasional outcrops of sandstone. The warm, moist microclimate of the ghyll has allowed the retention of a rich “Atlantic” flora. A small plateau woodland is present in the north of the site and there is a small meadow adjacent to it.

Three woodland types dominate the ghyll area. In the north beech *Fagus sylvatica* and pedunculate oak *Quercus robur* occur with holly *Ilex aquifolium*, hazel *Corylus avellana*, hornbeam *Carpinus betulus*, birch *Betula pendula* and the occasional yew *Taxus baccata* above a heathy ground flora of bracken *Pteridium aquilinum* and ling *Calluna vulgaris*. In the south beech is largely absent and oak, birch and hazel dominate above a ground flora of honeysuckle *Lonicera periclymenum* and bramble *Rubus fruticosus*. In the bottom of the valley there are stands of alder *Alnus glutinosa* above a rich ground flora of remote sedge *Carex remota*, yellow archangel *Lamium galeobdolon*, gipsywort *Lycopus europaeus* and *Sphagnum* mosses.

The following “Atlantic” plants have been recorded from the ghyll area: wood fescue grass *Festuca altissima*, Cornish moneywort *Sibthorpia europaea*, hay scented fern *Dryopteris aemula*, ivy leaved bellflower, *Wahlenbergia hederacea* and the bryophytes (liverworts and mosses) *Hycomium flagellare*, *Hookeria lucens* and *Saccogyna viticulosa*.

The meadow in the north of the site contains plants such as ragged robin *Lychnis flosculi* and meadowsweet *Filipendula ulmaria*. The woodland behind it consists of oak, hazel, birch and hornbeam above a ground flora of wood sage *Teucrium scorodonia*.

Appendix VI

Dallington Entomological Records

I asked Peter Hodge (the Sussex Beetle Man) and he said past access difficulties had meant that no-one has recorded there before.

A note of some entomological observations made by Keith Alexander at the Ancient Tree Forum visit to Forge Wood on 9th March 2017.

Fig XXVI is the false ladybird *Endomychus coccineus*. “It is not an old growthy, but is more widely found, albeit not common, if you see what I mean. Not scarce enough to be Nationally Scarce but I don't see it all that often.”

“The fauna I managed to find is very typical of ancient woodland - high forest or coppice with standards - sites, with uncommon species which are able to exploit relatively small girth deadwood where there has been continuity of habitat, but nothing that requires larger girth trees. The uncommon species seen were *Pediacus dermestoides* (a flat bark beetle), *Stenagostus rhombeus* (a click beetle), *Xylocoris cursitans* (a predatory bug) and *Xylophagus ater* (an awl-fly). These all live beneath bark in the first year or two after death of the trunk or large branch.”

Appendix VII

Glossary

Coppice - a tree cut near ground level to encourage the development of multiple stems

Pollard - a tree where, when young, the complete or partial removal of the crown was carried out so as to encourage the development of numerous branches. Further cutting at intervals is required to maintain this growth pattern.

Stub cut tree/stoggle (local) - a tree cut at an intermediate height, compared to pollard and coppice trees

Coppard - a hybrid word (from coppice and pollard), describing a tree consisting of several coppice stems, each of which has been pollarded.

Layering - whereby a low branch or a whole (fallen) tree produces shoots and roots upon coming into contact with the ground. A natural process.

Phoenix regeneration - development of a “new tree” by the layering of one that has fallen or bent down to the ground while still remaining rooted.

Laying - cutting a small bush or tree partly through, and then bending the stem without breaking it, so that it can still grow

Laid tree - a tree that at one time formed part of a laid hedge