



# **NATIONAL INVENTORY OF WOODLAND AND TREES**



**ENGLAND**

**County Report for**

**HUMBERSIDE**



**Forestry Commission**

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# CONTENTS

<b>Acknowledgements</b>	<b>v</b>
<b>Introduction</b>	<b>1</b>
Background	1
Survey method	1
Main points from the survey results	2
Inventory Reports	2
Map 1: County boundaries	3
Map 2: Distribution of woodland over 2 hectares	4
Map 3: Distribution of woodland over 2 hectares by ownership	5
Map 4: Distribution of woodland over 2 hectares by Interpreted Forest Type	6
<b>Summary results from the National Inventory of Woodland and Trees (NIWT)</b>	<b>7</b>
<b>Tables 1 – 5</b>	
Table 1: Woodland area by woodland size class	9
Table 2: Woodland area by forest type and woodland size	10
Table 3: Woodland area by principal species and woodland size	11
Table 4: Numbers of live trees outside woodland by feature type	12
Table 5: Lengths of Linear Features	12
<b>Results from the Main Woodland Survey (MWS)</b>	<b>13</b>
<b>Tables 6 - 12</b>	
Table 6: Summary of woodland area by ownership	15
Chart: Woodland area by ownership	15
Table 7a: Size class distribution of woodland	16
Table 7b: Size class distribution of woodland by ownership units	16
Table 8: Area of woodland by forest type and ownership	17
Chart: Area of woodland by forest type	17
Table 9a: Area of High Forest by principal species and ownership	18
Graph: Area of High Forest by principal species and ownership	19
Table 9b: Area of High Forest by principal species, ownership and category	20
Graph: High Forest Category 1	
Area by principal species and ownership	21
Graph: High Forest Category 2	
Area by principal species and ownership	21
Table 10a: High Forest Category 1	
Area by principal species and planting year class	22
Graph: High Forest Category 1	
Area by planting year class	23

Table 10b:	High Forest Category 1 Forestry Commission: area by principal species and planting year class	24
Graph:	High Forest Category 1 Forestry Commission - area by planting year class	25
Table 10c:	High Forest Category 1 Other ownership : area by principal species and planting year class	26
Graph:	High Forest Category 1 Other ownership: area by planting year class	27
Table 11:	High Forest: principal species by planting year class	28
Table 12:	Ownership type by area and percentage	29
Chart:	Ownership type by area	29

## **Results from the Survey of Small Woodland and Trees (SSWT) 31**

### **Tables 13 – 18**

Table 13:	Summary of information from the Survey of Small Woodland and Trees	33
Table 14:	Woodland area by feature type and woodland size	33
Table 15:	Numbers of live trees outside woodland by species and feature type	34
Table 16:	Numbers of dead trees outside woodland by species and feature type	35
Table 17:	Numbers of live trees outside woodland by species and height band	36
Table 18:	Numbers of Groups by group size	37

## **Comparison of results with the 1980 Census and previous surveys 39**

### **Tables 19 - 23**

Table 19:	Comparison of woodland area between 1980 Census and 1999 Inventory	41
Table 20:	Comparison of High Forest area by species between 1980 Census and 1999 Inventory	42
Chart:	Comparison of High Forest area by species between 1980 Census and 1999 Inventory	43
Table 21:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1999 Inventory	44
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1999 Inventory	45
Table 22:	Comparison of numbers of live trees outside woodland between 1980 Census and 1999 Inventory	46
Table 23:	Comparison of density of non-woodland features between 1980 Census and 1999 Inventory	46

### **Woodland cover**

Chart:	Change in woodland cover through time (1890 – 2000)	47
Maps:	Woodland cover by county through time (1895 – 1998)	48

## **Glossary 49**

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The Forestry Commission is grateful to many people who helped in the completion of this survey. In particular, the Forestry Commission would like to thank owners and occupiers of the land selected for sampling.

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 Humberside 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 Humberside 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

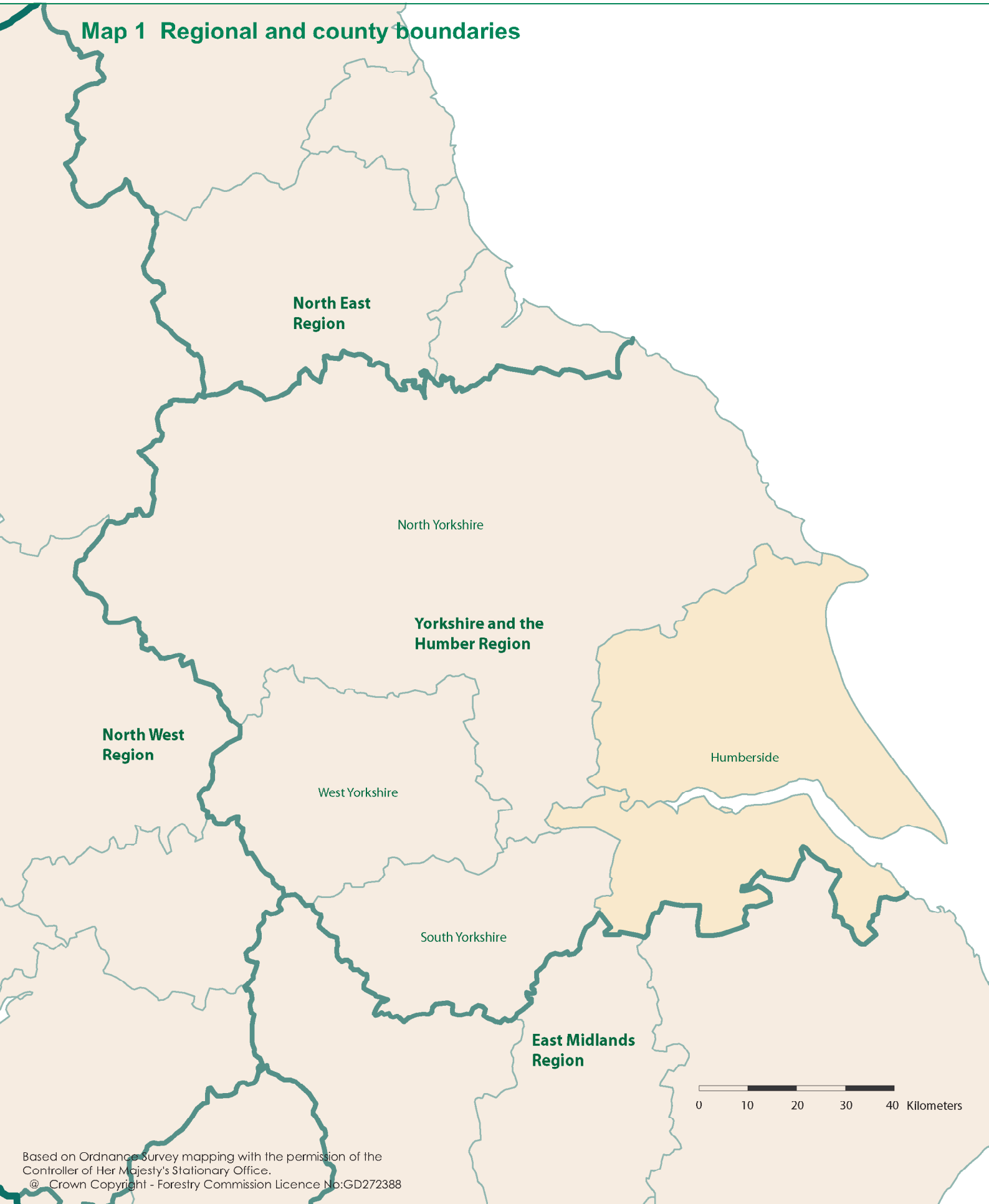
- The total area of woodland of 0.1 hectares and over in Humberside is 9,081 hectares. This represents 2.6% of the land area. (Table 1)
- Broadleaved woodland is the dominant forest type representing 45.3 % of all woodland. Conifer woodland represents 10.8 %, Mixed woodland 34.6 % and Open Space within woodlands 6.0 %. (Table 2)
- The main conifer species is pine covering 1112 hectares or 13.5 % of all conifer species. The main broadleaved species is sycamore covering 1,871 hectares or 31.1 % of all broadleaved species. (Table 3)
- 312 hectares or 4 % of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 8,495 hectares or 96 % of woodland is in Other ownership. (Table 6)
- There are a total of 858 woods over 2 ha within Humberside with a mean wood area of 10.4 hectares. (Table 7a) There are a total of 538 woods from 0.1 - <2.0 hectares with a mean wood area of 0.51 hectares. (Table 14)
- There are 282 thousand live trees outside woodland in Humberside. (Table 15)
- Woodland land cover decreased by over 500 hectares from 2.7 % to 2.6 % of the land area between 1980 and 1999. (Table 19)
- The area of broadleaves increased by 3 % between 1980 and 1999, with the relative proportion of broadleaves to conifers increasing from 66 % to 73 %. (Table 20)

### INVENTORY REPORTS

As well as this report for Humberside, 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.

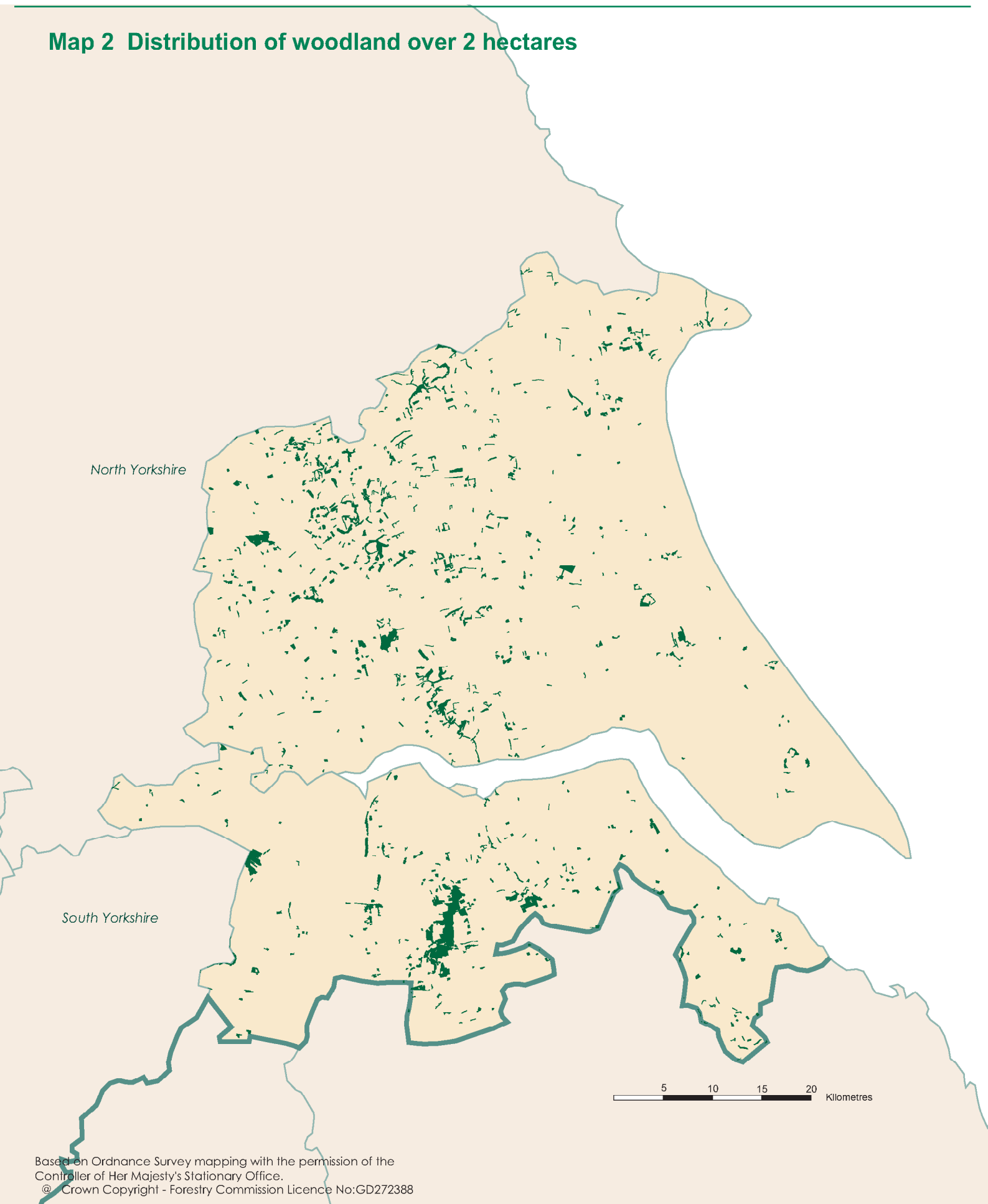


## Map 1 Regional and county boundaries



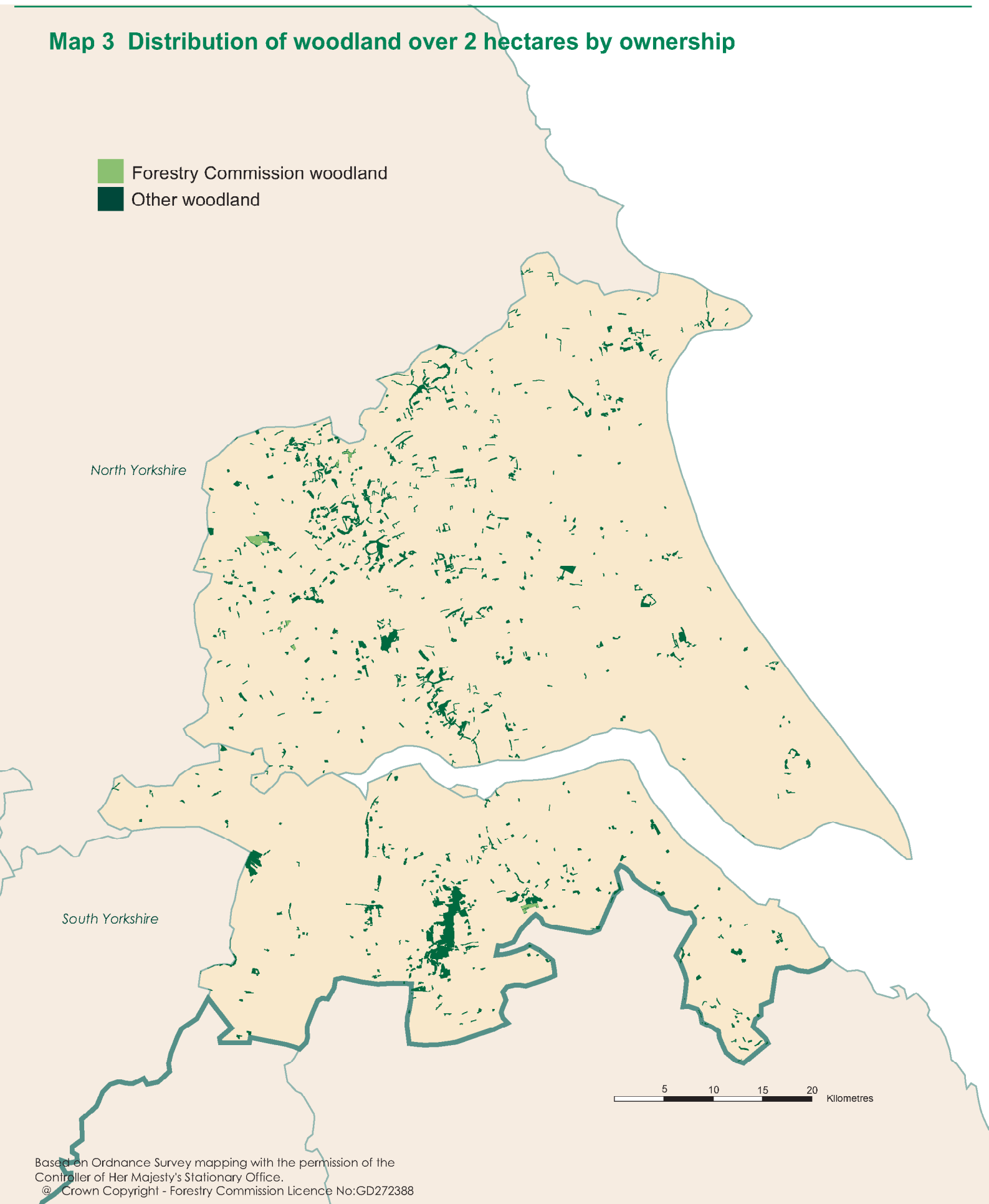
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## Map 2 Distribution of woodland over 2 hectares



## 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 (none present)
- Coppice (none present)

North Yorkshire

South Yorkshire

5 10 15 20 Kilometres

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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 Humberside.

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	8,807	97.0
0.25 - < 2.00	269	3.0
0.10 - < 0.25	4	0.0
<b>Total area of woodland</b>	<b>9,081</b>	<b>100.0</b>
<b>% Woodland land cover</b>	<b>2.6</b>	

1. Area of Humberside, including inland water, 350,806 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
	2.0 and over	0.1 - <2.0		
Conifer	981	0	981	10.8
Broadleaved	3,942	175	4,117	45.3
Mixed	3,051	90	3,141	34.6
Coppiced	155	0	155	1.7
Copp-w-standards	110	0	110	1.2
Windblow	0	0	0	0.0
Felled	34	0	34	0.4
Open Space	534	9	543	6.0
<b>Total</b>	<b>8,807</b>	<b>274</b>	<b>9,081</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	1,103	9	1,112	50.1	13.5
Sitka spruce	20	0	20	0.9	0.2
Larch	716	13	729	32.8	8.8
Other conifers	305	0	305	13.7	3.7
Mixed conifers	36	18	54	2.4	0.7
<b>Total conifers</b>	<b>2,180</b>	<b>40</b>	<b>2,220</b>	<b>100.0</b>	<b>26.9</b>
Oak	562	9	571	9.5	6.9
Beech	846	18	864	14.4	10.5
Sycamore	1,858	13	1,871	31.1	22.7
Ash	1,612	22	1,634	27.2	19.8
Birch	262	54	316	5.3	3.8
Elm	22	0	22	0.4	0.3
Other broadleaves	424	108	532	8.8	6.5
Mixed broadleaves	207	0	207	3.4	2.5
<b>Total broadleaves</b>	<b>5,793</b>	<b>224</b>	<b>6,017</b>	<b>100.0</b>	<b>73.0</b>
<b>Total all species***</b>	<b>7,974</b>	<b>264</b>	<b>8,238</b>		<b>100.0</b>

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

\*\*Species/group percentage of all species

\*\*\*Excludes the 842ha 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	10%
Broadleaves	5%
Pine	17%
Sycamore	8%
Ash	10%
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	30,400	136,700	4	39
Narrow Linear Features	1,500	31,700	21	9
Individual Trees	113,500	113,500	1	32
<b>Total</b>		<b>281,900</b>		<b>80</b>

1. Land area used to calculate tree density 350,806ha 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	84%
Narrow Linear Features	99%
Individual Trees	29%
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	1,500	101	29
<b>Total</b>		<b>101</b>	<b>29</b>

1. Land area used to calculate feature density 350,806ha 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	99%
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

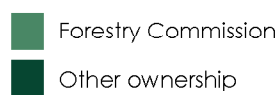
*Note: The figures in many of the tables may not add due to rounding*



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

Ownership	ha	% woodland
Forestry Commission	312	4
Other	8,495	96
<b>Total area of woodland</b>	<b>8,807</b>	<b>100</b>

1. Woodland area from aerial photographic interpretation map updated to 31 March 1999
2. See Glossary for definitions of ownership types

**Woodland area by 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	680	2,802	32	4.1
10 - <20	105	1,431	16	13.6
20 - <50	51	1,506	17	29.5
50 - <100	13	947	11	72.8
<b>&lt;100</b>	<b>849</b>	<b>6,687</b>	<b>75</b>	<b>7.9</b>
<b>100 - &lt;500</b>	<b>8</b>	<b>1,471</b>	<b>17</b>	<b>183.8</b>
<b>500 and &gt;</b>	<b>1</b>	<b>715</b>	<b>8</b>	<b>714.6</b>
<b>All woods</b>	<b>858</b>	<b>8,872</b>	<b>100</b>	<b>10.4</b>

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

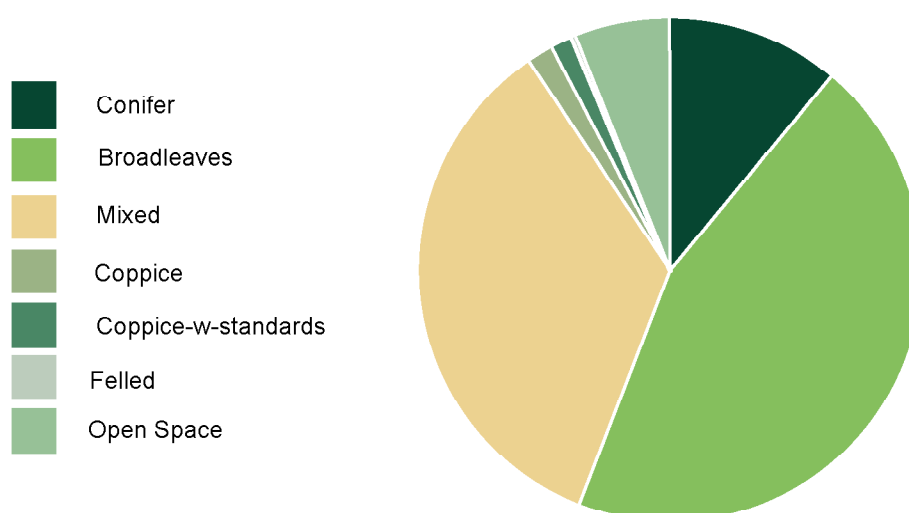
Size class (ha)	FC or Other	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	FC	5	17	0	3.5
	O	684	2,801	32	4.1
10 - <20	FC	3	42	0	13.9
	O	103	1,400	16	13.6
20 - <50	FC	3	109	1	36.5
	O	50	1,460	16	29.2
50 - <100	FC	0	0	0	0.0
	O	14	1,030	12	73.6
<100	FC	11	169	2	15.3
	O	851	6,692	75	7.9
100 - <500	FC	1	143	2	143.0
	O	6	1,154	13	192.3
500 and >	FC	0	0	0	0.0
	O	1	715	8	714.6
<b>Total</b>	<b>FC</b>	<b>12</b>	<b>312</b>	<b>4</b>	<b>26.0</b>
	<b>O</b>	<b>858</b>	<b>8,560</b>	<b>96</b>	<b>10.0</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 65 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	46	14.7	934	11.0	981	11.1
Broadleaved	128	41.0	3,814	44.9	3,942	44.8
Mixed	132	42.3	2,920	34.4	3,051	34.6
Coppice	0	0.0	155	1.8	155	1.8
Copp-w-Stds	0	0.0	110	1.3	110	1.2
Windblow	0	0.0	0	0.0	0	0.0
Felled	0	0.0	34	0.4	34	0.4
Open Space	6	1.9	527	6.2	534	6.1
<b>Total</b>	<b>312</b>	<b>100.0</b>	<b>8,495</b>	<b>100.0</b>	<b>8,807</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	0	0	0	851	41	11	851	39	11
Corsican pine	46	40	15	206	10	3	252	12	3
Lodgepole pine	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	20	1	0	20	1	0
Norway spruce	0	0	0	271	13	4	271	12	3
European larch	0	0	0	45	2	1	45	2	1
Jap/Hybrid larch	69	60	23	602	29	8	671	31	8
Douglas fir	0	0	0	4	0	0	4	0	0
Other conifers	0	0	0	30	1	0	30	1	0
Mixed conifers	0	0	0	36	2	0	36	2	0
<b>Total conifers</b>	<b>115</b>	<b>100</b>	<b>38</b>	<b>2,065</b>	<b>100</b>	<b>27</b>	<b>2,180</b>	<b>100</b>	<b>27</b>
Oak	0	0	0	562	10	7	562	10	7
Beech	79	41	26	767	14	10	846	15	11
Sycamore	57	30	19	1,801	32	23	1,858	32	23
Ash	43	23	14	1,569	28	20	1,612	28	20
Birch	6	3	2	256	5	3	262	5	3
Poplar	0	0	0	104	2	1	104	2	1
Sweet chestnut	0	0	0	63	1	1	63	1	1
Elm	0	0	0	22	0	0	22	0	0
Other broadleaves	6	3	2	250	4	3	257	4	3
Mixed broadleaves	0	0	0	207	4	3	207	4	3
<b>Total broadleaves</b>	<b>191</b>	<b>100</b>	<b>62</b>	<b>5,603</b>	<b>100</b>	<b>73</b>	<b>5,793</b>	<b>100</b>	<b>73</b>
<b>Total - all species</b>	<b>306</b>		<b>100</b>	<b>7,668</b>		<b>100</b>	<b>7,974</b>		<b>100</b>
<b>Felled</b>	<b>0</b>			<b>34</b>			<b>34</b>		
<b>Total High Forest</b>	<b>306</b>			<b>7,702</b>			<b>8,008</b>		

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

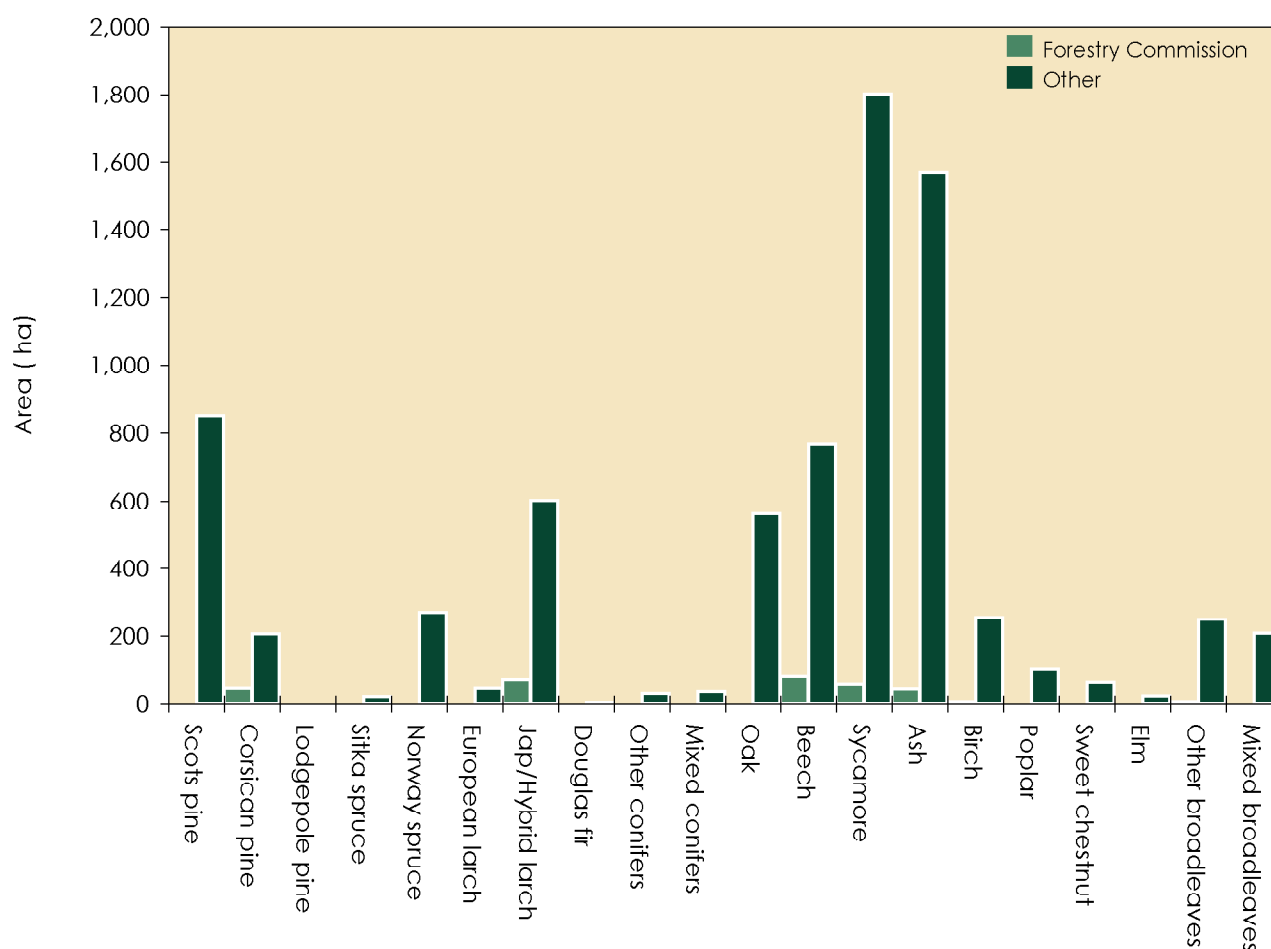
\*\*spp : percentage of all species in the ownership category



1. In addition to the areas shown there are 534ha 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	10%
Broadleaves	5%
Scots pine	19%
Sycamore	8%
Ash	10%
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	0	0	0	851	0	851	851	0	851
Corsican pine	46	0	46	206	0	206	252	0	252
Lodgepole pine	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	20	0	20	20	0	20
Norway spruce	0	0	0	271	0	271	271	0	271
European larch	0	0	0	45	0	45	45	0	45
Jap/Hybrid larch	69	0	69	602	0	602	671	0	671
Douglas fir	0	0	0	4	0	4	4	0	4
Other conifers	0	0	0	30	0	30	30	0	30
Mixed conifers	0	0	0	30	7	36	30	7	36
<b>Total conifers</b>	<b>115</b>	<b>0</b>	<b>115</b>	<b>2,059</b>	<b>7</b>	<b>2,065</b>	<b>2,174</b>	<b>7</b>	<b>2,180</b>
Oak	0	0	0	562	0	562	562	0	562
Beech	79	0	79	767	0	767	846	0	846
Sycamore	57	0	57	1,801	0	1,801	1,858	0	1,858
Ash	43	0	43	1,566	3	1,569	1,609	3	1,612
Birch	6	0	6	212	45	256	217	45	262
Poplar	0	0	0	104	0	104	104	0	104
Sweet chestnut	0	0	0	63	0	63	63	0	63
Elm	0	0	0	22	0	22	22	0	22
Other broadleaves	6	0	6	147	104	250	153	104	257
Mixed broadleaves	0	0	0	116	92	207	116	92	207
<b>Total broadleaves</b>	<b>191</b>	<b>0</b>	<b>191</b>	<b>5,360</b>	<b>243</b>	<b>5,603</b>	<b>5,550</b>	<b>243</b>	<b>5,793</b>
<b>Total - all species</b>	<b>306</b>	<b>0</b>	<b>306</b>	<b>7,418</b>	<b>250</b>	<b>7,668</b>	<b>7,724</b>	<b>250</b>	<b>7,974</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

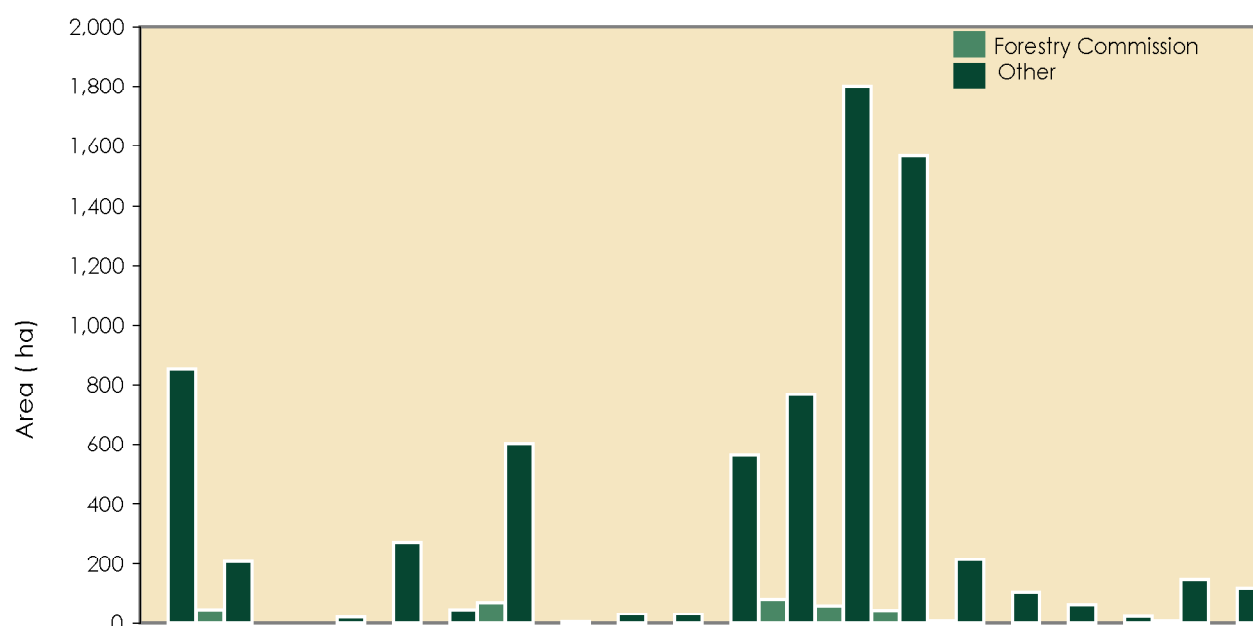
	Category 1*	Category 2*	Total High Forest	
Conifers	10%	-	10%	
Broadleaves	5%	21%	5%	
Scots pine	19%	-	19%	
Sycamore	8%	-	8%	
Ash	10%	-	10%	

\*See Glossary for Category 1 and Category 2 descriptions

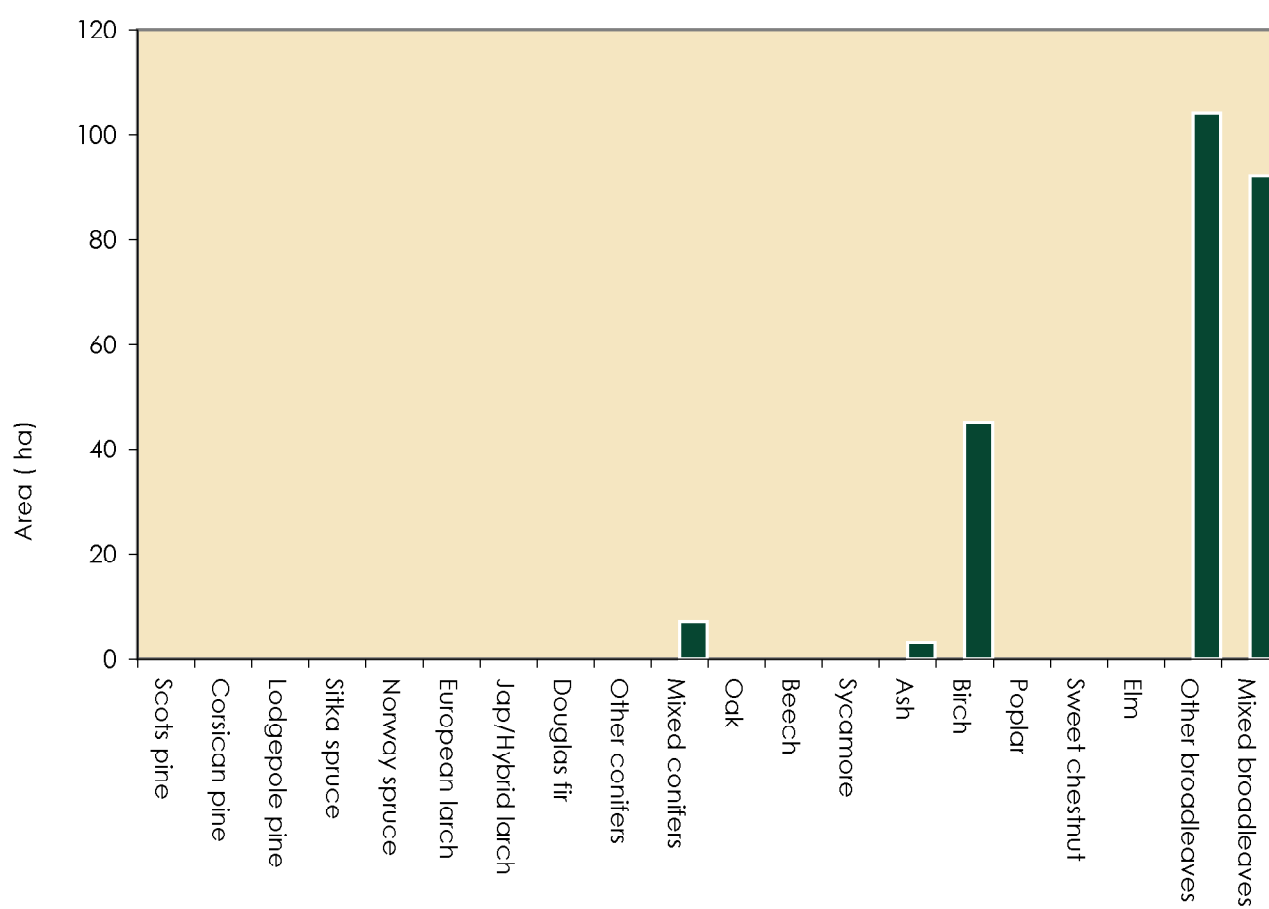
2. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all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



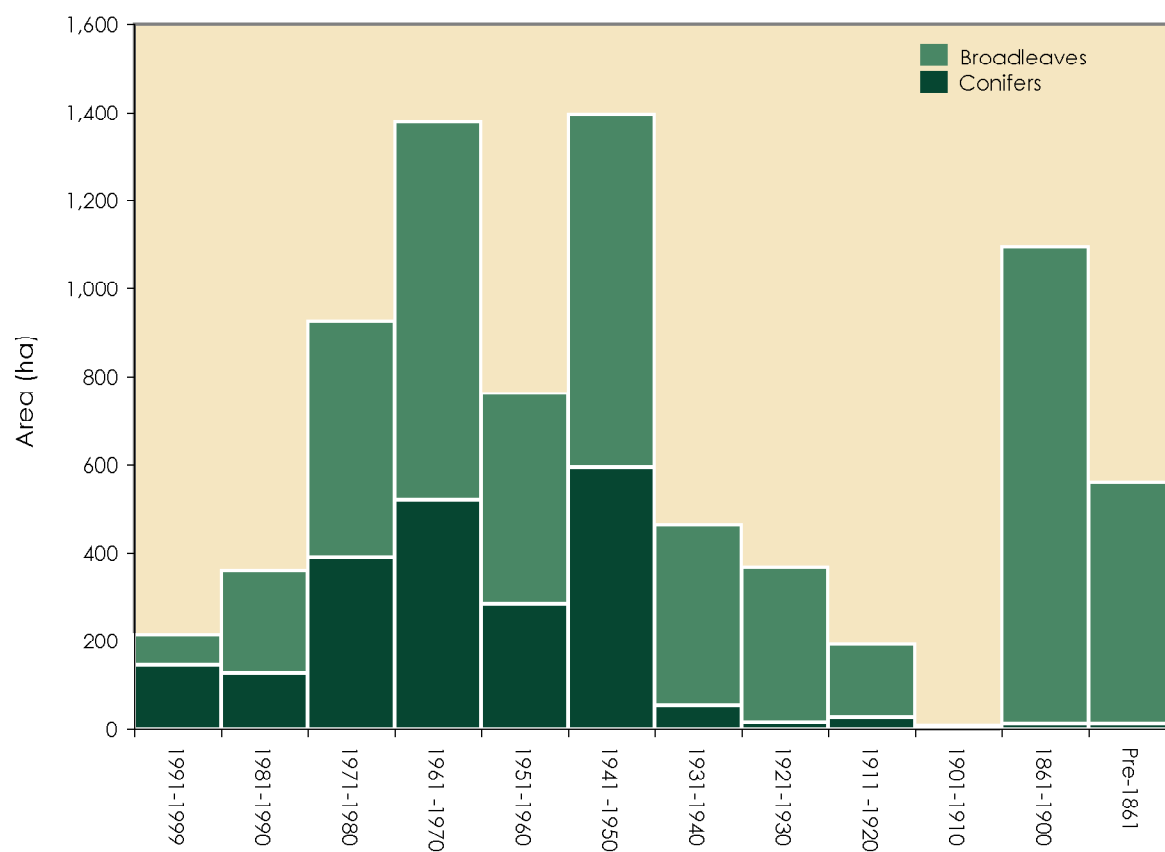
### High Forest Category 2 - Area by principal species and ownership



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

Species	Planting year class*												Total (ha)
	1991-1999	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	95	8	121	228	174	203	5	9	8	0	0	0	851
Corsican pine	0	0	85	63	9	49	46	0	0	0	0	0	252
Lodgepole pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	5	0	0	15	0	0	0	0	0	0	20
Norway spruce	18	69	48	80	42	14	0	0	0	0	0	0	271
European larch	0	16	7	0	0	8	0	0	15	0	0	0	45
Jap/Hybrid larch	21	26	119	145	54	286	0	5	4	0	11	0	671
Douglas fir	4	0	0	0	0	0	0	0	0	0	0	0	4
Other conifers	0	0	3	0	3	12	0	0	0	0	0	11	30
Mixed conifers	8	8	3	4	0	8	0	0	0	0	0	0	30
<b>Total conifers</b>	<b>145</b>	<b>126</b>	<b>390</b>	<b>520</b>	<b>283</b>	<b>594</b>	<b>52</b>	<b>14</b>	<b>26</b>	<b>0</b>	<b>11</b>	<b>11</b>	<b>2,174</b>
Oak	13	51	30	58	14	26	92	48	0	0	61	171	562
Beech	0	0	38	307	30	99	37	60	23	8	148	98	846
Sycamore	20	77	219	294	224	381	143	73	55	0	371	0	1,858
Ash	20	34	142	165	110	120	88	172	61	0	460	238	1,609
Birch	0	48	24	9	5	130	0	0	0	0	0	0	217
Poplar	0	0	0	0	89	4	11	0	0	0	0	0	104
Sweet chestnut	0	0	0	8	0	23	0	0	0	0	0	33	63
Elm	0	0	0	0	0	4	18	0	0	0	0	0	22
Other broadleaves	4	14	38	16	3	13	25	0	0	0	34	8	153
Mixed broadleaves	13	11	48	0	4	5	0	0	27	0	8	0	116
<b>Total broadleaves</b>	<b>70</b>	<b>235</b>	<b>536</b>	<b>857</b>	<b>478</b>	<b>803</b>	<b>413</b>	<b>353</b>	<b>166</b>	<b>8</b>	<b>1,083</b>	<b>548</b>	<b>5,550</b>
<b>Total - all species</b>	<b>216</b>	<b>362</b>	<b>927</b>	<b>1,377</b>	<b>761</b>	<b>1,397</b>	<b>465</b>	<b>368</b>	<b>192</b>	<b>8</b>	<b>1,093</b>	<b>559</b>	<b>7,724</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.

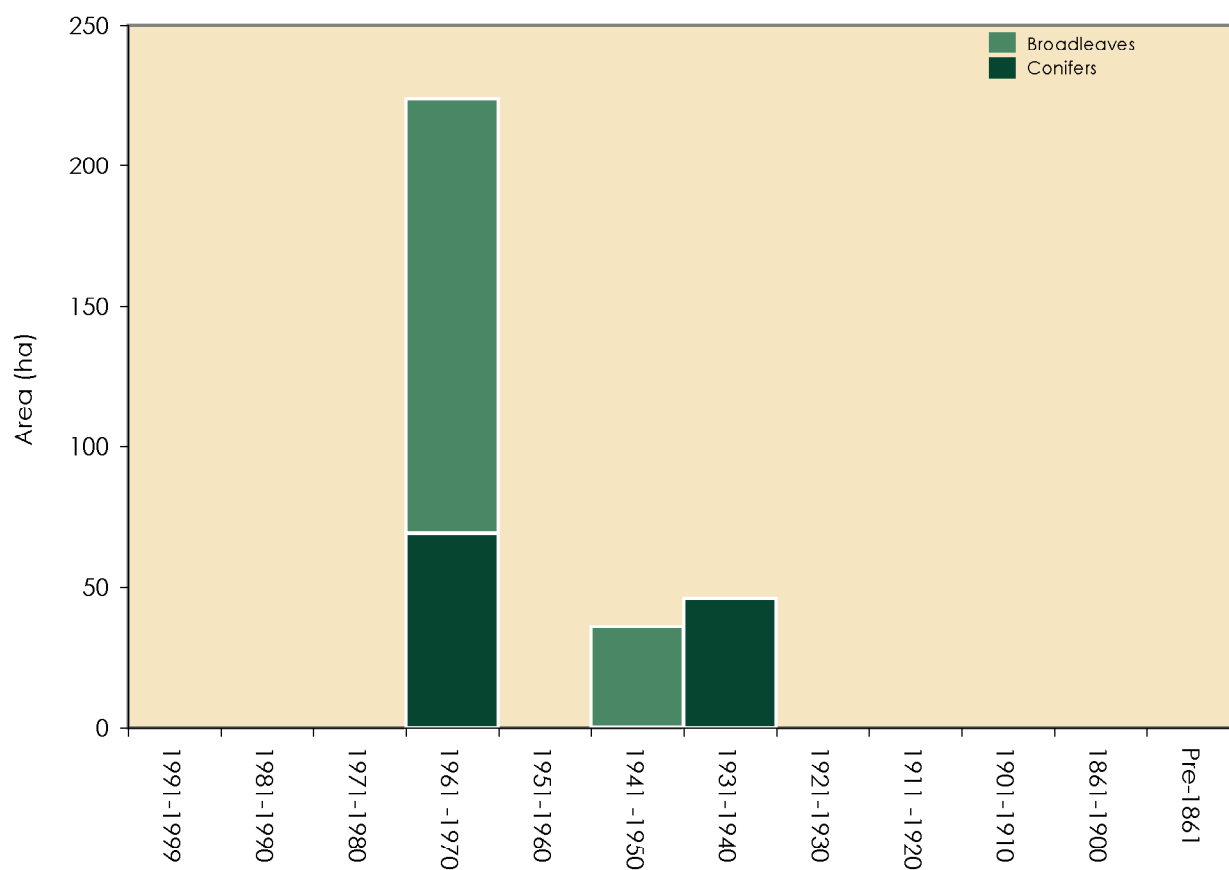
**High Forest Category 1 - Area by planting year class**

1. Most of the planting year classes cover 10 years, 1991-1999 is 9 years, and the classes prior to 1901 are 40 years or more.

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

Species	Planting year class*												Total (ha)
	1991-1999	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Corsican pine	0	0	0	0	0	0	46	0	0	0	0	0	46
Lodgepole pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway spruce	0	0	0	0	0	0	0	0	0	0	0	0	0
European larch	0	0	0	0	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	0	0	0	69	0	0	0	0	0	0	0	0	69
Douglas fir	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
Mixed conifers	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total conifers</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>69</b>	<b>0</b>	<b>0</b>	<b>46</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>115</b>
Oak	0	0	0	0	0	0	0	0	0	0	0	0	0
Beech	0	0	0	43	0	36	0	0	0	0	0	0	79
Sycamore	0	0	0	57	0	0	0	0	0	0	0	0	57
Ash	0	0	0	43	0	0	0	0	0	0	0	0	43
Birch	0	0	0	6	0	0	0	0	0	0	0	0	6
Poplar	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
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	0	0	0	6	0	0	0	0	0	0	0	0	6
Mixed broadleaves	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total broadleaves</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>155</b>	<b>0</b>	<b>36</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>191</b>
<b>Total - all species</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>223</b>	<b>0</b>	<b>36</b>	<b>46</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>306</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, 1991-1999 is 9 years, and the classes prior to 1901 are 40 years or more.

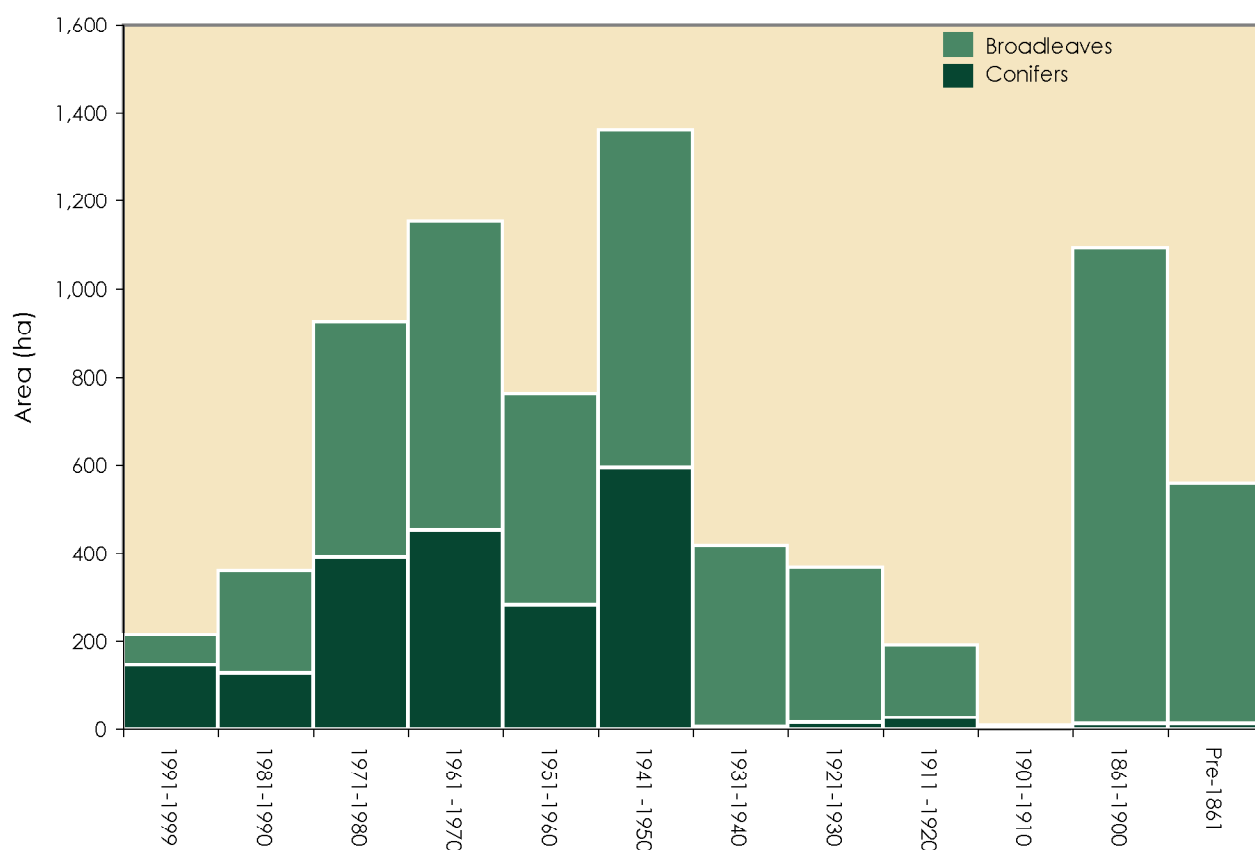
**Table 10c** High Forest Category 1 - Other ownership: area by principal species and planting year classes

Species	Planting year class*												Total (ha)
	1991-1999	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	95	8	121	228	174	203	5	9	8	0	0	0	851
Corsican pine	0	0	85	63	9	49	0	0	0	0	0	0	206
Lodgepole pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	5	0	0	15	0	0	0	0	0	0	20
Norway spruce	18	69	48	80	42	14	0	0	0	0	0	0	271
European larch	0	16	7	0	0	8	0	0	15	0	0	0	45
Jap/Hybrid larch	21	26	119	76	54	286	0	5	4	0	11	0	602
Douglas fir	4	0	0	0	0	0	0	0	0	0	0	0	4
Other conifers	0	0	3	0	3	12	0	0	0	0	0	11	30
Mixed conifers	8	8	3	4	0	8	0	0	0	0	0	0	30
<b>Total conifers</b>	<b>145</b>	<b>126</b>	<b>390</b>	<b>452</b>	<b>283</b>	<b>594</b>	<b>5</b>	<b>14</b>	<b>26</b>	<b>0</b>	<b>11</b>	<b>11</b>	<b>2,059</b>
Oak	13	51	30	58	14	26	92	48	0	0	61	171	562
Beech	0	0	38	264	30	63	37	60	23	8	148	98	767
Sycamore	20	77	219	238	224	381	143	73	55	0	371	0	1,801
Ash	20	34	142	122	110	120	88	172	61	0	460	238	1,566
Birch	0	48	24	4	5	130	0	0	0	0	0	0	212
Poplar	0	0	0	0	89	4	11	0	0	0	0	0	104
Sweet chestnut	0	0	0	8	0	23	0	0	0	0	0	33	63
Elm	0	0	0	0	0	4	18	0	0	0	0	0	22
Other broadleaves	4	14	38	10	3	13	25	0	0	0	34	8	147
Mixed broadleaves	13	11	48	0	4	5	0	0	27	0	8	0	116
<b>Total broadleaves</b>	<b>70</b>	<b>235</b>	<b>536</b>	<b>702</b>	<b>478</b>	<b>767</b>	<b>413</b>	<b>353</b>	<b>166</b>	<b>8</b>	<b>1,083</b>	<b>548</b>	<b>5,360</b>
<b>Total - all species</b>	<b>216</b>	<b>362</b>	<b>927</b>	<b>1,154</b>	<b>761</b>	<b>1,361</b>	<b>418</b>	<b>368</b>	<b>192</b>	<b>8</b>	<b>1,093</b>	<b>559</b>	<b>7,418</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, 1991-1999 is 9 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	%
1991-99	Scots pine	44	Jap/Hybrid larch	10	Sycamore/Ash	9
1981-90	Sycamore	21	Norway spruce	19	Oak	14
1971-80	Sycamore	23	Ash	15	Scots pine	12
1961-70	Beech	22	Sycamore	21	Scots pine	16
1951-60	Sycamore	29	Scots pine	22	Ash	14
1941-50	Sycamore	25	Jap/Hybrid larch	19	Scots pine	13
1931-40	Sycamore	31	Oak	20	Ash	19
1921-30	Ash	47	Sycamore	20	Beech	16
1911-20	Ash	32	Sycamore	29	Mixed Broadleaves	14
1901-10	Beech	100	-		-	
1861-1900	Ash	41	Sycamore	33	Beech	13
Pre 1861	Ash	42	Oak	30	Sweet chestnut	6
<b>All years</b>	<b>Sycamore</b>	<b>23</b>	<b>Ash</b>	<b>20</b>	<b>Scots pine</b>	<b>11</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	7,263	82.5
Business	527	6.0
Forestry or timber business	0	0.0
Charity	272	3.1
Local Authority	271	3.1
Other public (not FC)	162	1.8
Forestry Commission	312	3.5
Community ownership or common land	0	0.0
Unidentified	0	0.0
<b>Total</b>	<b>8,807</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	538	274	Area (ha)
Wide Linear Features	0	0	Area (ha)
Wide Linear Features	0	0	Length (Km)
Narrow Linear Features	1,500	101	Length (Km)
Narrow Linear Features	1,500	31,700	Number of live trees
Groups	30,400	136,700	Number of live trees
Individual Trees	113,500	113,500	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	4	269	274	538	0.51
Wide Linear Features	0	0	0	0	0.00
<b>Total</b>	<b>4</b>	<b>269</b>	<b>274</b>	<b>538</b>	<b>0.51</b>

1. See Glossary for definitions of feature types.

Species	Feature type				Total live trees	Percent of total trees	
	Boundary Trees	Middle Trees	Groups	Narrow Linear Features		Category	Species
Pine	0.8	0.0	0.0	0.0	0.8	33.3	0.3
Spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Larch	1.6	0.0	0.0	0.0	1.6	66.7	0.6
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
Total conifers	2.4	0.0	0.0	0.0	2.4	100.0	0.9
Oak	11.2	1.6	3.2	0.0	16.0	5.7	5.7
Beech	0.8	0.0	0.0	0.0	0.8	0.3	0.3
Sycamore	12.8	0.0	0.8	0.0	13.6	4.9	4.8
Ash	20.8	4.0	16.8	5.3	46.9	16.8	16.6
Birch	0.8	6.4	29.6	0.0	36.8	13.2	13.1
Poplar	1.6	0.0	0.8	0.0	2.4	0.9	0.9
Sweet chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.8	0.0	0.0	0.0	0.8	0.3	0.3
Alder	1.6	0.0	0.0	0.0	1.6	0.6	0.6
Lime	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Willow	1.6	0.8	44.0	0.0	46.4	16.6	16.5
Other broadleaves	24.5	21.9	41.6	26.5	114.5	40.9	40.6
Total broadleaves	76.5	34.7	136.7	31.7	279.8	100.0	99.3
Total - all species	78.9	34.7	136.7	31.7	281.9		100.1

- Percentages  
  
Category : species percentage of conifer or broadleaved.  
Species : percentage of all species.
- The standard errors of the total tree number estimates for these feature types are:  
  

Individual Trees	29%
Groups	84%
Narrow Linear Features	99%
- 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	0.0	0.0	0.0	0.0	0.0	0.0
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>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Oak	0.8	0.0	0.0	0.0	0.8	50.0	50.0
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	0.0	0.0	0.0	0.0	0.0
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	0.8	0.0	0.8	50.0	50.0
Willow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other broadleaves	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total broadleaves</b>	<b>0.8</b>	<b>0.0</b>	<b>0.8</b>	<b>0.0</b>	<b>1.6</b>	<b>100.0</b>	<b>100.0</b>
<b>Total - all species</b>	<b>0.8</b>	<b>0.0</b>	<b>0.8</b>	<b>0.0</b>	<b>1.6</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	0.0	0.8	0.0	0.0	0.8
Spruce	0.0	0.0	0.0	0.0	0.0
Larch	1.6	0.0	0.0	0.0	1.6
Cypress	0.0	0.0	0.0	0.0	0.0
Other conifers	0.0	0.0	0.0	0.0	0.0
<b>Total conifers</b>	<b>1.6</b>	<b>0.8</b>	<b>0.0</b>	<b>0.0</b>	<b>2.4</b>
Oak	3.2	12.8	0.0	0.0	16.0
Beech	0.0	0.0	0.0	0.8	0.8
Sycamore	4.0	6.4	3.2	0.0	13.6
Ash	14.4	32.5	0.0	0.0	46.9
Birch	9.6	27.2	0.0	0.0	36.8
Poplar	0.0	0.8	0.0	1.6	2.4
Sweet chestnut	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.8	0.0	0.0	0.0	0.8
Alder	0.0	1.6	0.0	0.0	1.6
Lime	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.0	0.0	0.0	0.0
Willow	36.8	9.6	0.0	0.0	46.4
Other broadleaves	79.1	35.2	0.0	0.0	114.3
<b>Total broadleaves</b>	<b>147.9</b>	<b>126.1</b>	<b>3.2</b>	<b>2.4</b>	<b>279.6</b>
<b>Total - all species</b>	<b>149.5</b>	<b>126.8</b>	<b>3.2</b>	<b>2.4</b>	<b>281.9</b>

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

Number of trees per Group*	Number of Groups (000's)
2	7
3-5	10
6-10	6
11-20	5
21-50	2
51-100	0
>100	0
<b>Total</b>	<b>30</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 1999 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 1999 Inventory
Table 20:	Comparison of High Forest area by species between 1980 Census and 1999 Inventory
Chart:	Comparison of High Forest area by species between 1980 Census and 1999 Inventory
Table 21:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1999 Inventory
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1999 Inventory
Table 22:	Comparison of numbers of live trees outside woodland between 1980 Census and 1999 Inventory
Table 23:	Comparison of density of non-woodland features between 1980 Census and 1999 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 1999 Inventory

Woodland size (ha)	1980 Census woodland area		1999 Inventory woodland area		Change (%)
	(ha)	(%)	(ha)	(%)	(%)
2.0 or more	8,733	90.8	8,807	97.0	1
0.25 - <2.0	884	9.2	269	3.0	-70
<b>Total</b>	<b>9,617</b>		<b>9,076</b>		<b>-6</b>
<b>% Woodland land cover</b>	<b>2.7</b>		<b>2.6</b>		

1. Differences in sampling methodology may account for some of the apparent differences.
2. The above figures from the 1999 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1999 figures above will therefore not match those in the previous sections of the report.
3. Land area used to calculate woodland cover percent (1999), 350,806 ha, was based on the 1991 Census of Population digital boundaries.
4. Land area used to calculate woodland cover percent (1980), 351,226ha, (Ordnance Survey data)

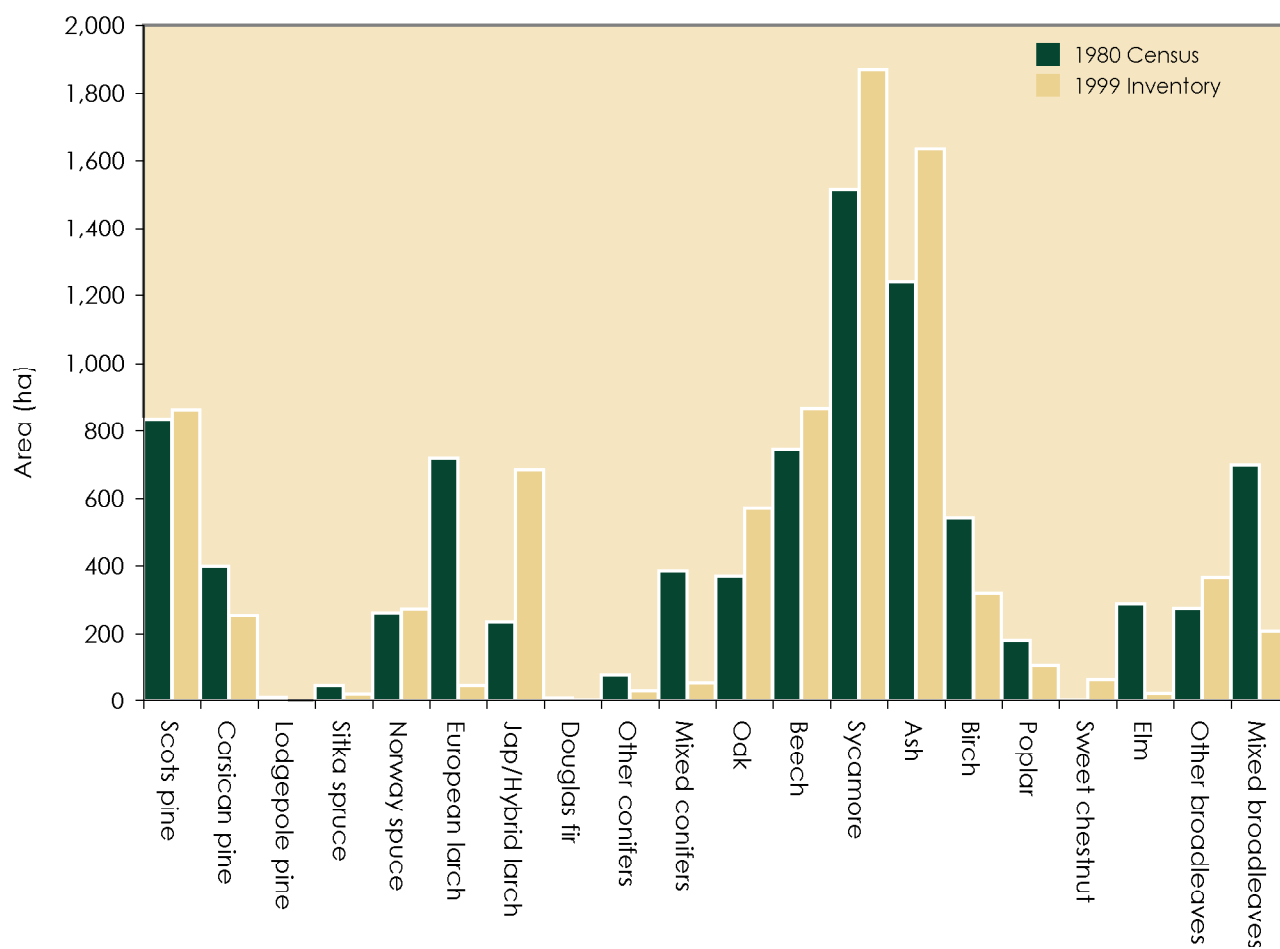
**Table 20** Comparison of High Forest area by species between 1980 Census and 1999 Inventory

Species	1980 Census woodland area (ha)	1999 Inventory woodland area (ha)	Change (%)
Scots pine	834	860	3
Corsican pine	399	252	-37
Lodgepole pine	11	0	-100
Sitka spruce	45	20	-56
Norway spruce	259	271	4
European larch	716	45	-94
Jap/Hybrid larch	233	684	193
Douglas fir	9	4	-57
Other conifers	75	30	-60
Mixed conifers	384	54	-86
<b>Total conifers</b>	<b>2,967</b>	<b>2,220</b>	<b>-25</b>
Oak	369	571	55
Beech	744	864	16
Sycamore	1,512	1,867	23
Ash	1,242	1,634	32
Birch	542	316	-42
Poplar	180	104	-42
Sweet chestnut	5	63	1240
Elm	287	22	-92
Other broadleaves	274	365	33
Mixed broadleaves	697	207	-70
<b>Total broadleaves</b>	<b>5,852</b>	<b>6,013</b>	<b>3</b>
<b>Total all species</b>	<b>8,819</b>	<b>8,233</b>	<b>-7</b>
<b>Felled</b>	<b>221</b>	<b>34</b>	<b>-85</b>
<b>Total High Forest</b>	<b>9,040</b>	<b>8,267</b>	<b>-9</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 6.0% (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 6.0%.
3. The above figures from the 1999 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1999 figures above will therefore not match those in the previous sections of the report.
4. The 1980 figures include scrub to enable comparison



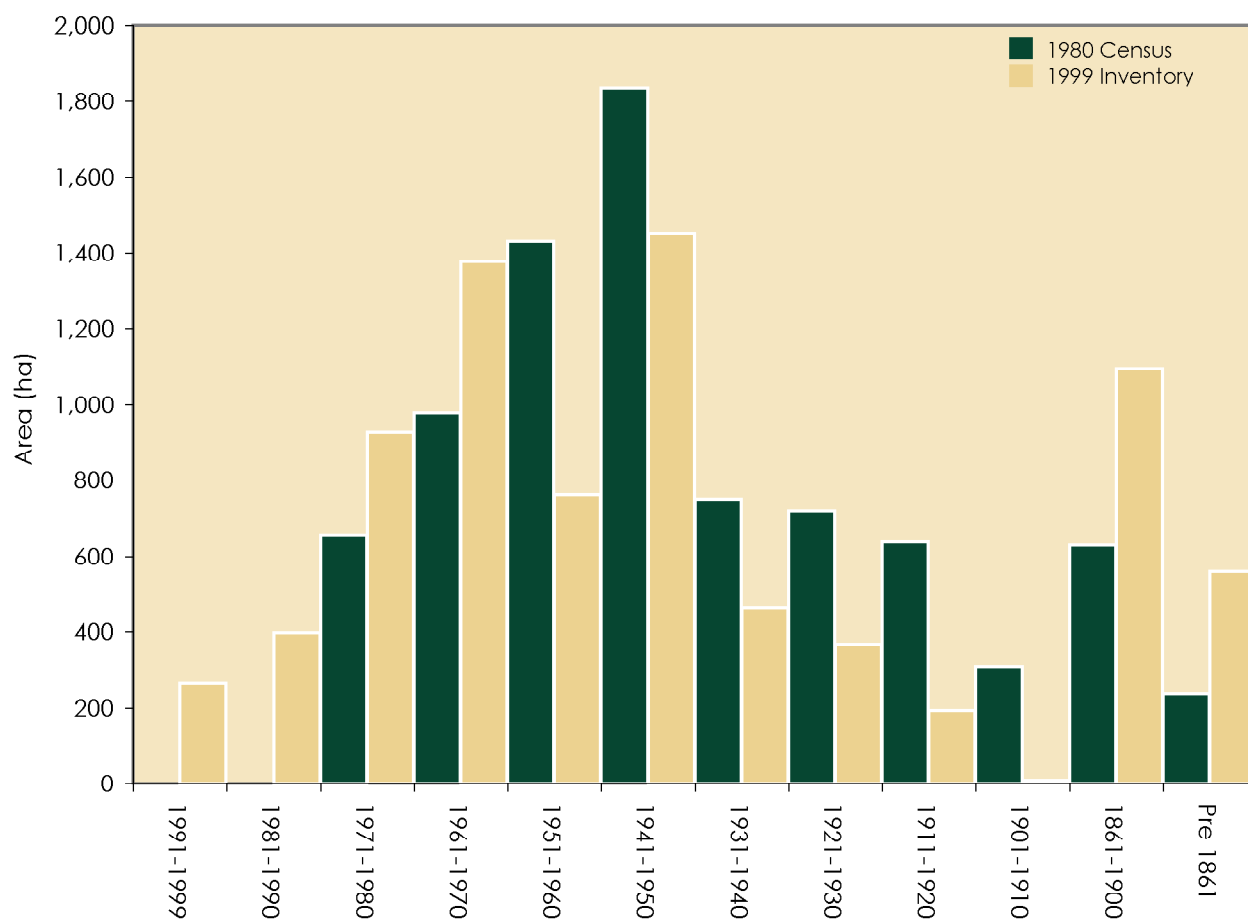
Comparison of High Forest area by species between 1980 Census and 1999 Inventory



**Table 21** Comparison of High Forest Category 1 area by planting year class  
between 1980 Census and 1999 Inventory

Planting year class	1980 Census woodland area (ha)	1999 Inventory woodland area (ha)	Change (%)
1991-1999	0	264	see note
1981-1990	0	397	see note
1971-1980	656	926	41
1961-1970	978	1,377	41
1951-1960	1,431	761	-47
1941-1950	1,837	1,451	-21
1931-1940	749	465	-38
1921-1930	717	367	-49
1911-1920	638	192	-70
1901-1910	308	8	-97
1861-1900	630	1,094	74
Pre 1861	236	559	137
<b>Total all years</b>	<b>8,180</b>	<b>7,861</b>	<b>-4</b>

1. The first two classes, 1991-1999 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 1999 Inventory**

**Table 22** Comparison of numbers of live trees outside woodland between 1980 Census and 1999 Inventory (000's)

Feature type	1980 Census	1999 Inventory	Change (%)
Boundary Tree	72	64	-11
Middle Tree	181	13	-93
Total Individual Trees	253	78	-69
Groups	205	93	-55
Linear Features	62	5	-92
<b>Total</b>	<b>520</b>	<b>176</b>	<b>-66</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 1999 Inventory figures have been adjusted accordingly. The 1999 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 1999 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1999 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 1999 Inventory

Feature type	1980 Census	1999 Inventory	Change (%)
Individual Trees (per sq km)	72.0	22.0	-69
Groups (per sq km)	12.5	5.9	-53
Linear Features (m per sq km)	88.3	28.6	-68

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 1999 Inventory figures have been adjusted accordingly. The 1999 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 1999 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1999 used 2m height, as minimum criteria for inclusion.
4. See Glossary for definitions of feature type.

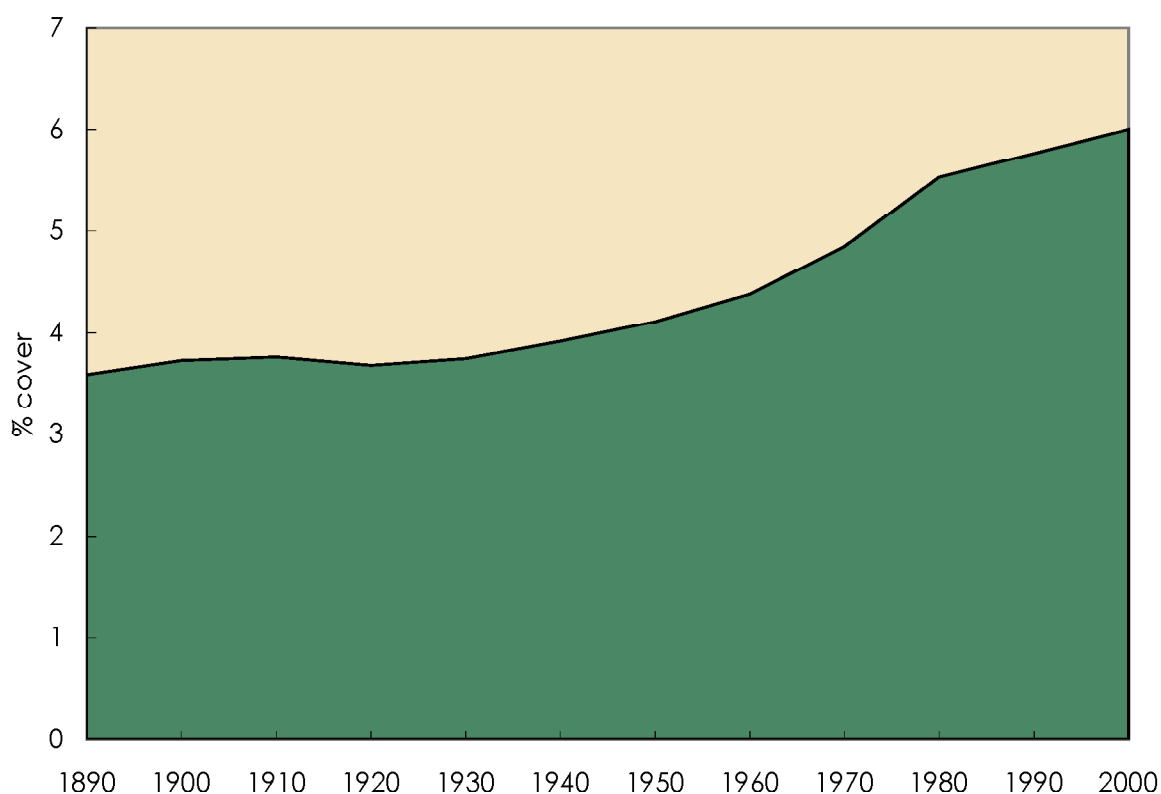
Tables 22 and 23 have been excluded from this report. The Survey of Small Woodland and trees does not record information referring to tree features (I.e. Individual trees, Groups and Narrow Linear Features) within developed land. In this respect the survey differs markedly from the 1980 census. North Yorkshire included a substantial proportion of developed land making comparison inappropriate.

## 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.

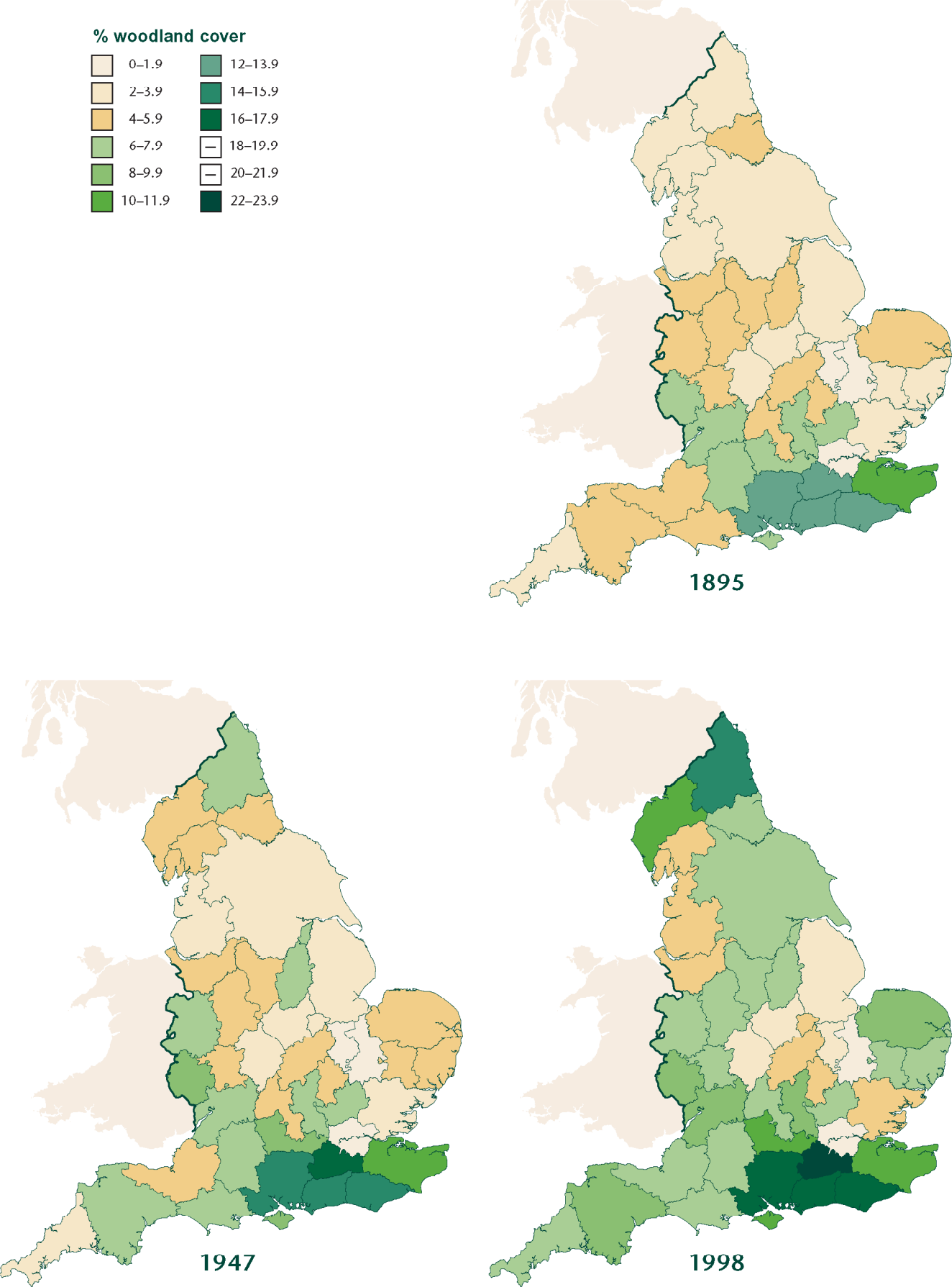
The maps use the old County structure data of England, as reported on in 1895 and 1947. The data from these counties could not be re-worked for different geographic areas. In contrast, the digital woodland map, which forms the basis of the current inventory, can be analysed for any geographic area.

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



1. Following local government reorganisation the boundaries of the county of the report have changed significantly since 1890 and therefore data from a wider geographic area have been used.

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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