



# **NATIONAL INVENTORY OF WOODLAND AND TREES**



## **ENGLAND**

**County Report for**

**HAMPSHIRE**



**Forestry Commission**

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Woodland Surveys Branch of Forest Research was responsible for carrying out the survey and analysing the data. A large number of Forestry Commission and contract staff were involved in the survey from its inception.

Preparation of the digital cartography for Hampshire was carried out by Graham Bull, Woodland Survey Officer, and Woodland GIS Officers Chris Brown, Robert Beck and Esther Whitton. Data processing and analysis was carried out by Woodland Data Officers Justin Gilbert and Shona Cameron.

The authors of this Report are Steve Smith (Head of Woodland Surveys) and Justin Gilbert (Woodland Data Officer) of Forest Research.



## INTRODUCTION

This report presents the results for Hampshire from the Forestry Commission National Inventory of Woodland and Trees (NIWT).

The Inventory consists of two separate surveys -

- The Main Woodland Survey (MWS) covering woodlands of 2 hectares and over
- The Survey of Small Woodland and Trees (SSWT) covering Small Woods, Groups of Trees, Linear Features and Individual Trees.

## BACKGROUND

Since 1924 the Forestry Commission has carried out a number of national woodland surveys at intervals of between 15 and 20 years. The previous survey was carried out between 1979 and 1982. With the statistics becoming increasingly out of date the Forestry Commission decided to undertake a new survey: the *National Inventory of Woodland and Trees*.

The survey fieldwork for Great Britain was completed in July 2000. Work began in Scotland in 1994, followed by Southern England, Wales and Northern England.

## SURVEY METHODS

### Main Woodland Survey

In England, Woodland Surveys derived a digital map of all woodland showing Interpreted Forest Types from 1:25 000 scale aerial photography. This provided the basis for the sampling.

The digital map gives the extent of all woodland over 2 hectares and this was updated as survey work progressed. The maps on pages 4-6 show: overall woodland cover; woodland by ownership; and woodland by Interpreted Forest Type, respectively. The total area of woodland was obtained from the digital map with ground sampling undertaken to evaluate a wide range of woodland information such as species, age and stocking.

From the digital map the area of each woodland was recorded and this information was used to determine the intensity at which any selected woodland would be sampled. The overall sampling scheme was as follows:

- 2.0ha - <100ha : every fifth wood
- 100ha - <500ha : two woods in five
- 500ha and larger : all woods

1 hectare square plots were used to sample the selected woodlands on the ground. This was a change of practice from all previous Census surveys, where whole woods have been selected for survey. For each of the three bands of woodland area a different sampling grid was used with the density of the squares being reduced as the woodlands increase in size. The overall aim was to sample 1% of the woodland in each size class.

### Survey of Small Woodland and Trees

The land area of England was stratified into coastal and inland 1 km x 1 km squares and a random sample of 1 km<sup>2</sup> plots were then selected, representing around 1% of the land area. 1:25 000 scale aerial photos were then used to identify features in each sample square. Each 1 km<sup>2</sup> was then divided into 16 parts, and two of these were selected at random for field data collection. Data was collected on Small Woodlands (0.10 - <2.00 ha), Linear Features, Groups and Individual Trees. The survey did not collect information from areas of developed land of 2 hectares or more.

### MAIN POINTS FROM THE SURVEY RESULTS

- The total area of woodland of 0.1 hectares and over in Hampshire is 66,939 hectares. This represents 17.7 % of the land area. (Table 1)
- Broadleaved woodland is the dominant forest type representing 55.6 % of all woodland. Conifer woodland represents 16.6 %, Mixed woodland 14.7 % and Open Space within woodlands 9.9 %. (Table 2)
- The main conifer species is pine covering 8,482 hectares or 54.9 % of all conifer species. The main broadleaved species is oak covering 14,209 hectares or 33.3 % of all broadleaved species. (Table 3)
- 20,136 hectares or 31 % of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 44,879 hectares or 69 % of woodland is in Other ownership. (Table 6)
- There are a total of 2,705 woods over 2 ha within Hampshire with a mean wood area of 24.3 hectares. (Table 7a) There are a total of 4,434 woods from 0.1 - <2.0 hectares with a mean wood area of 0.43 hectares. (Table 14)
- There are 2.58 million live trees outside woodland in Hampshire. (Table 15)
- Woodland land cover increased by over 4,680 hectares from 16.4 % to 17.7 % of the land area between 1980 and 1996. (Table 19)
- The area of broadleaves increased by 15% between 1980 and 1996, with the relative proportion of broadleaves to conifers increasing from 67 % to 73 %. (Table 20)

### INVENTORY REPORTS

As well as this report for Hampshire, reports are available for the other counties in the region as shown on the map opposite. Also available are region and county reports for England as well as a report for the country as a whole. Wales and Scotland are also covered by reports. Inventory reports can also be viewed or downloaded from the website at [www.forestry.gov.uk/inventory](http://www.forestry.gov.uk/inventory).



### Map 1 Regional and county boundaries



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## Map 2 Distribution of woodland over 2 hectares



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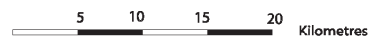
5 10 15 20 Kilometres

### Map 3 Distribution of woodland over 2 hectares by ownership

- Forestry Commission woodland
- Other woodland



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### Map 4 Distribution of woodland over 2 hectares by Interpreted Forest Type

- Broadleaves
- Conifer
- Mixed
- Felled
- Young trees & shrubs
- Ground prepared for planting
- Coppice



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## SUMMARY RESULTS FROM THE NATIONAL INVENTORY OF WOODLAND AND TREES (NIWT)

Both the Main Woodland Survey and the Survey of Small Woodland and Trees contributed to the estimate of woodland area for Hampshire.

Tables 1-3 show the combined woodland area from the Main Woodland Survey and the Survey of Small Woodland and Trees.

Tables 4 and 5 summarise the numbers of live trees outside woodland, and the lengths of Linear Features from the Survey of Small Woodland and Trees.

Table 1:	Woodland area by woodland size class
Table 2:	Woodland area by forest type and woodland size
Table 3:	Woodland area by principal species and woodland size
Table 4:	Numbers of live trees outside woodland by feature type
Table 5:	Lengths of Linear Features

*Note:* The figures in many of the tables may not add due to rounding



**Table 1** Woodland area by woodland size class

Woodland size (ha)	Woodland area (ha)	% of Woodland area
2.00 and over	65,015	97.1
0.25 - < 2.00	1,720	2.6
0.10 - < 0.25	204	0.3
<b>Total area of woodland</b>	<b>66,939</b>	<b>100.0</b>
<b>% Woodland land cover</b>	<b>17.7</b>	

1. Area of Hampshire, including inland water, 377,872 ha based on digital boundaries used in the 1991 Census of Population

**Table 2** Woodland area by forest type and woodland size

Forest type	Woodland size (ha)		Total area (ha)	Percentage of total area
	35747	0.1 - <2.0		
Conifer	11,123	18	11,141	16.6
Broadleaved	35,747	1,473	37,220	55.6
Mixed	9,556	273	9,829	14.7
Coppiced	10	0	10	0.0
Copp-w-standards	1,529	0	1,529	2.3
Windblow	0	0	0	0.0
Felled	574	0	574	0.9
Open Space	6,475	160	6,635	9.9
<b>Total</b>	<b>65,015</b>	<b>1,924</b>	<b>66,939</b>	<b>100</b>

1. See Glossary for definitions of forest types.



**Table 3** Woodland area by principal species and woodland size

Species/Groups	Woodland size (ha)		Total area (ha)	Percentage of total area	
	2.0 and over	0.1 - <2.0		Category*	Species**
Pine	8,429	53	8,482	54.9	14.6
Sitka spruce	54	0	54	0.3	0.1
Larch	1,162	14	1,176	7.6	2.0
Other conifers	5,493	67	5,560	36.0	9.6
Mixed conifers	141	48	189	1.2	0.3
<b>Total conifers</b>	<b>15,280</b>	<b>182</b>	<b>15,462</b>	<b>100.0</b>	<b>26.6</b>
Oak	13,808	401	14,209	33.3	24.4
Beech	7,148	128	7,276	17.0	12.5
Sycamore	1,509	71	1,580	3.7	2.7
Ash	5,552	181	5,733	13.4	9.9
Birch	6,529	0	6,529	15.3	11.2
Elm	206	18	224	0.5	0.4
Other broadleaves	5,499	273	5,772	13.5	9.9
Mixed broadleaves	895	511	1,406	3.3	2.4
<b>Total broadleaves</b>	<b>41,146</b>	<b>1,583</b>	<b>42,729</b>	<b>100.0</b>	<b>73.4</b>
<b>Total all species***</b>	<b>56,427</b>	<b>1,764</b>	<b>58,191</b>		<b>100.0</b>

\*Category - species/group percentage of conifer or broadleaved category

\*\*Species/group percentage of all species

\*\*\*Excludes the 8,748ha of Coppice, Felled and Open space areas which were included in Table 2

1. The standard errors of the area estimates for woodland of 2 ha and over for the most common species or species groups are as follows

Conifers	5%
Broadleaves	2%
Pine	7%
Oak	4%
Beech	7%

2. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).

**Table 4** Numbers of live trees outside woodland by feature type

Feature type	Total number of features	Total number of live trees	Mean number of trees per feature	Tree density (per sq km)
Groups	90,000	551,800	6	146
Narrow Linear Features	32,600	1,936,300	59	512
Individual Trees	92,600	92,600	1	25
<b>Total</b>		<b>2,580,700</b>		<b>683</b>

1. Land area used to calculate tree density 377,872ha based on digital boundaries used in 1991 Census of Population
2. The standard errors of the live tree number estimates for these feature types are:

Groups	23%
Narrow Linear Features	22%
Individual Trees	20%
3. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).
4. See Glossary for definitions of feature types .

**Table 5** Lengths of Linear Features

Feature type	Total number of features	Total length of features (km)	Density of features (m per sq km)
Wide Linear Features	0	0	0
Narrow Linear Features	32,600	3,991	1,056
<b>Total</b>		<b>3,991</b>	<b>1,056</b>

1. Land area used to calculate tree density 377,872ha based on digital boundaries used in 1991 Census of Population
2. The standard errors of the length estimates for these feature types are:

Wide Linear Features	-
Narrow Linear Features	22%
3. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).
4. See Glossary for definitions of feature type .

## RESULTS FROM THE MAIN WOODLAND SURVEY (MWS)

### Survey Method

Woods were selected from the digital map of woodland of 2 hectares and over, then sampled using a random grid of 1 hectare sample plots. The density of sample plots was reduced as the sampled woodland increase in size, the general aim being to sample 1% of the woodland area. The ground sampling evaluated a wide range of data such as species, age and stocking.

Table 6:	Summary of woodland area by ownership
Chart:	Woodland area by ownership
Table 7a:	Size class distribution of woodland
Table 7b:	Size class distribution of woodland by ownership units
Table 8:	Area of woodland by forest type and ownership
Chart:	Area of woodland by forest type
Table 9a:	Area of High Forest by principal species and ownership
Graph:	Area of High Forest by principal species and ownership
Table 9b:	Area of High Forest by principal species, ownership and category
Graph:	High Forest Category 1 Area by principal species and ownership
Graph:	High Forest Category 2 Area by principal species and ownership
Table 10a:	High Forest Category 1 Area by principal species and planting year class
Graph:	High Forest Category 1 Area by planting year class
Table 10b:	High Forest Category 1 Forestry Commission: area by principal species and planting year class
Graph:	High Forest Category 1 Forestry Commission - area by planting year class
Table 10c:	High Forest Category 1 Other ownership: area by principal species and planting year class
Graph:	High Forest Category 1 Other ownership: area by planting year class
Table 11:	High Forest: principal species by planting year class
Table 12:	Ownership type by area and percentage
Chart:	Ownership type by area

*Note: The figures in many of the tables may not add due to rounding*



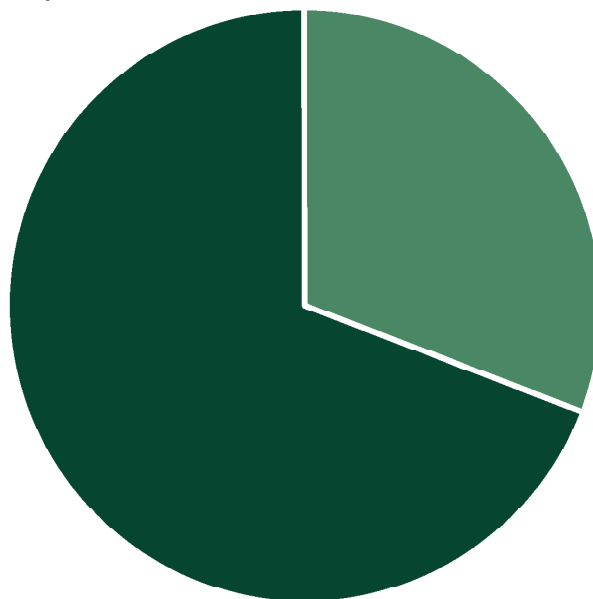
**Table 6** Summary of woodland area by ownership

Ownership	ha	% woodland
Forestry Commission	20,136	31
Other	44,879	69
<b>Total area of woodland</b>	<b>65,015</b>	<b>100</b>

1. Woodland area from aerial photographic interpretation map updated to 31 March 1996
2. See Glossary for definitions of ownership types

**Woodland area by ownership**

- Forestry Commission
- Other ownership



**Table 7a** Size class distribution of woodland

Size class (ha)	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	1,939	8,504	13	4.4
10 - <20	334	4,693	7	14.1
20 - <50	246	7,584	12	30.8
50 - <100	98	6,798	10	69.4
<b>&lt;100</b>	<b>2,617</b>	<b>27,579</b>	<b>42</b>	<b>10.5</b>
<b>100 - &lt;500</b>	<b>71</b>	<b>15,044</b>	<b>23</b>	<b>211.9</b>
<b>500 and &gt;</b>	<b>17</b>	<b>23,109</b>	<b>35</b>	<b>1359.3</b>
<b>All woods</b>	<b>2,705</b>	<b>65,732</b>	<b>100</b>	<b>24.3</b>

**Table 7b** Size class distribution of woodland by ownership units

Size class (ha)	FC or Other	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	FC	117	419	1	3.6
	O	2,039	8,689	13	4.3
10 - <20	FC	6	88	0	14.7
	O	344	4,835	7	14.1
20 - <50	FC	20	617	1	30.9
	O	249	7,696	12	30.9
50 - <100	FC	18	1,414	2	78.6
	O	95	6,580	10	69.3
<100	FC	161	2,538	4	15.8
	O	2,727	27,800	42	10.2
100 - <500	FC	25	5,302	8	212.1
	O	56	11,273	17	201.3
500 and >	FC	9	12,296	19	1366.2
	O	8	6,523	10	815.4
<b>Total</b>	<b>FC</b>	<b>195</b>	<b>20,136</b>	<b>31</b>	<b>103.3</b>
	<b>O</b>	<b>2,791</b>	<b>45,596</b>	<b>69</b>	<b>16.3</b>

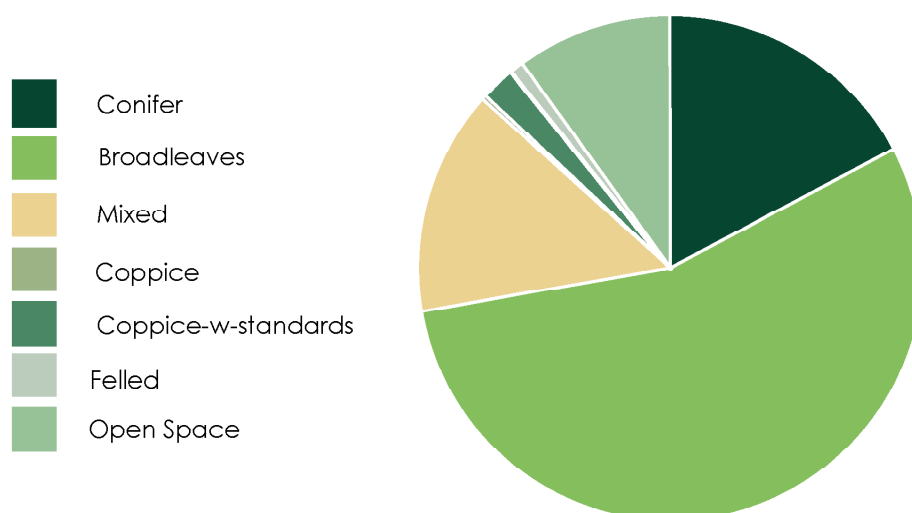
1. Table 7a and 7b are based solely on the digital woodland map. The other MWS tables are derived from the field sample data
2. The total area in Tables 7a and 7b is 717 hectares more than recorded in Table 6. This is mainly due to the field samples recording some land in other land uses not differentiated from woodland in the digital map
3. The data available from the digital map enable the identification of woodlands according to their ownerships, Forestry Commission or Other. The entries in table 7b cannot be added to derive table 7a as some woods may consist of both Forestry Commission and Other ownership(s)

For example, the Forestry Commission may own most of a large wood with some parts in Other ownership(s). In Table 7a the whole area would be treated as one wood and the area allocated to one size category. In Table 7b each of the ownership units would be allocated to the size category for that unit. Dividing woods by ownership can occasionally generate part woods of less than 2 hectares

**Table 8** Area of woodland by forest type and ownership

Forest type	Forestry Commission		Other		All ownerships	
	ha	%	ha	%	ha	%
Conifer	6,422	31.9	4,701	10.5	11,123	17.1
Broadleaved	8,357	41.5	27,390	61.0	35,747	55.0
Mixed	3,202	15.9	6,355	14.2	9,556	14.7
Coppice	0	0.0	10	0.0	10	0.0
Copp-w-Stds	0	0.0	1,529	3.4	1,529	2.4
Windblow	0	0.0	0	0.0	0	0.0
Felled	497	2.5	77	0.2	574	0.9
Open Space	1,658	8.2	4,817	10.7	6,475	10.0
<b>Total</b>	<b>20,136</b>	<b>100.0</b>	<b>44,879</b>	<b>100.0</b>	<b>65,015</b>	<b>100.0</b>

**Area of woodland by forest type**



**Table 9a** Area of High Forest by principal species and ownership

Species	Forestry Commission			Other			All ownerships		
	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %
Scots pine	3,359	43	19	3,483	46	9	6,842	45	12
Corsican pine	1,269	16	7	264	4	1	1,533	10	3
Lodgepole pine	9	0	0	45	1	0	54	0	0
Sitka spruce	19	0	0	35	0	0	54	0	0
Norway spruce	859	11	5	539	7	1	1,398	9	2
European larch	122	2	1	150	2	0	272	2	0
Jap/Hybrid larch	332	4	2	558	7	1	890	6	2
Douglas fir	1,099	14	6	1,259	17	3	2,358	15	4
Other conifers	681	9	4	1,056	14	3	1,737	11	3
Mixed conifers	32	0	0	109	1	0	141	1	0
<b>Total conifers</b>	<b>7,782</b>	<b>100</b>	<b>43</b>	<b>7,498</b>	<b>100</b>	<b>20</b>	<b>15,280</b>	<b>100</b>	<b>27</b>
Oak	3,926	38	22	9,882	32	26	13,808	34	24
Beech	3,685	36	20	3,463	11	9	7,148	17	13
Sycamore	0	0	0	1,509	5	4	1,509	4	3
Ash	202	2	1	5,349	17	14	5,552	13	10
Birch	1,603	16	9	4,926	16	13	6,529	16	12
Poplar	119	1	1	277	1	1	395	1	1
Sweet chestnut	242	2	1	376	1	1	618	2	1
Elm	0	0	0	206	1	1	206	1	0
Other broadleaves	341	3	2	4,145	13	11	4,486	11	8
Mixed broadleaves	80	1	0	815	3	2	895	2	2
<b>Total broadleaves</b>	<b>10,198</b>	<b>100</b>	<b>57</b>	<b>30,948</b>	<b>100</b>	<b>80</b>	<b>41,146</b>	<b>100</b>	<b>73</b>
<b>Total - all species</b>	<b>17,981</b>		<b>100</b>	<b>38,446</b>		<b>100</b>	<b>56,427</b>		<b>100</b>
<b>Felled</b>	<b>497</b>			<b>77</b>			<b>574</b>		
<b>Total High Forest</b>	<b>18,478</b>			<b>38,523</b>			<b>57,001</b>		

\*cat : species percentage of Conifer or Broadleaved in the ownership category

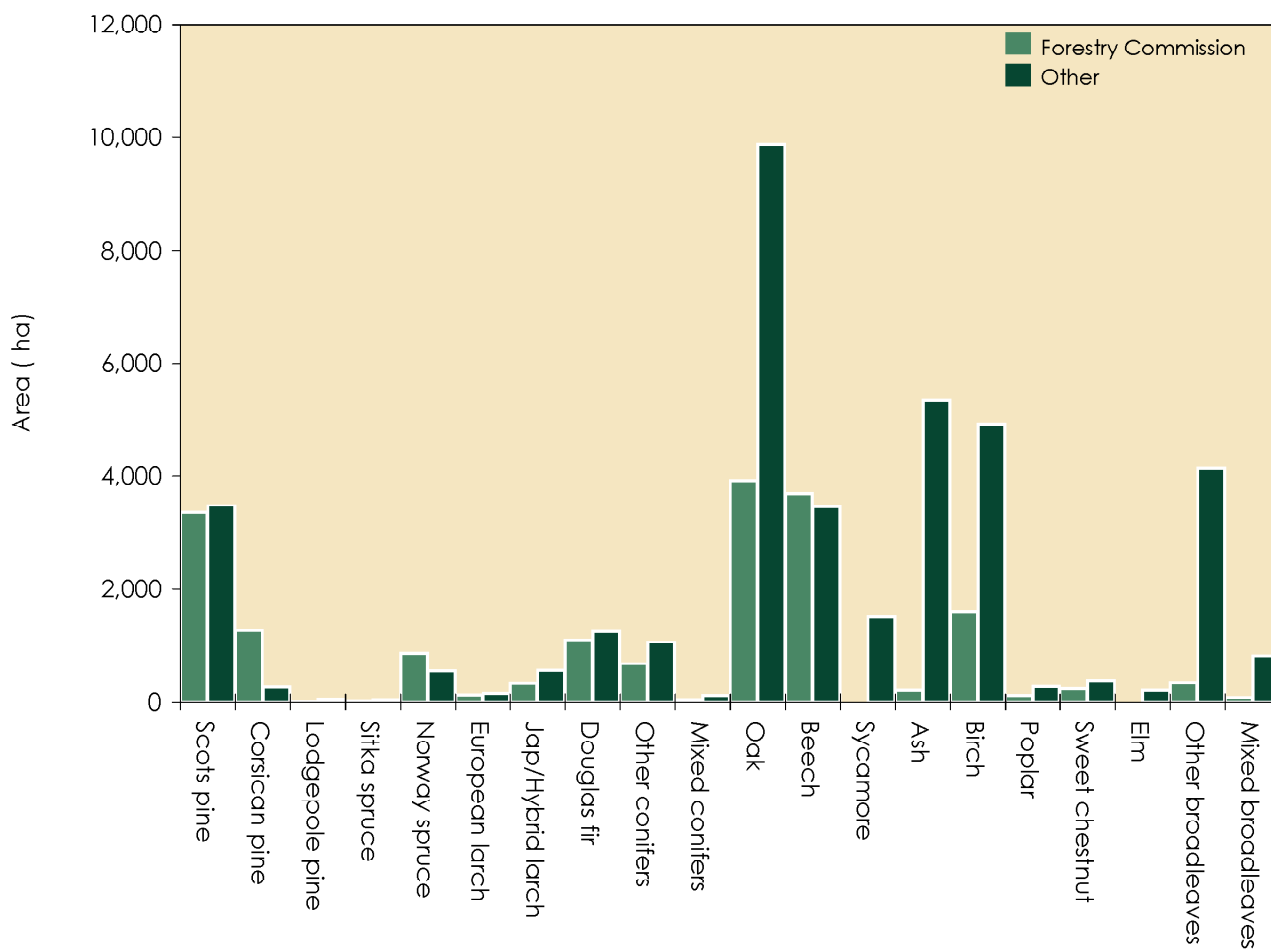
\*\*spp : percentage of all species in the ownership category



1. In addition to the areas shown there are 6,475ha of other areas integral to the woodland not stocked with tree species.
2. The standard errors of the all ownerships area estimates for the most common species or species groups are as follows;
 

Conifers	5%
Broadleaves	2%
Scots pine	8%
Oak	4%
Beech	7%
3. Mixtures: where possible the species in mixtures have been separately recorded. Where this has not been possible they were described as 'Mixed conifers' or 'Mixed broadleaves'.
4. Confidence Intervals: where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).

**Area of High Forest by principal species and ownership**



**Table 9b** Area of High Forest by principal species,ownership and category

Species	Forestry Commission			Other			All ownerships		
	cat. 1	cat. 2	Total (ha)	cat. 1	cat. 2	Total (ha)	cat. 1	cat. 2	Total (ha)
Scots pine	3,354	5	3,359	3,418	65	3,483	6,773	69	6,842
Corsican pine	1,269	0	1,269	264	0	264	1,533	0	1,533
Lodgepole pine	9	0	9	45	0	45	54	0	54
Sitka spruce	14	5	19	35	0	35	50	5	54
Norway spruce	859	0	859	539	0	539	1,398	0	1,398
European larch	122	0	122	150	0	150	272	0	272
Jap/Hybrid larch	318	14	332	558	0	558	876	14	890
Douglas fir	1,099	0	1,099	1,259	0	1,259	2,358	0	2,358
Other conifers	667	14	681	1,051	5	1,056	1,718	19	1,737
Mixed conifers	28	5	32	109	0	109	137	5	141
<b>Total conifers</b>	<b>7,740</b>	<b>43</b>	<b>7,782</b>	<b>7,428</b>	<b>70</b>	<b>7,498</b>	<b>15,168</b>	<b>112</b>	<b>15,280</b>
Oak	3,546	380	3,926	8,856	1,026	9,882	12,402	1,406	13,808
Beech	3,281	404	3,685	3,245	218	3,463	6,526	622	7,148
Sycamore	0	0	0	1,488	20	1,509	1,488	20	1,509
Ash	183	19	202	4,926	423	5,349	5,109	442	5,552
Birch	1,133	471	1,603	3,698	1,228	4,926	4,831	1,698	6,529
Poplar	119	0	119	252	25	277	370	25	395
Sweet chestnut	104	138	242	251	125	376	355	263	618
Elm	0	0	0	192	14	206	192	14	206
Other broadleaves	173	169	341	2,801	1,344	4,145	2,974	1,513	4,486
Mixed broadleaves	46	33	80	701	114	815	748	147	895
<b>Total broadleaves</b>	<b>8,585</b>	<b>1,614</b>	<b>10,198</b>	<b>26,410</b>	<b>4,538</b>	<b>30,948</b>	<b>34,995</b>	<b>6,152</b>	<b>41,146</b>
<b>Total - all species</b>	<b>16,325</b>	<b>1,656</b>	<b>17,981</b>	<b>33,838</b>	<b>4,608</b>	<b>38,446</b>	<b>50,163</b>	<b>6,264</b>	<b>56,427</b>

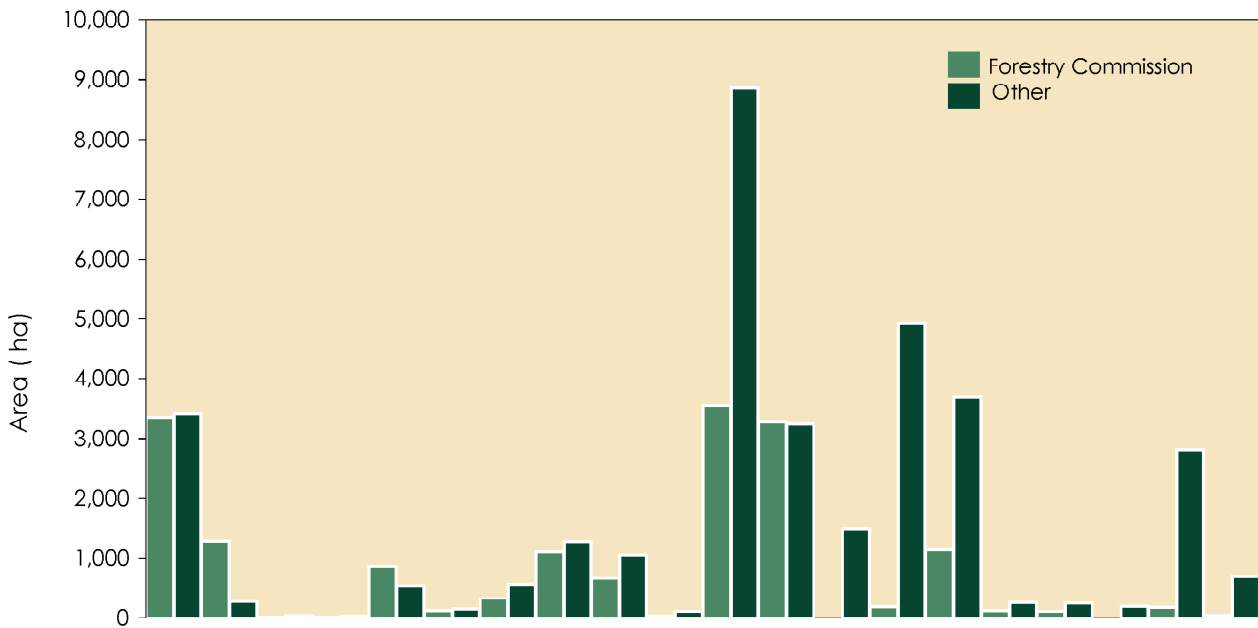
1. The standard errors of the all ownerships area estimates for the most common species or species groups (in all woodland types) are as follows

	Category 1*	Category 2*	Total High Forest	
Conifers	5%	41%	5%	
Broadleaves	2%	5%	2%	
Scots pine	8%	62%	8%	
Oak	5%	12%	4%	*See Glossary for Category 1 and Category 2 descriptions
Beech	8%	19%	7%	

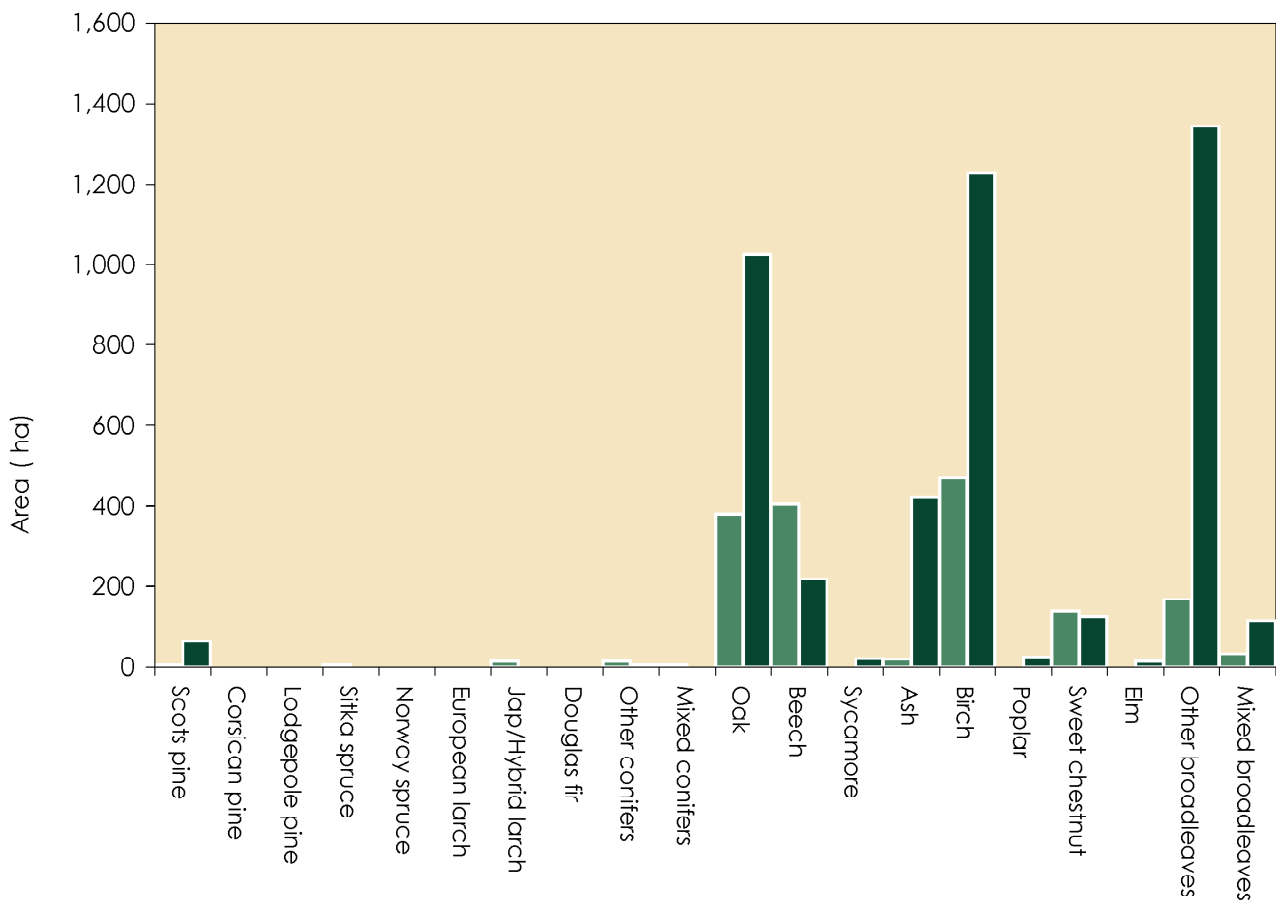
2. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).

3. Where possible the species in mixtures have been separately recorded. Where this has not been possible they were described as 'Mixed conifers' or 'Mixed broadleaves'.

High Forest Category 1 - Area by principal species and ownership



High Forest Category 2 - Area by principal species and ownership



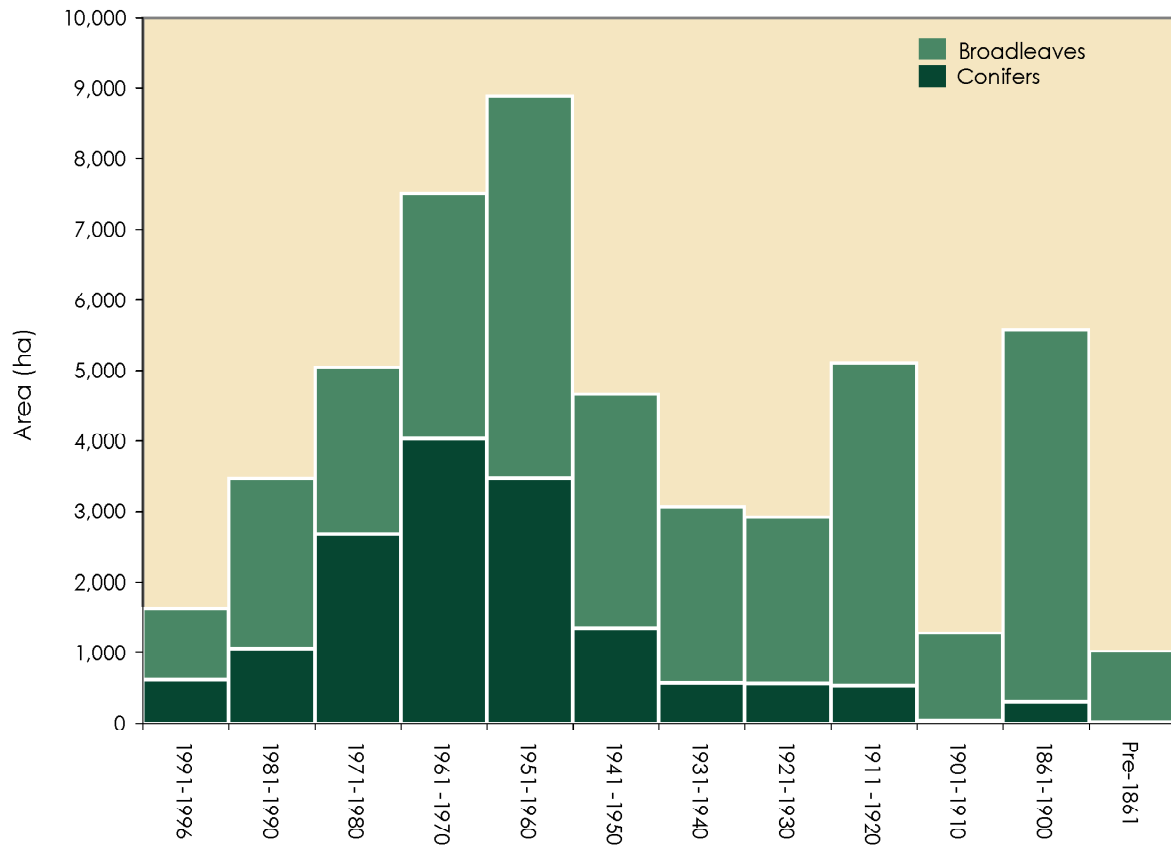
NATIONAL INVENTORY OF WOODLAND AND TREES - HAMPSHIRE

**Table 10a** High Forest Category 1 - Area by principal species and planting year class

Species	Planting year class*												Total (ha)
	1991-1996	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	194	310	1,299	1,595	1,510	679	209	506	337	38	97	0	6,773
Corsican pine	142	275	472	397	52	88	14	5	77	0	9	0	1,533
Lodgepole pine	0	0	45	9	0	0	0	0	0	0	0	0	54
Sitka spruce	5	0	0	30	0	5	0	0	0	0	9	0	50
Norway spruce	18	88	337	335	305	266	49	0	0	0	0	0	1,398
European larch	0	4	77	100	57	0	0	19	5	0	9	0	272
Jap/Hybrid larch	92	82	74	289	242	59	33	0	5	0	0	0	876
Douglas fir	159	210	177	545	866	179	168	24	0	0	29	0	2,358
Other conifers	0	84	178	688	427	20	88	0	88	0	135	9	1,718
Mixed conifers	0	0	19	38	10	49	0	0	10	0	10	0	137
<b>Total conifers</b>	<b>610</b>	<b>1,055</b>	<b>2,679</b>	<b>4,028</b>	<b>3,467</b>	<b>1,345</b>	<b>561</b>	<b>553</b>	<b>522</b>	<b>38</b>	<b>299</b>	<b>9</b>	<b>15,168</b>
Oak	161	234	148	275	594	730	518	908	2,779	1,115	4,109	831	12,402
Beech	110	163	289	499	1,547	861	785	310	871	113	811	168	6,526
Sycamore	57	164	290	260	202	224	132	68	92	0	0	0	1,488
Ash	160	369	406	642	1,031	709	568	530	478	4	213	0	5,109
Birch	378	856	538	1,044	991	470	230	262	62	0	0	0	4,831
Poplar	5	20	0	130	96	117	0	0	0	0	0	0	370
Sweet chestnut	0	36	25	37	73	19	0	38	68	5	48	4	355
Elm	0	123	62	8	0	0	0	0	0	0	0	0	192
Other broadleaves	45	319	503	486	787	149	234	146	216	0	82	4	2,974
Mixed broadleaves	99	130	104	105	100	40	34	101	14	0	20	0	748
<b>Total broadleaves</b>	<b>1,014</b>	<b>2,413</b>	<b>2,363</b>	<b>3,487</b>	<b>5,422</b>	<b>3,321</b>	<b>2,504</b>	<b>2,362</b>	<b>4,582</b>	<b>1,237</b>	<b>5,283</b>	<b>1,007</b>	<b>34,995</b>
<b>Total - all species</b>	<b>1,624</b>	<b>3,467</b>	<b>5,042</b>	<b>7,515</b>	<b>8,891</b>	<b>4,666</b>	<b>3,065</b>	<b>2,916</b>	<b>5,104</b>	<b>1,275</b>	<b>5,582</b>	<b>1,016</b>	<b>50,163</b>

\*Age determined from records where these were available. Where records were not available or were clearly inaccurate age-class was assigned by reference to similar crops of known age in the locality.

High Forest Category 1 - Area by planting year class



1. Most of the planting year classes cover 10 years, 1991-1996 is 6 years, and the classes prior to 1901 are 40 years or more.

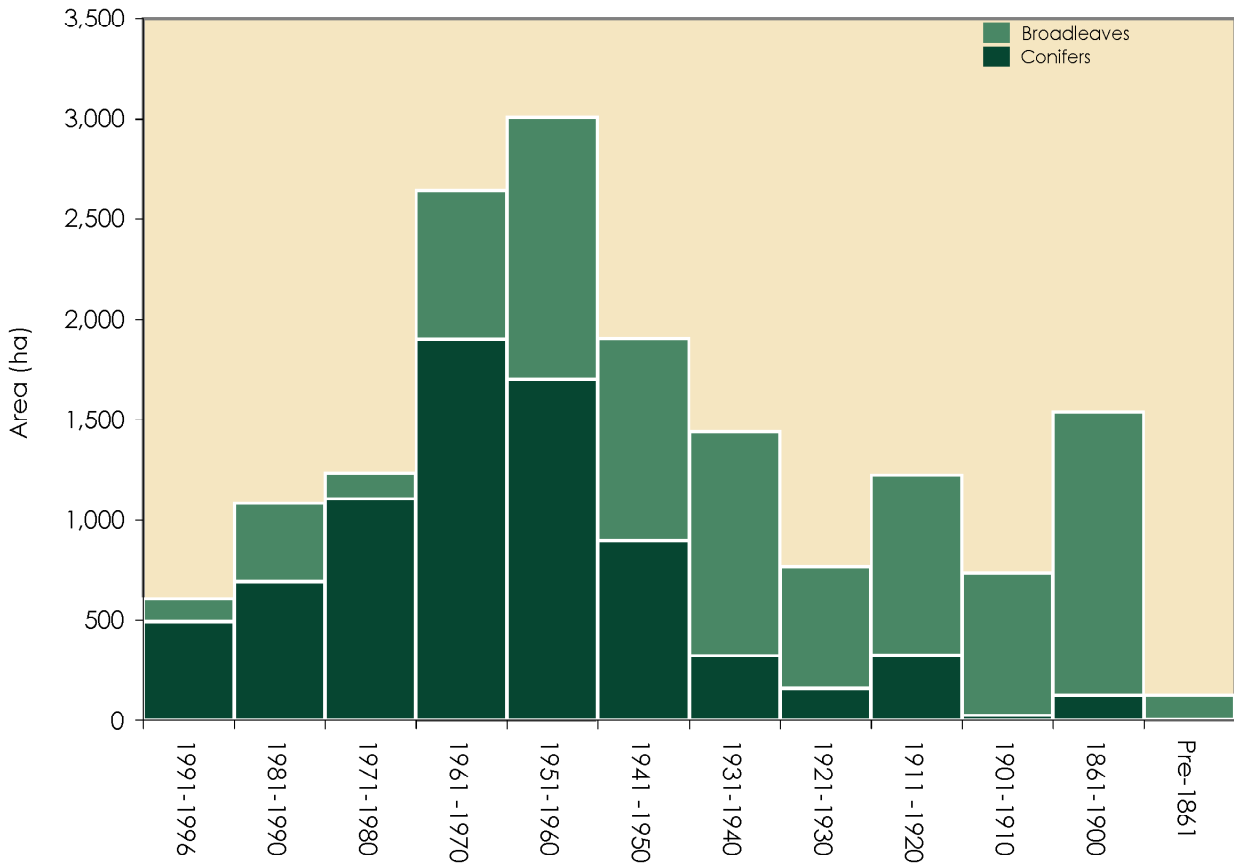
## NATIONAL INVENTORY OF WOODLAND AND TREES - HAMPSHIRE

**Table 10b** High Forest Category 1 - Forestry Commission : area by principal species and planting year classes

Species	Planting year class*												Total (ha)
	1991-1996	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	156	223	379	747	867	396	157	119	255	24	33	0	3,354
Corsican pine	142	256	426	274	33	43	14	5	66	0	9	0	1,269
Lodgepole pine	0	0	0	9	0	0	0	0	0	0	0	0	9
Sitka spruce	5	0	0	0	0	0	0	0	0	0	9	0	14
Norway spruce	0	38	228	194	170	231	0	0	0	0	0	0	859
European larch	0	0	0	61	33	0	0	19	0	0	9	0	122
Jap/Hybrid larch	81	9	0	123	57	24	24	0	0	0	0	0	318
Douglas fir	109	152	57	142	308	179	114	19	0	0	19	0	1,099
Other conifers	0	9	9	354	228	5	14	0	5	0	43	0	667
Mixed conifers	0	0	4	0	5	19	0	0	0	0	0	0	28
<b>Total conifers</b>	<b>492</b>	<b>688</b>	<b>1,103</b>	<b>1,903</b>	<b>1,701</b>	<b>895</b>	<b>323</b>	<b>161</b>	<b>326</b>	<b>24</b>	<b>123</b>	<b>0</b>	<b>7,740</b>
Oak	0	14	9	56	249	242	304	233	662	646	1,002	128	3,546
Beech	0	14	38	277	856	624	730	175	175	62	331	0	3,281
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0
Ash	47	0	9	69	19	19	0	14	0	0	5	0	183
Birch	66	341	62	258	85	85	76	120	38	0	0	0	1,133
Poplar	0	0	0	9	71	38	0	0	0	0	0	0	119
Sweet chestnut	0	14	0	19	9	0	0	19	19	5	19	0	104
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	0	5	9	34	0	5	9	45	5	0	62	0	173
Mixed broadleaves	0	5	5	18	19	0	0	0	0	0	0	0	46
<b>Total broadleaves</b>	<b>114</b>	<b>394</b>	<b>133</b>	<b>740</b>	<b>1,309</b>	<b>1,013</b>	<b>1,119</b>	<b>606</b>	<b>898</b>	<b>712</b>	<b>1,418</b>	<b>128</b>	<b>8,585</b>
<b>Total - all species</b>	<b>606</b>	<b>1,081</b>	<b>1,236</b>	<b>2,643</b>	<b>3,010</b>	<b>1,909</b>	<b>1,442</b>	<b>767</b>	<b>1,225</b>	<b>736</b>	<b>1,541</b>	<b>128</b>	<b>16,325</b>

\*Age determined from records where these were available. Where records were not available or were clearly inaccurate age-class was assigned by reference to similar crops of known age in the locality.

**High Forest Category 1 - Forestry Commission: area by planting year class**



1. Most of the planting year classes cover 10 years, 1991-1996 is 6 years, and the classes prior to 1901 are 40 years or more.

NATIONAL INVENTORY OF WOODLAND AND TREES - HAMPSHIRE

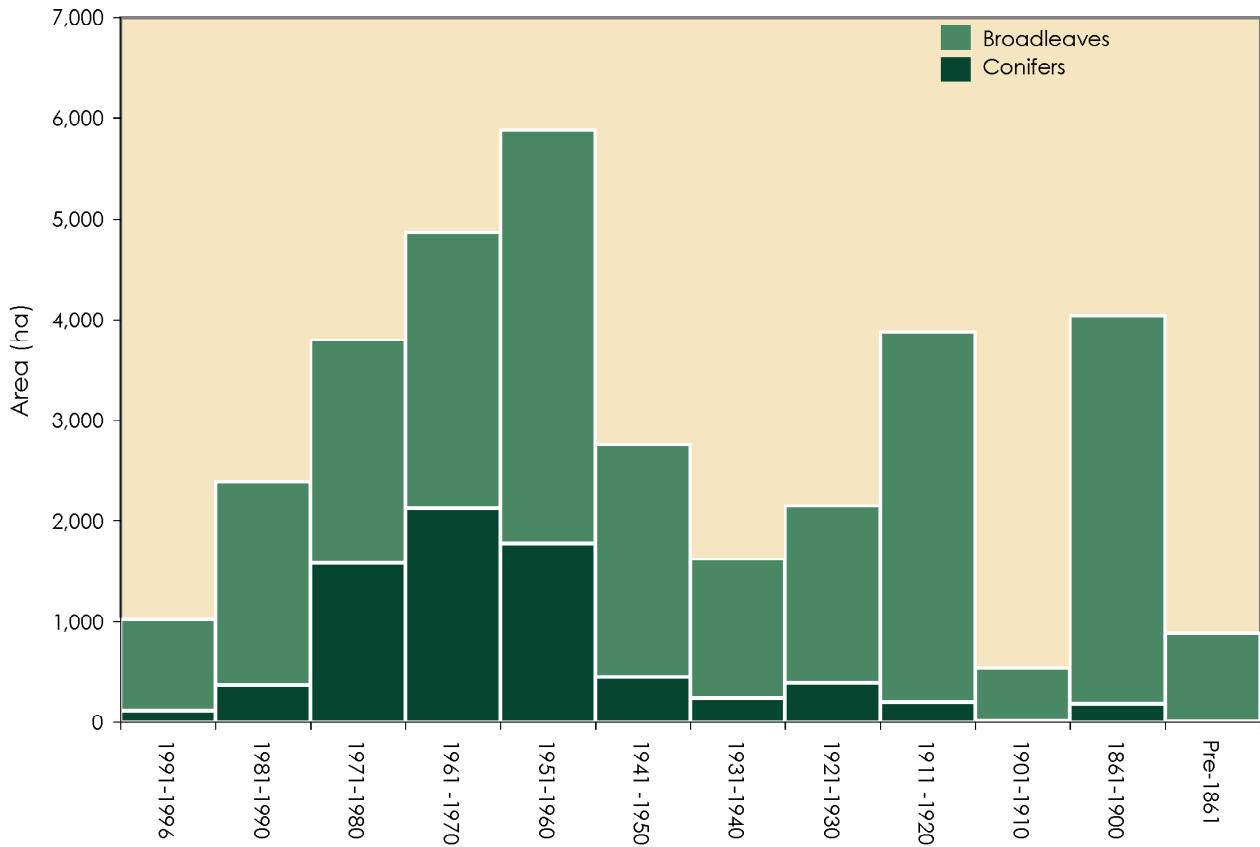
**Table 10c** High Forest Category 1 - Other ownership: area by principal species and planting year classes

Species	Planting year class*												Total (ha)
	1991-1996	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	38	87	920	849	643	283	53	387	82	14	64	0	3,418
Corsican pine	0	19	46	123	19	45	0	0	10	0	0	0	264
Lodgepole pine	0	0	45	0	0	0	0	0	0	0	0	0	45
Silka spruce	0	0	0	30	0	5	0	0	0	0	0	0	35
Norway spruce	18	51	109	141	135	35	49	0	0	0	0	0	539
European larch	0	4	77	39	24	0	0	0	5	0	0	0	150
Jap/Hybrid larch	11	73	74	166	185	35	9	0	5	0	0	0	558
Douglas fir	50	59	120	403	558	0	55	5	0	0	10	0	1,259
Other conifers	0	74	168	334	200	15	73	0	84	0	92	9	1,051
Mixed conifers	0	0	15	38	5	30	0	0	10	0	10	0	109
<b>Total conifers</b>	<b>117</b>	<b>367</b>	<b>1,575</b>	<b>2,125</b>	<b>1,768</b>	<b>450</b>	<b>238</b>	<b>392</b>	<b>196</b>	<b>14</b>	<b>176</b>	<b>9</b>	<b>7,428</b>
Oak	161	219	138	219	345	488	214	675	2,117	469	3,107	703	8,856
Beech	110	149	251	222	691	236	55	135	696	52	480	168	3,245
Sycamore	57	164	290	260	202	224	132	68	92	0	0	0	1,488
Ash	112	369	396	573	1,013	690	568	515	478	4	208	0	4,926
Birch	311	514	476	786	905	385	155	141	24	0	0	0	3,698
Poplar	5	20	0	121	25	79	0	0	0	0	0	0	252
Sweet chestnut	0	22	25	18	64	19	0	19	50	0	29	4	251
Elm	0	123	62	8	0	0	0	0	0	0	0	0	192
Other broadleaves	45	314	493	451	787	144	225	101	211	0	20	4	2,801
Mixed broadleaves	99	125	99	87	81	40	34	101	14	0	20	0	701
<b>Total broadleaves</b>	<b>900</b>	<b>2,019</b>	<b>2,230</b>	<b>2,748</b>	<b>4,113</b>	<b>2,308</b>	<b>1,384</b>	<b>1,756</b>	<b>3,683</b>	<b>524</b>	<b>3,865</b>	<b>879</b>	<b>26,410</b>
<b>Total - all species</b>	<b>1,018</b>	<b>2,386</b>	<b>3,805</b>	<b>4,873</b>	<b>5,881</b>	<b>2,758</b>	<b>1,623</b>	<b>2,148</b>	<b>3,879</b>	<b>539</b>	<b>4,041</b>	<b>888</b>	<b>33,838</b>

\*Age determined from records where these were available. Where records were not available or were clearly inaccurate age-class was assigned by reference to similar crops of known age in the locality.



High Forest Category 1 - Other Ownership: area by planting year class



1. Most of the planting year classes cover 10 years. 1991-1996 is 6 years, and the classes prior to 1901 are 40 years or more.

**Table 11** High Forest : principal species by planting year class

Planting year class	First	%	Second	%	Third	%
1991-96	Birch	23	Scots pine	12	Oak	10
1981-90	Birch	25	Other broadleaves	13	Ash	10
1971-80	Scots pine	24	Other broadleaves	13	Birch	13
1961-70	Scots pine	20	Birch	16	Other broadleaves	10
1951-60	Beech	16	Scots pine	16	Birch	14
1941-50	Oak	16	Beech	16	Birch	16
1931-40	Beech	20	Oak	18	Ash	17
1921-30	Oak	32	Ash	18	Scots pine	14
1911-20	Oak	54	Beech	16	Ash	10
1901-10	Oak	76	Beech	17	Scots pine	2
1861-1900	Oak	71	Beech	17	Ash	4
Pre 1861	Oak	78	Beech	17	Sweet chestnut	3
<b>All years</b>	<b>Oak</b>	<b>24</b>	<b>Beech</b>	<b>13</b>	<b>Scots pine</b>	<b>12</b>

1. Principal species as a percentage of area in the planting year class.

**Table 12** Ownership type\* by area and percentage

Ownership type	Area (ha)	%
Personal	20,066	30.9
Business	11,369	17.5
Forestry or timber business	0	0.0
Charity	4,095	6.3
Local Authority	4,052	6.2
Other public (not FC)	4,851	7.5
Forestry Commission	20,136	31.0
Community ownership or common land	0	0.0
Unidentified	445	0.7
<b>Total</b>	<b>65,015</b>	<b>100.0</b>

\* This table is produced from data contributed on a voluntary basis by owners or their representatives.

**Ownership type by area**





## RESULTS FROM THE SURVEY OF SMALL WOODLAND AND TREES (SSWT)

### Survey Method

The land area of England was stratified into coastal and inland 1 km x 1 km squares and a random sample of 1 km<sup>2</sup> plots were then selected, representing around 1% of the land area. 1:25 000 scale aerial photos were then used to identify features in each sample square. Each 1 km<sup>2</sup> was then divided into 16 parts, and two of these were selected at random for field data collection. Data was collected on Small Woodlands (0.10 - <2.00 ha), Linear Features, Groups and Individual Trees. The survey did not collect information from areas of developed land of 2 hectares or more.

Table 13:	Summary of information from the Survey of Small Woodland and Trees
Table 14:	Woodland area by feature type and woodland size
Table 15:	Numbers of live trees outside woodland by species and feature type
Table 16 :	Numbers of dead trees outside woodland by species and feature type
Table 17:	Numbers of live trees outside woodland by species and height band
Table 18:	Numbers of Groups by group size

*Note: The figures in many of the tables may not add due to rounding*



**Table 13** Summary of information from the Survey of Small Woodlands and Trees

Feature type	Number of features	Total	Unit
Small Woods	4,434	1,924	Area (ha)
Wide Linear Features	0	0	Area (ha)
Wide Linear Features	0	0	Length (Km)
Narrow Linear Features	32,600	3,991	Length (Km)
Narrow Linear Features	32,600	1,936,300	Number of live trees
Groups	90,000	551,800	Number of live trees
Individual Trees	92,600	92,600	Number of live trees

1. See Glossary for definitions of feature types.

**Table 14** Woodland area by feature type and woodland size

Feature type	Woodland size (ha)		Total area (ha)	Number of features	Mean size (ha)
	0.1 - <0.25	0.25 - <2.0			
Small Woods	204	1,720	1,924	4,434	0.43
Wide Linear Features	0	0	0	0	0.00
<b>Total</b>	<b>204</b>	<b>1,720</b>	<b>1,924</b>	<b>4,434</b>	<b>0.43</b>

1. See Glossary for definitions of feature types.

**Table 15** Numbers of live trees outside woodland by species and feature type (000's trees)

Species	Feature type				Total live trees	Percent of total trees	
	Boundary Trees	Middle Trees	Groups	Narrow Linear Features		Category	Species
Pine	2.5	17.3	150.3	135.7	305.8	69.8	11.8
Spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Larch	0.0	0.0	0.0	4.5	4.5	1.0	0.2
Cypress	0.0	0.0	0.0	111.3	111.3	25.4	4.3
Other conifers	0.8	5.8	9.9	0.0	16.5	3.8	0.6
<b>Total conifers</b>	<b>3.3</b>	<b>23.1</b>	<b>160.2</b>	<b>251.5</b>	<b>438.1</b>	<b>100.0</b>	<b>17.0</b>
Oak	17.3	8.3	74.3	412.6	512.5	23.9	19.9
Beech	5.8	0.8	9.1	84.1	99.8	4.7	3.9
Sycamore	0.0	0.8	1.7	16.3	18.8	0.9	0.7
Ash	9.9	3.3	61.1	163.8	238.1	11.1	9.2
Birch	0.0	4.1	47.1	76.9	128.1	6.0	5.0
Poplar	0.0	0.0	9.1	5.4	14.5	0.7	0.6
Sweet chestnut	0.0	0.0	0.8	0.0	0.8	0.0	0.0
Horse chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alder	0.0	0.0	0.0	3.6	3.6	0.2	0.1
Lime	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm	3.3	0.0	15.7	25.3	44.3	2.1	1.7
Willow	0.0	4.1	23.1	84.1	111.3	5.2	4.3
Other broadleaves	3.3	5.0	149.5	812.5	970.3	45.3	37.6
<b>Total broadleaves</b>	<b>39.7</b>	<b>26.4</b>	<b>391.6</b>	<b>1,684.8</b>	<b>2,142.1</b>	<b>100.0</b>	<b>83.0</b>
<b>Total - all species</b>	<b>43.0</b>	<b>49.5</b>	<b>551.8</b>	<b>1,936.3</b>	<b>2,580.6</b>		<b>100.0</b>

1. Percentages

Category : species percentage of conifer or broadleaved.  
Species : percentage of all species.

2. The standard errors of the total tree number estimates for these feature types are:

Individual Trees	20%
Groups	23%
Narrow Linear Features	22%

3. See Glossary for definitions of feature types.



**Table 16** Numbers of dead trees outside woodland by species and feature type (000's trees)

Species	Feature type				Total dead trees	Percent of total trees	
	Boundary Trees	Middle Trees	Groups	Narrow Linear Features		Category	Species
Pine	0.0	2.5	9.1	5.4	17.0	100.0	30.4
Spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Larch	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cypress	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total conifers</b>	<b>0.0</b>	<b>2.5</b>	<b>9.1</b>	<b>5.4</b>	<b>17.0</b>	<b>100.0</b>	<b>30.4</b>
Oak	0.0	0.0	9.1	4.5	13.6	35.0	24.3
Beech	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sycamore	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ash	0.0	0.0	0.8	0.0	0.8	2.1	1.4
Birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Poplar	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweet chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alder	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lime	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.0	0.0	3.6	3.6	9.3	6.4
Willow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other broadleaves	0.8	0.0	8.3	11.8	20.9	53.7	37.4
<b>Total broadleaves</b>	<b>0.8</b>	<b>0.0</b>	<b>18.2</b>	<b>19.9</b>	<b>38.9</b>	<b>100.0</b>	<b>69.6</b>
<b>Total - all species</b>	<b>0.8</b>	<b>2.5</b>	<b>27.3</b>	<b>25.3</b>	<b>55.9</b>		<b>100.0</b>

1. See Glossary for definitions of feature types.

**Table 17** Numbers of live trees outside woodland by species and height band (000's trees)

Species	Height band (m)				Total live trees
	2-5	5-15	15-20	>20	
Pine	44.7	201.1	59.3	0.8	305.9
Spruce	0.0	0.0	0.0	0.0	0.0
Larch	0.0	4.5	0.0	0.0	4.5
Cypress	45.2	66.1	0.0	0.0	111.3
Other conifers	1.7	0.8	7.4	6.6	16.5
<b>Total conifers</b>	<b>91.6</b>	<b>272.5</b>	<b>66.7</b>	<b>7.4</b>	<b>438.2</b>
Oak	94.9	241.2	170.7	5.8	512.6
Beech	12.7	26.6	4.4	56.2	99.9
Sycamore	0.0	16.3	1.7	0.8	18.8
Ash	38.6	150.1	49.4	0.0	238.1
Birch	42.1	78.8	7.2	0.0	128.1
Poplar	0.0	1.8	10.2	2.5	14.5
Sweet chestnut	0.0	0.0	0.8	0.0	0.8
Horse chestnut	0.0	0.0	0.0	0.0	0.0
Alder	0.0	3.6	0.0	0.0	3.6
Lime	0.0	0.0	0.0	0.0	0.0
Elm	25.9	18.4	0.0	0.0	44.3
Willow	93.0	17.5	0.8	0.0	111.3
Other broadleaves	885.1	80.3	5.0	0.0	970.4
<b>Total broadleaves</b>	<b>1,192.3</b>	<b>634.6</b>	<b>250.2</b>	<b>65.3</b>	<b>2,142.4</b>
<b>Total - all species</b>	<b>1,283.9</b>	<b>907.1</b>	<b>316.9</b>	<b>72.7</b>	<b>2,580.6</b>

**Table 18** Number of Groups by group size

Number of trees per Group*	Number of Groups (000's)
2	8
3-5	35
6-10	22
11-20	17
21-50	8
51-100	0
>100	0
<b>Total</b>	<b>90</b>

\*The size of the group is determined by the total number of trees, live plus dead.



## COMPARISON OF RESULTS WITH THE 1980 CENSUS AND PREVIOUS SURVEYS

### Survey Method

The 1980 Census and 1996 Inventory were undertaken using very different sampling methods.

Inventory practice and technology have moved on since the 1980 Census; this has led to changes in sampling methodology, scope and woodland definitions. For example, the Main Woodland Survey used the digital woodland map, created from aerial photos as a basis for sampling whereas the 1980 Census relied only on the woodland shown on the 1:50,000 Ordnance Survey map. Also in contrast to the 1980 Census, the Survey of Small Woodland and Trees did not record information within developed land e.g. residential or industrial areas of 2 or more hectares.

Where possible adjustments have been made to both the 1980 Census and the Inventory to achieve the nearest available comparison. The apparent changes indicated in the following tables and charts should therefore be treated with caution, particularly where areas are small.

Table 19:	Comparison of woodland area between 1980 Census and 1996 Inventory
Table 20:	Comparison of High Forest area by species between 1980 Census and 1996 Inventory
Chart:	Comparison of High Forest area by species between 1980 Census and 1996 Inventory
Table 21:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1996 Inventory
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1996 Inventory
Table 22:	Comparison of numbers of live trees outside woodland between 1980 Census and 1996 Inventory
Table 23:	Comparison of density of non-woodland features between 1980 Census and 1996 Inventory

### Woodland cover

Chart	Change in woodland cover through time (1890 – 2000)
Maps:	Woodland by county through time (1895 – 1998)

*Note: The figures in many of the tables may not add due to rounding*



**Table 19** Comparison of woodland area between 1980 Census and 1996 Inventory

Woodland size (ha)	1980 Census woodland area		1996 Inventory woodland area		Change (%)
	(ha)	(%)	(ha)	(%)	(%)
2.0 or more	58,057	93.6	65,015	97.4	12
0.25 - <2.0	3,992	6.4	1,720	2.6	-57
<b>Total</b>	<b>62,049</b>		<b>66,735</b>		<b>8</b>
<b>% Woodland land cover</b>	<b>16.4</b>		<b>17.7</b>		

1. Differences in sampling methodology may account for some of the apparent differences.
2. The above figures from the 1996 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1996 figures above will therefore not match those in the previous sections of the report.
3. Land area used to calculate woodland cover percent (1996), 377,872 ha, was based on the 1991 Census of Population digital boundaries.
4. Land area used to calculate woodland cover percent (1980), 377,685ha, (Ordnance Survey data)

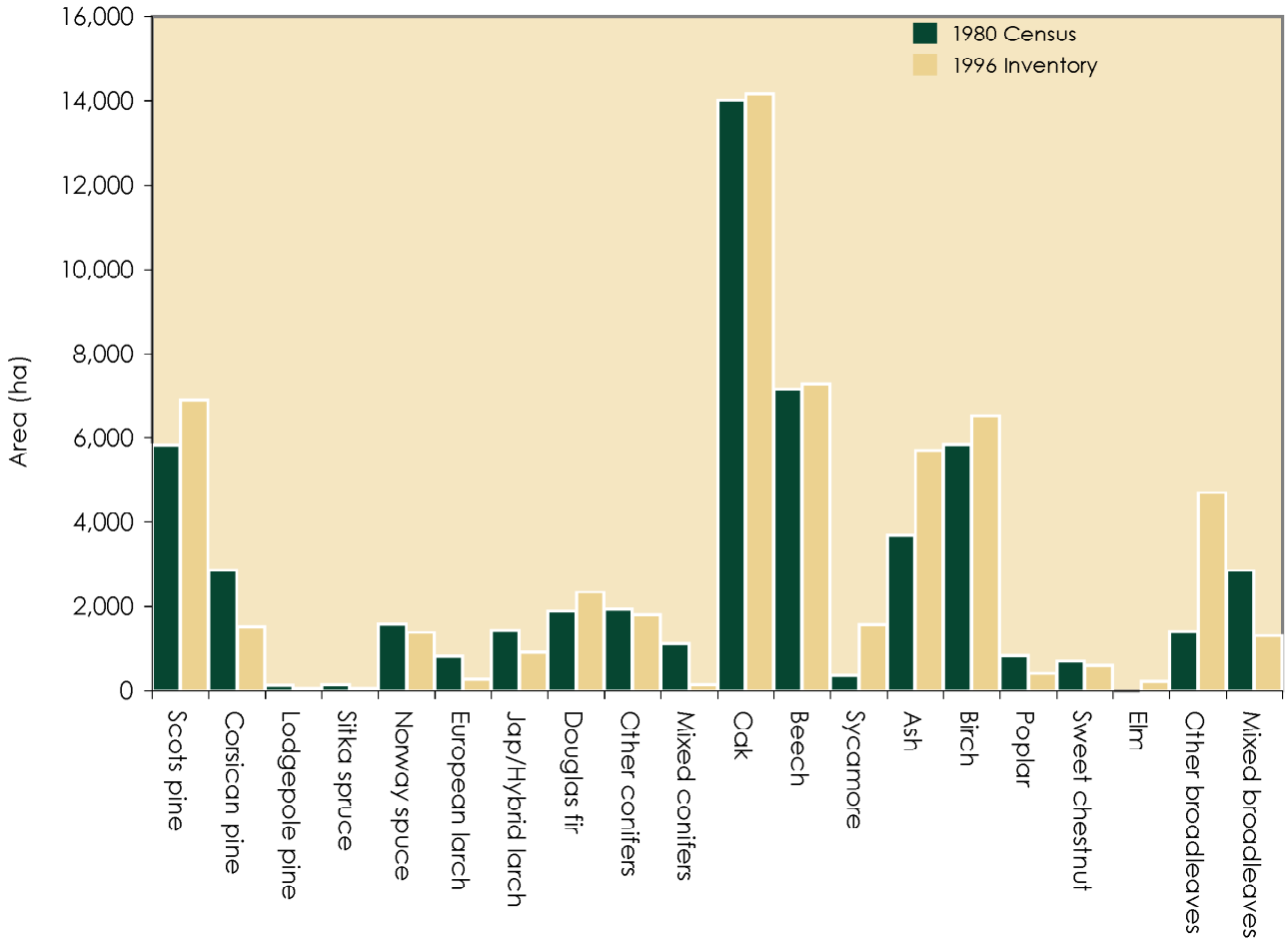
**Table 20** Comparison of High Forest area by species between 1980 Census and 1996 Inventory

Species	1980 Census woodland area (ha)	1996 Inventory woodland area (ha)	Change (%)
Scots pine	5,846	6,895	18
Corsican pine	2,870	1,533	-47
Lodgepole pine	131	54	-59
Sitka spruce	149	54	-64
Norway spruce	1,597	1,398	-12
European larch	820	272	-67
Jap/Hybrid larch	1,440	904	-37
Douglas fir	1,890	2,358	25
Other conifers	1,937	1,804	-7
Mixed conifers	1,145	159	-86
<b>Total conifers</b>	<b>17,824</b>	<b>15,431</b>	<b>-13</b>
Oak	14,008	14,163	1
Beech	7,164	7,276	2
Sycamore	370	1,580	327
Ash	3,689	5,722	55
Birch	5,860	6,529	11
Poplar	829	413	-50
Sweet chestnut	714	618	-13
Elm	4	224	6116
Other broadleaves	1,404	4,708	235
Mixed broadleaves	2,858	1,322	-54
<b>Total broadleaves</b>	<b>36,900</b>	<b>42,555</b>	<b>15</b>
<b>Total all species</b>	<b>54,724</b>	<b>57,986</b>	<b>6</b>
<b>Felled</b>	<b>565</b>	<b>574</b>	<b>2</b>
<b>Total High Forest</b>	<b>55,289</b>	<b>58,560</b>	<b>6</b>

1. Differences in sampling methodology may account for some of the apparent differences.
2. In the 1980 Census the areas assigned to species included any associated open space such as roads and rides. In the Inventory open spaces are separately identified and the overall proportion is 9.9% (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 9.9%.
3. The above figures from the 1996 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1996 figures above will therefore not match those in the previous sections of the report.
4. The 1980 figures include scrub to enable comparison



Comparison of High Forest area by species between 1980 Census and 1996 Inventory

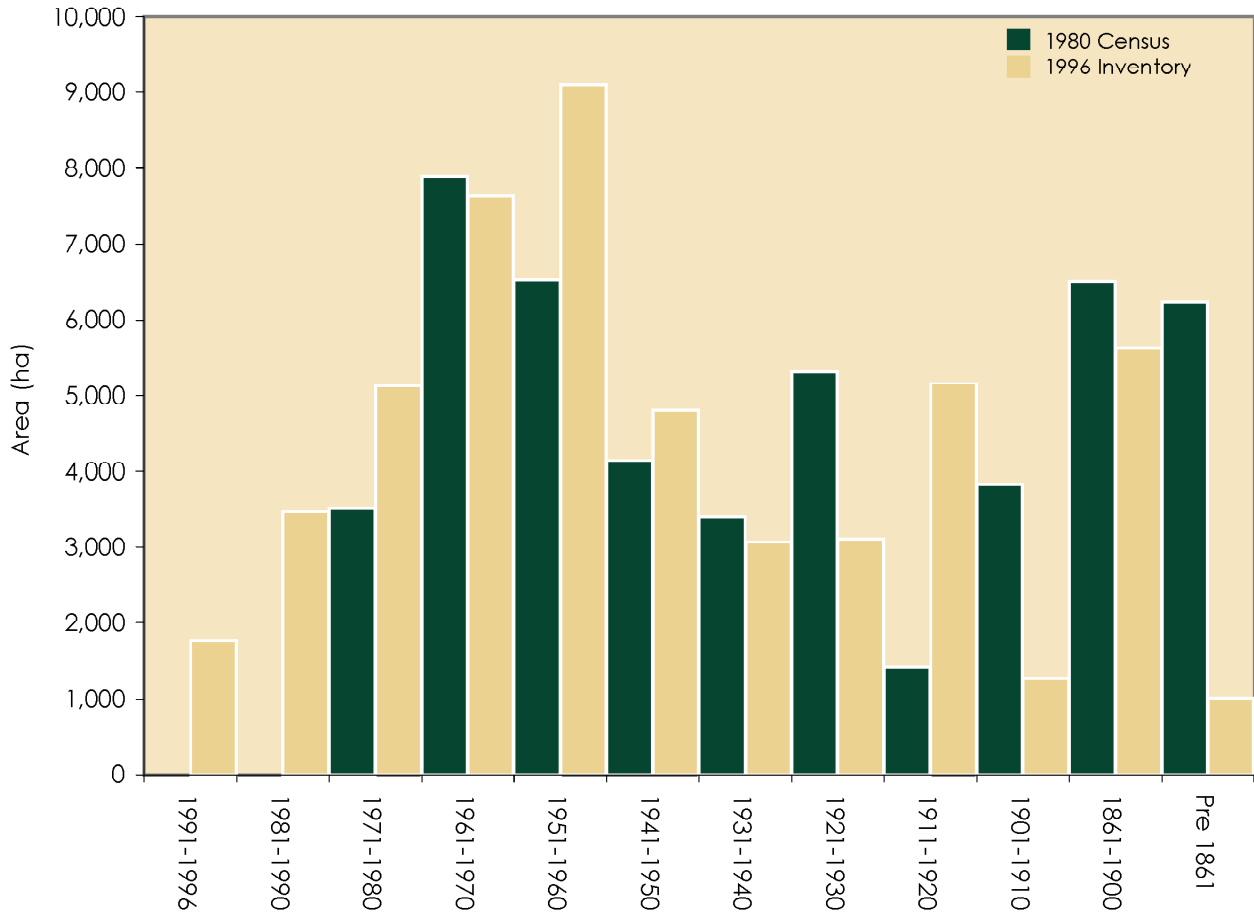


**Table 21** Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1996 Inventory

Planting year class	1980 Census woodland area (ha)	1996 Inventory woodland area (ha)	Change (%)
1991-1996	0	1,768	see note
1981-1990	0	3,468	see note
1971-1980	3,513	5,127	46
1961-1970	7,889	7,639	-3
1951-1960	6,530	9,104	39
1941-1950	4,144	4,808	16
1931-1940	3,404	3,065	-10
1921-1930	5,321	3,110	-42
1911-1920	1,417	5,157	264
1901-1910	3,827	1,275	-67
1861-1900	6,514	5,626	-14
Pre 1861	6,242	1,016	-84
<b>Total all years</b>	<b>48,801</b>	<b>51,163</b>	<b>5</b>

1. The first two classes, 1991-1996 and 1981-1990, cover the period since the 1980 Census and no comparison is therefore available.
2. The definition of High Forest Category 1 in the Inventory does not fully coincide with High Forest as defined in the 1980 Census.

Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1996 Inventory



**Table 22** Comparison of numbers of live trees outside woodland between 1980 Census and 1996 Inventory (000's)

Feature type	1980 Census	1996 Inventory	Change (%)
Boundary Tree	144	41	-71
Middle Tree	165	51	-69
Total Individual Trees	309	93	-70
Groups	1,924	552	-71
Linear Features	1,255	1,936	54
<b>Total</b>	<b>3,487</b>	<b>2,581</b>	<b>-26</b>

1. The Survey of Small Woodland and Trees did not record information referring to tree features (I.e. Individual trees, Groups and Narrow Linear Features) within developed land.
2. In the 1980 Census hazel, hawthorn, blackthorn and goat willow were excluded, the 1996 Inventory figures have been adjusted accordingly. The 1996 figures above will therefore not match those in the previous sections of the report.
3. Changes stated in this table are indicative only. Even with adjustments to the 1996 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1996 used 2m height, as minimum criteria for inclusion.
4. See Glossary for definitions of feature type.

**Table 23** Comparison of density of non-woodland features between 1980 Census and 1996 Inventory

Feature type	1980 Census	1996 Inventory	Change (%)
Individual Trees (per sq km)	81.7	24.5	-70
Groups (per sq km)	65.2	19.0	-71
Linear Features (m per sq km)	754.6	1,022.7	36

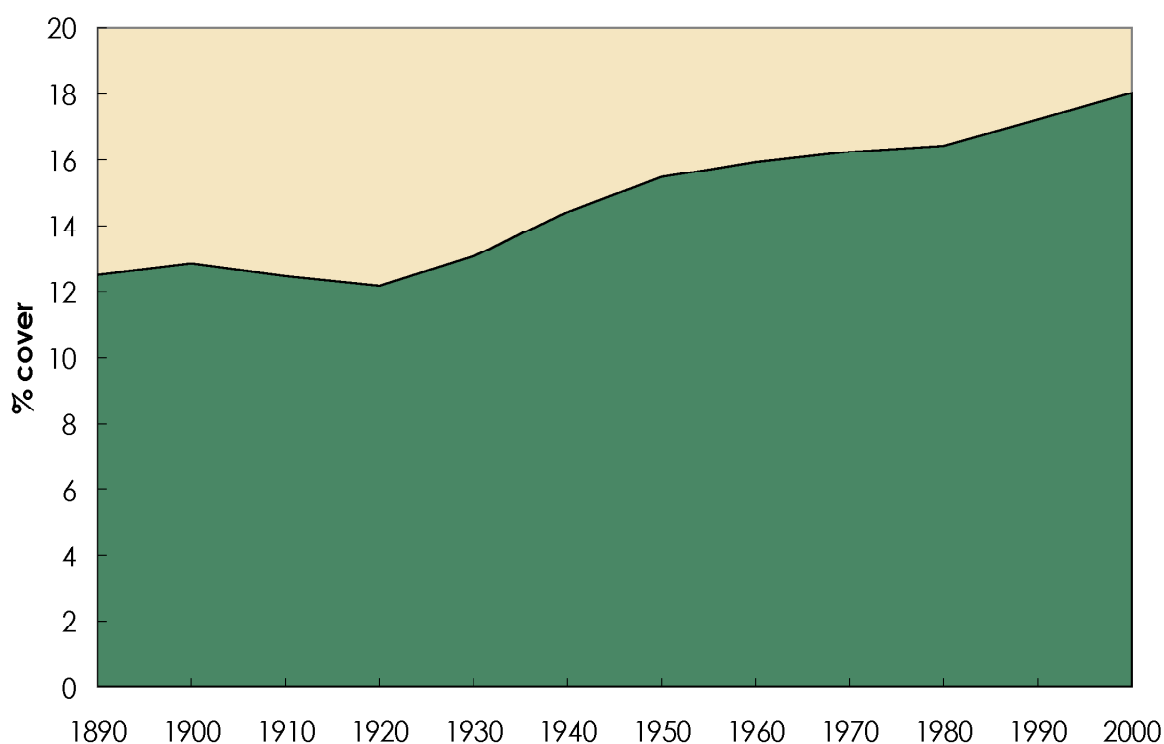
1. The Survey of Small Woodland and Trees did not record information referring to tree features (I.e. Individual trees, Groups and Narrow Linear Features) within developed land.
2. In the 1980 Census hazel, hawthorn, blackthorn and goat willow were excluded, the 1996 Inventory figures have been adjusted accordingly. The 1996 figures above will therefore not match those in the previous sections of the report.
3. Changes stated in this table are indicative only. Even with adjustments to the 1996 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1996 used 2m height, as minimum criteria for inclusion.
4. See Glossary for definitions of feature type.

## WOODLAND COVER

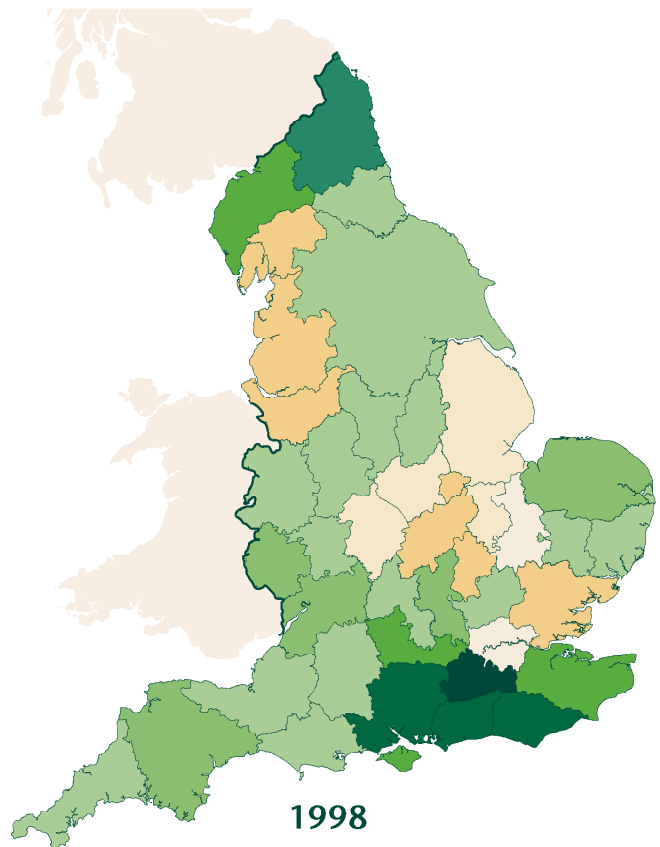
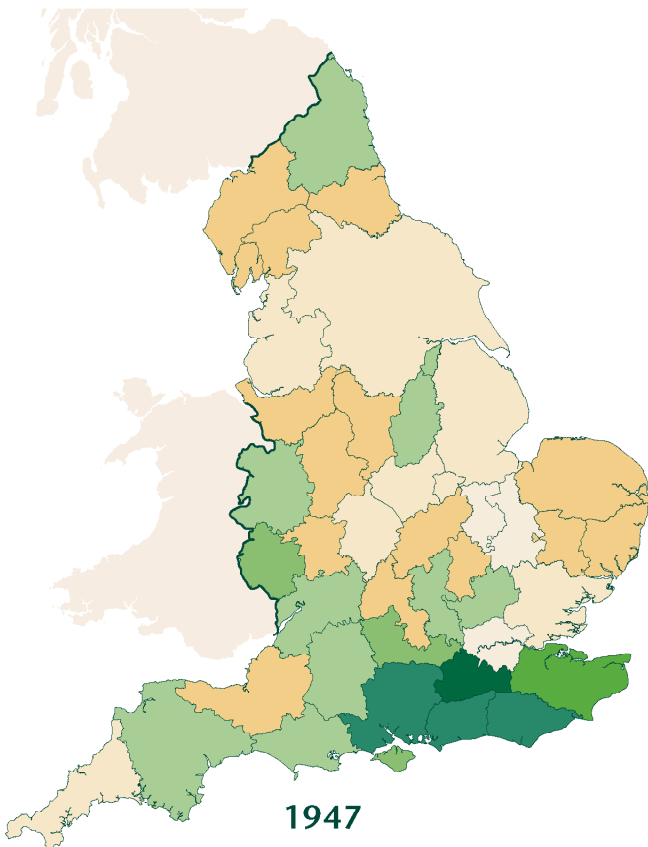
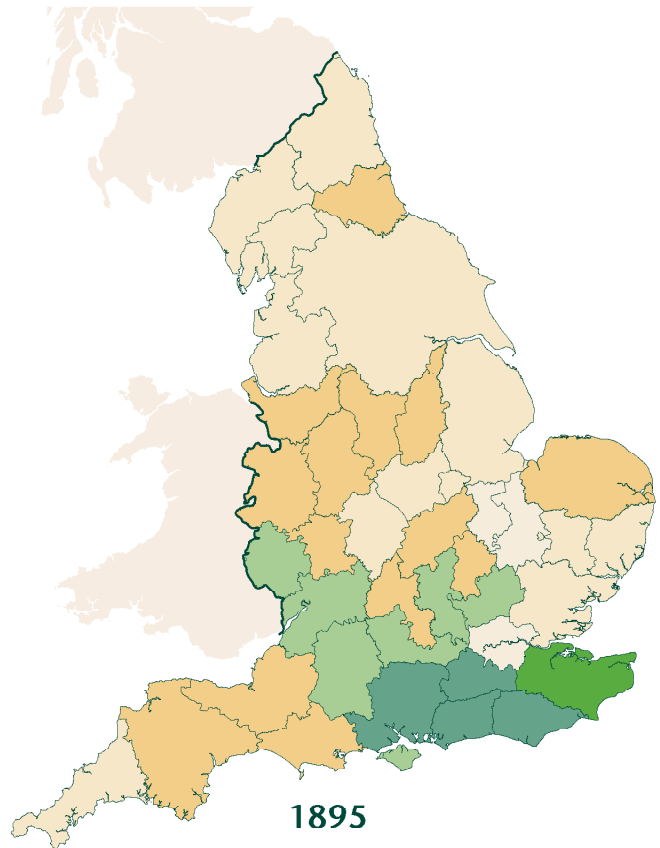
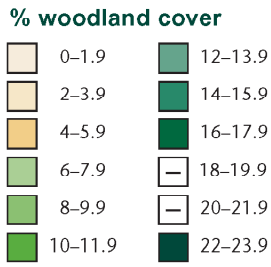
Woodland area data is available from Ministry of Agriculture surveys since 1871, and from Forestry Commission national woodland inventories since 1924. The following chart and maps show the changes in woodland area through time.

The maps use the old County structure data of England, as reported on in 1895 and 1947. The data from these counties could not be re-worked for different geographic areas. In contrast, the digital woodland map, which forms the basis of the current inventory, can be analysed for any geographic area.

**Change in county woodland cover through time (1890 – 2000)**



**Map 5 Woodland Cover in England by County through time (1895–1998)**



# GLOSSARY

## Woodland

In the United Kingdom woodland is defined as land with a minimum area of 0.1 ha under stands of trees with, or the potential to achieve, tree crown cover of more than 20%. Areas of open space integral to the woodland are also included. Orchards and urban woodland between 0.1 and 2 ha are excluded. Intervening land-classes such as roads, rivers or pipelines are disregarded if less than 50m in extent. 'Scrubby' vegetation is not included as a separate category but as Conifer, Broadleaved or Mixed tree types. There is additional information on the quality of woodland within the inventory database.

Woodland of 2 ha and over, and with a minimum width of 50m, is included in the Main Woodland Survey; other woodland and trees are assessed in the Survey of Small Woodland and Trees.

## Interpreted Forest Types

The woodland map derived from aerial photographs is differentiated into Interpreted Forest Types (IFTs) which are: Conifer, Broadleaved, Mixed, Coppice, Coppice-with-Standards, Shrubs, Young Trees, Ground Prepared for Planting and Felled. Note that forest types (see below) based on ground survey data are used for reporting purposes because they are more reliable.

## High Forest

All woodland except stands managed as Coppice or Coppice-with-Standards with, or with the potential to achieve a tree cover of more than 20%. Two categories of High Forest are recognised:

- **High Forest Category 1**  
Stands which are, or could become, capable of producing wood of a size and quality suitable for sawlogs.
- **High Forest Category 2**  
Stands of lower quality than High Forest Category 1.

## Mixtures

Where possible the species in mixtures have been separately recorded. Where this has not been possible they were described as 'Mixed conifers' or 'Mixed broadleaves'.

## Forest Types

- **Conifer**  
Woodland containing more than 80% by area of coniferous species.
- **Broadleaved**  
Woodland containing more than 80% by area of broadleaved species.
- **Mixed**  
A combination of broadleaved and coniferous species where each category occupies at least 20% of the canopy (see note on mixtures above.)

- **Coppice**

Crops of marketable broadleaved species that have at least 2 stems per stool and are either being worked or are capable of being worked on rotation. With the exception of hazel coppice more than half the stems should be capable of producing 1m timber lengths of good form.

- **Coppice with Standards**

Two-storey stands where the overstorey consists of at least 25 stems per ha that are older than the understorey of worked coppice by at least one coppice rotation.

- **Felled**

Woodland areas that have been felled or stands where the stocking has been reduced to less than 20% and where it is expected that these areas will be replanted.

- **Windblow**

Areas of blown woodland which remain uncleared and not regenerated.

- **Open Space**

Areas within a woodland that are not covered by trees but are integral to the woodland such as open areas, streamsides, deer glades, rides and forest roads.

### Ownership types

- **Other Ownership**

Woodland other than that owned by, or leased to, the Forestry Commission

- **Personal**

types of private occupation, e.g. individuals, private family trusts and family partnerships.

- **Private forestry or timber business**

owned by wood processing industry. This category does not include forest management companies.

- **Other private business**

occupiers, e.g. companies, partnerships, syndicates and pension funds.

- **Local Authority**

Region, County, District or other Council

- **Other public bodies (not FC)**

Government department/agency, nationalised industry, etc.

- **Charitable organisations**

organisations funded by voluntary public subscription, e.g. National Trust, churches and colleges.



**- Community ownership or common land**

the common property of all members of the community.

- **Forestry Commission**

Land owned by or land leased to the Forestry Commission

**Feature types**

- **Small Wood**

A woodland with an area of 0.1 ha or over but less than 2 ha.

- **Group**

A group containing two or more trees with an area less than 0.1ha.

- **Individual Tree**

A tree the crown of which has no contact with any other tree crown and which is at least 2m tall. Two types of individual tree are recognised:

- Boundary Tree (an Individual Tree on any boundary)
- Middle Tree (an Individual Tree not on a boundary)

- **Linear Feature**

A feature with a length of 25 m or more, and one which is at least four times as long as it is broad. It can be up to 50m wide or as narrow as a single line of trees. Two types of Linear Features are recognised:

- Narrow Linear Features (with a width of 1.6 m or less)
- Wide Linear Features (with a width greater than 1.6 m)

## NOTES



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