



NATIONAL INVENTORY OF WOODLAND AND TREES



ENGLAND

County Report for

ISLE OF WIGHT



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 the Isle of Wight 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 the Isle of Wight 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 With the statistics becoming increasingly out of date the Forestry Commission decided to undertake a new survey: the *National Inventory of Woodland and Trees*.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 km² 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 km² 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 the Isle of Wight is 4,549 hectares. This represents 12.0% of the land area. (Table 1)
- Broadleaved woodland is the dominant forest type representing 65.7 % of all woodland. Conifer woodland represents 10.9 %, Mixed woodland 14.0 % and Open Space within woodlands 9.2 %. (Table 2)
- The main conifer species is pine covering 522 hectares or 61.6 % of all conifer species. The main broadleaved species is oak covering 895 hectares or 27.3 % of all broadleaved species. (Table 3)
- 1,146 hectares or 26 % of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 3,344 hectares or 74 % of woodland is in Other ownership. (Table 6)
- There are a total of 347 woods over 2 ha within the Isle of Wight with a mean wood area of 12.9 hectares. (Table 7a) There are a total of 136 woods from 0.1 - <2.0 hectares with a mean wood area of 0.43 hectares. (Table 14)
- There are 184.9 thousand live trees outside woodland in the Isle of Wight. (Table 15)
- Woodland land cover increased by over 800 hectares from 9.7 % to 12.0 % of the land area between 1980 and 1996. (Table 19)
- The area of broadleaves increased by 43% between 1980 and 1996, with the relative proportion of broadleaves to conifers increasing from 70 % to 79 %. (Table 20)

INVENTORY REPORTS

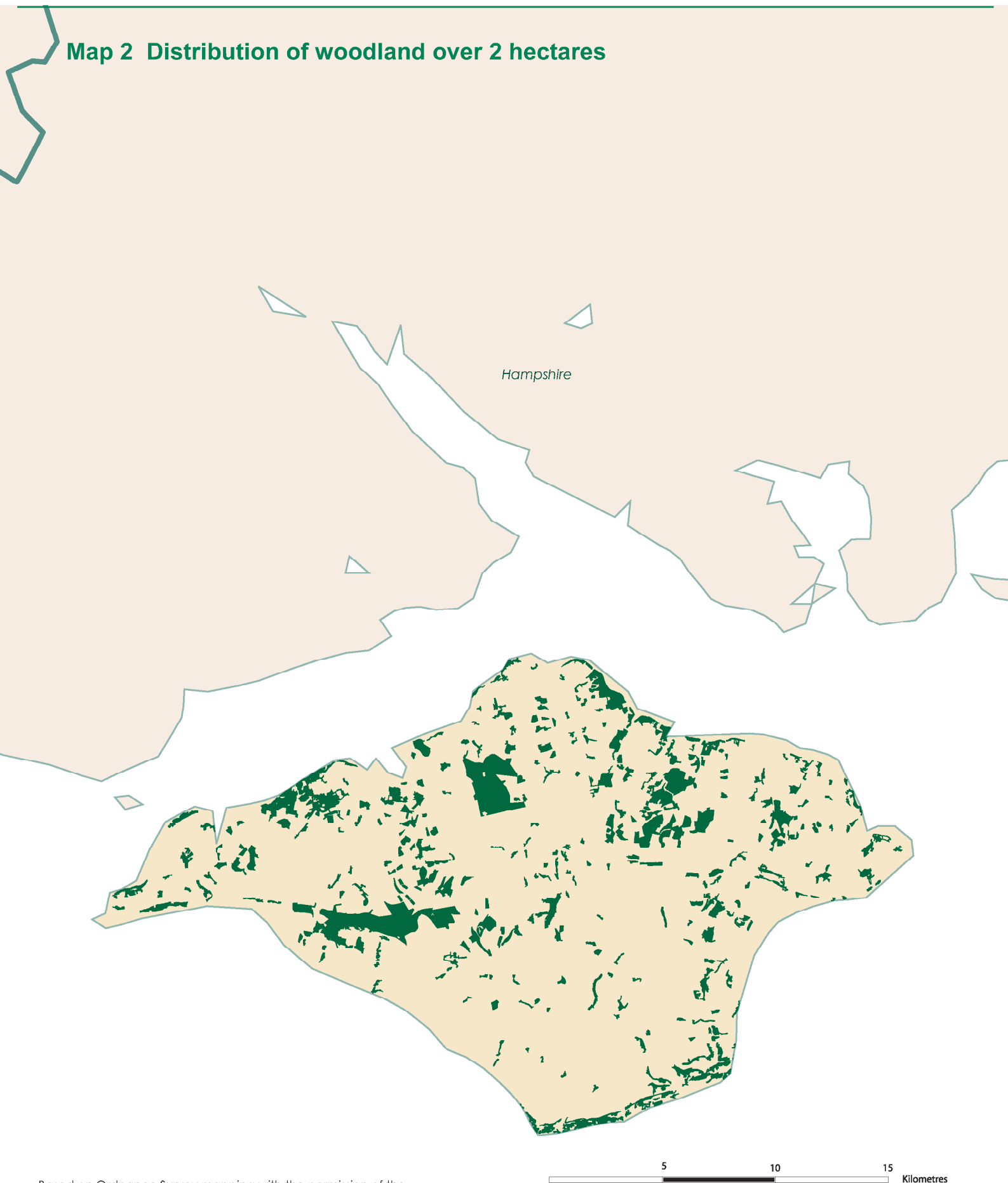
As well as this report for the Isle of Wight, reports are available for the other counties in the region as shown on the map opposite. Also available are region and county reports for England as well as a report for the country as a whole. Wales and Scotland are also covered by reports. Inventory reports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

Map 1 Regional and county boundaries



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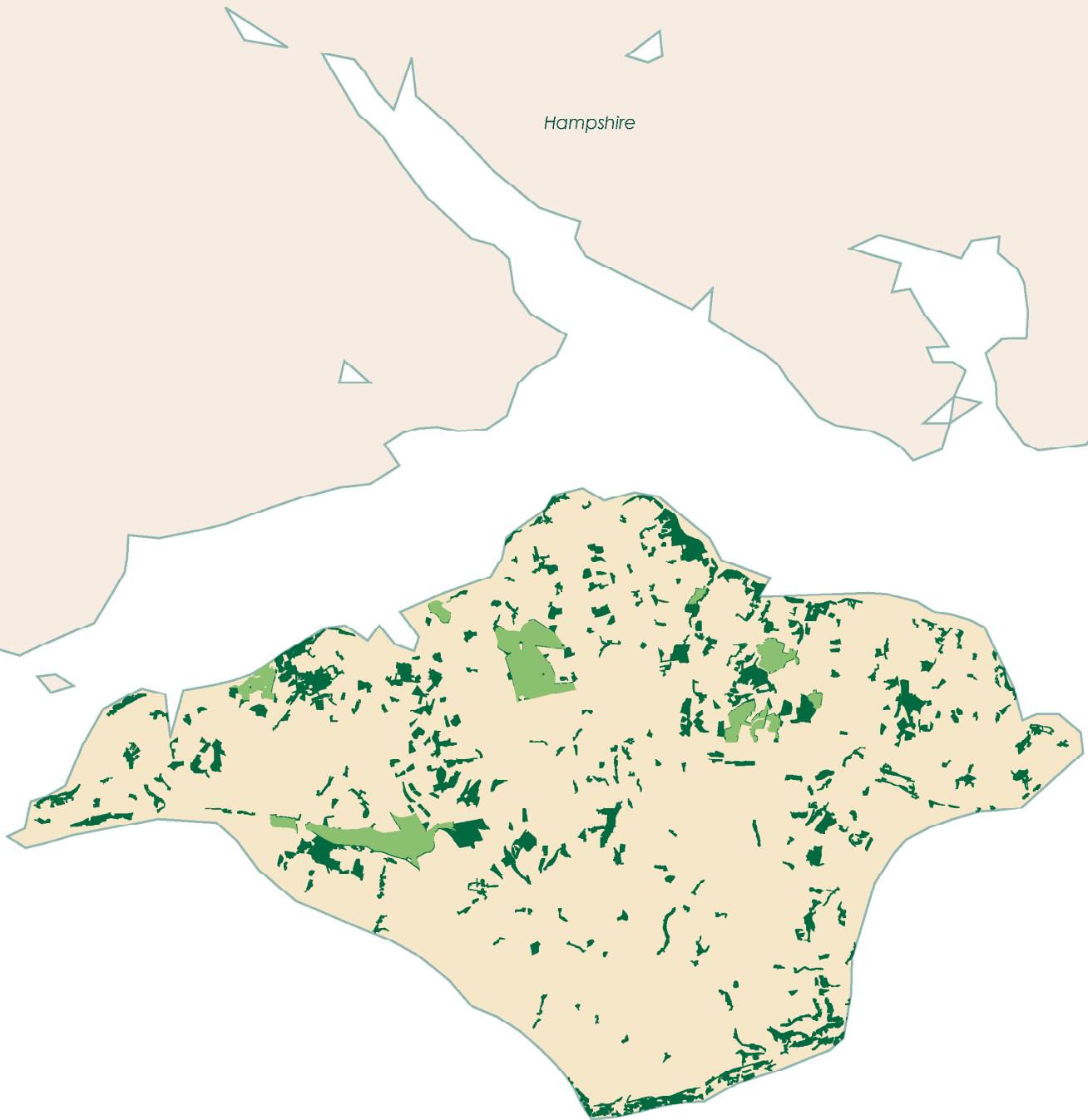
Map 2 Distribution of woodland over 2 hectares



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Map 3 Distribution of woodland over 2 hectares by ownership

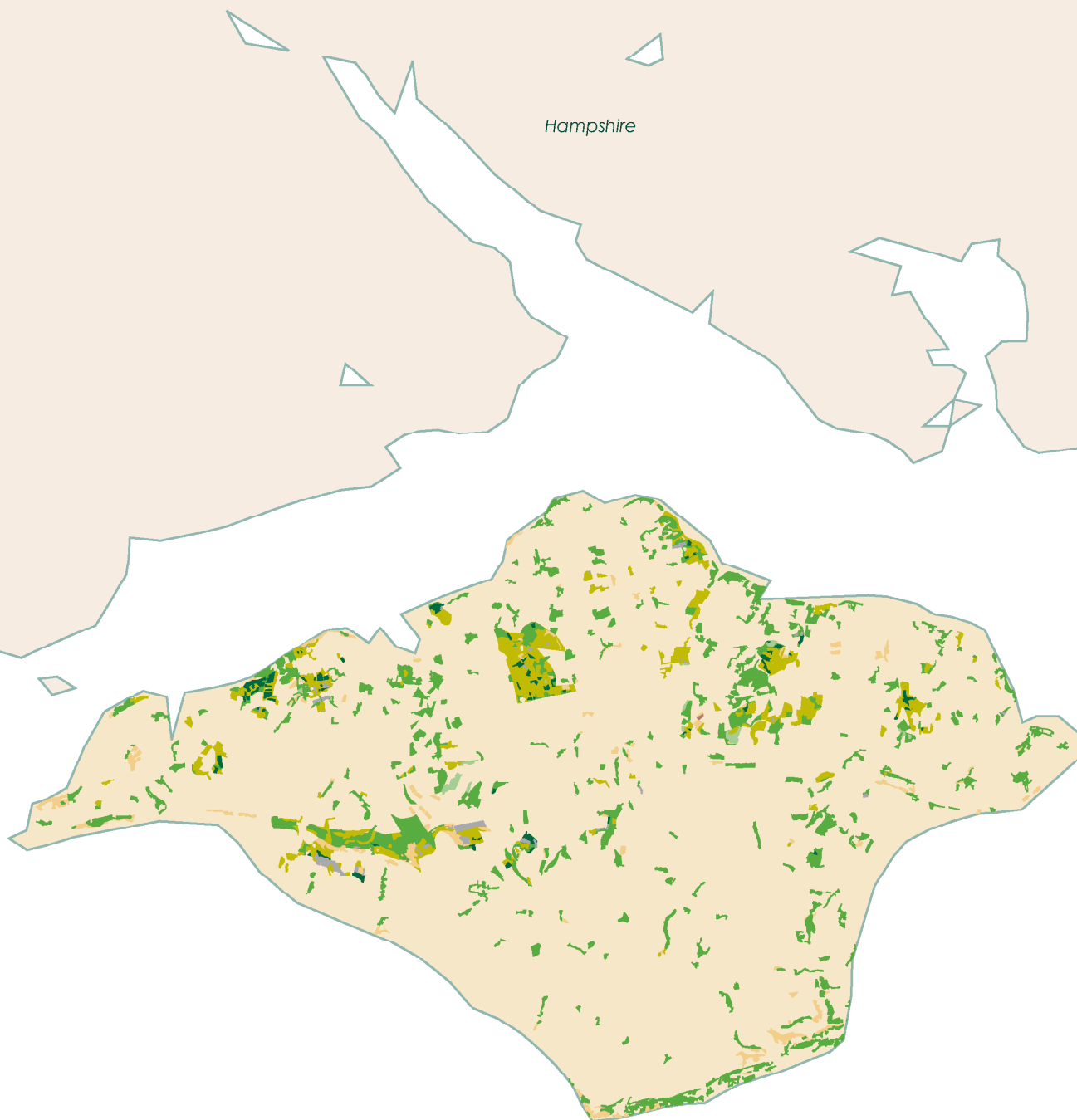
- Forestry Commission woodland
- Other woodland



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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 the Isle of Wight.

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	4,490	98.7
0.25 - < 2.00	53	1.2
0.10 - < 0.25	6	0.1
Total area of woodland	4,549	100.0
% Woodland land cover	12.0	

1. Area of Isle of Wight, including inland water, 38,014 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	494	1	495	10.9
Broadleaved	2,945	45	2,990	65.7
Mixed	630	9	639	14.0
Coppiced	0	0	0	0.0
Copp-w-standards	8	0	8	0.2
Windblow	0	0	0	0.0
Felled	0	0	0	0.0
Open Space	413	5	418	9.2
Total	4,490	59	4,549	100

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	520	2	522	61.6	12.7
Sitka spruce	0	0	0	0.0	0.0
Larch	20	0	20	2.4	0.5
Other conifers	303	2	305	36.0	7.4
Mixed conifers	0	1	1	0.1	0.0
Total conifers	843	5	848	100.0	20.6
Oak	883	12	895	27.3	21.7
Beech	637	4	641	19.6	15.5
Sycamore	189	2	191	5.8	4.6
Ash	660	6	666	20.3	16.1
Birch	260	0	260	7.9	6.3
Elm	5	1	6	0.2	0.1
Other broadleaves	550	9	559	17.1	13.6
Mixed broadleaves	42	16	58	1.8	1.4
Total broadleaves	3,226	50	3,276	100.0	79.4
Total all species***	4,069	55	4,124		100.0

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

**Species/group percentage of all species

***Excludes the 426ha 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	25%
Broadleaves	9%
Pine	36%
Oak	18%
Ash	21%
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	7,600	69,700	9	183
Narrow Linear Features	2,200	103,400	47	272
Individual Trees	11,800	11,800	1	31
Total		184,900		486

1. Land area used to calculate tree density 38,014ha 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	37%
Narrow Linear Features	86%
Individual Trees	38%
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	2,200	602	1,585
Total		602	1,585

1. Land area used to calculate feature density 38,014ha 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	87%
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	1,146	26
Other	3,344	74
Total area of woodland	4,490	100

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

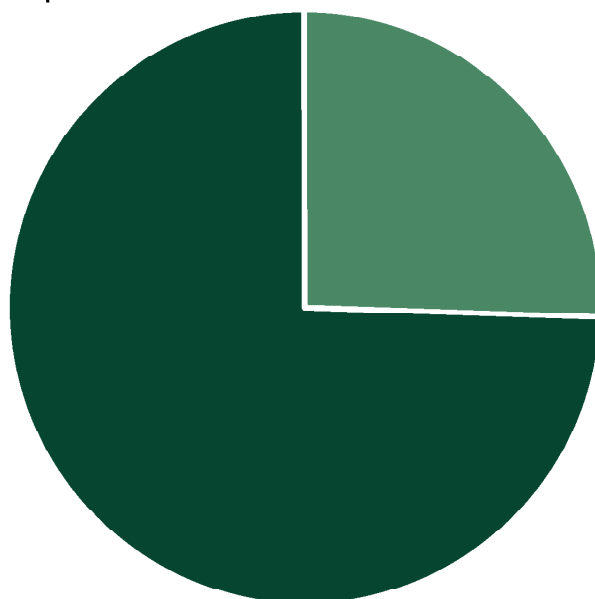
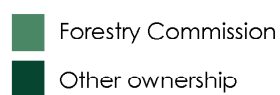
Woodland area by ownership

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	267	1,090	24	4.1
10 - <20	43	618	14	14.4
20 - <50	24	763	17	31.8
50 - <100	7	527	12	75.2
<100	341	2,998	66	8.8
100 - <500	5	980	22	195.9
500 and >	1	540	12	539.9
All woods	347	4,517	100	12.9

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	1	1	0	0.0
	O	263	1,123	25	4.3
10 - <20	FC	3	55	1	18.4
	O	46	660	15	14.3
20 - <50	FC	2	62	1	30.9
	O	23	722	16	31.4
50 - <100	FC	2	188	4	94.2
	O	7	550	12	78.6
<100	FC	8	306	7	38.3
	O	339	3,055	68	9.0
100 - <500	FC	3	840	19	280.0
	O	2	289	6	144.5
500 and >	FC	0	0	0	0.0
	O	0	0	0	0.0
Total	FC	11	1,146	26	104.2
	O	341	3,344	74	9.8

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 27 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	0	0.0	494	14.8	494	11.0
Broadleaved	733	64.0	2,211	66.1	2,945	65.6
Mixed	390	34.0	241	7.2	630	14.0
Coppice	0	0.0	0	0.0	0	0.0
Copp-w-Stds	0	0.0	8	0.2	8	0.2
Windblow	0	0.0	0	0.0	0	0.0
Felled	0	0.0	0	0.0	0	0.0
Open Space	23	2.0	390	11.7	413	9.2
Total	1,146	100.0	3,344	100.0	4,490	100.0

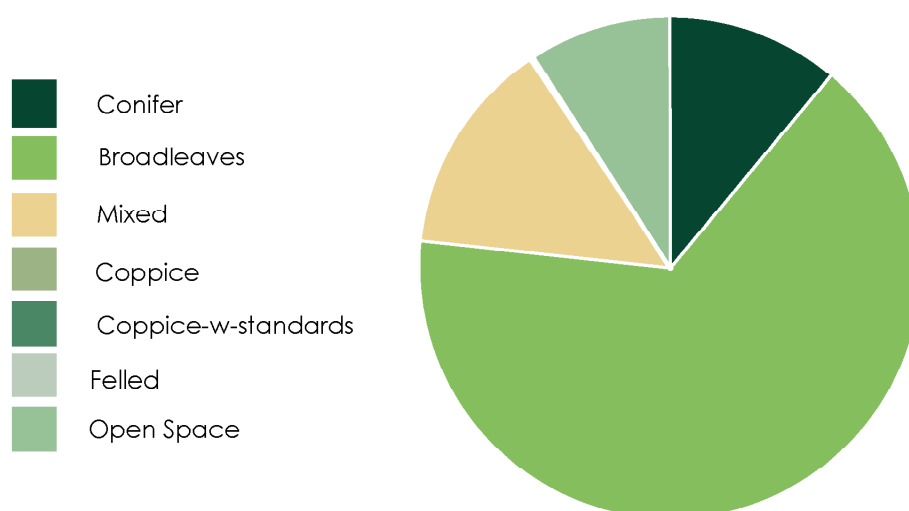
Area of woodland by forest type

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	11	6	1	56	9	2	67	8	2
Corsican pine	183	94	16	270	42	9	453	54	11
Lodgepole pine	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	0	0	0	0	0	0
Norway spruce	0	0	0	34	5	1	34	4	1
European larch	0	0	0	20	3	1	20	2	0
Jap/Hybrid larch	0	0	0	0	0	0	0	0	0
Douglas fir	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	269	42	9	269	32	7
Mixed conifers	0	0	0	0	0	0	0	0	0
Total conifers	195	100	17	648	100	22	843	100	21
Oak	57	6	5	826	36	28	883	27	22
Beech	390	42	35	247	11	8	637	20	16
Sycamore	0	0	0	189	8	6	189	6	5
Ash	252	27	22	408	18	14	660	20	16
Birch	172	19	15	88	4	3	260	8	6
Poplar	0	0	0	12	1	0	12	0	0
Sweet chestnut	0	0	0	83	4	3	83	3	2
Elm	0	0	0	5	0	0	5	0	0
Other broadleaves	57	6	5	398	17	14	455	14	11
Mixed broadleaves	0	0	0	42	2	1	42	1	1
Total broadleaves	928	100	83	2,298	100	78	3,226	100	79
Total - all species	1,123		100	2,946		100	4,069		100
Felled	0			0			0		
Total High Forest	1,123			2,946			4,069		

*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 413ha 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	25%
Broadleaves	9%
Corsican pine	41%
Oak	18%
Ash	21%
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

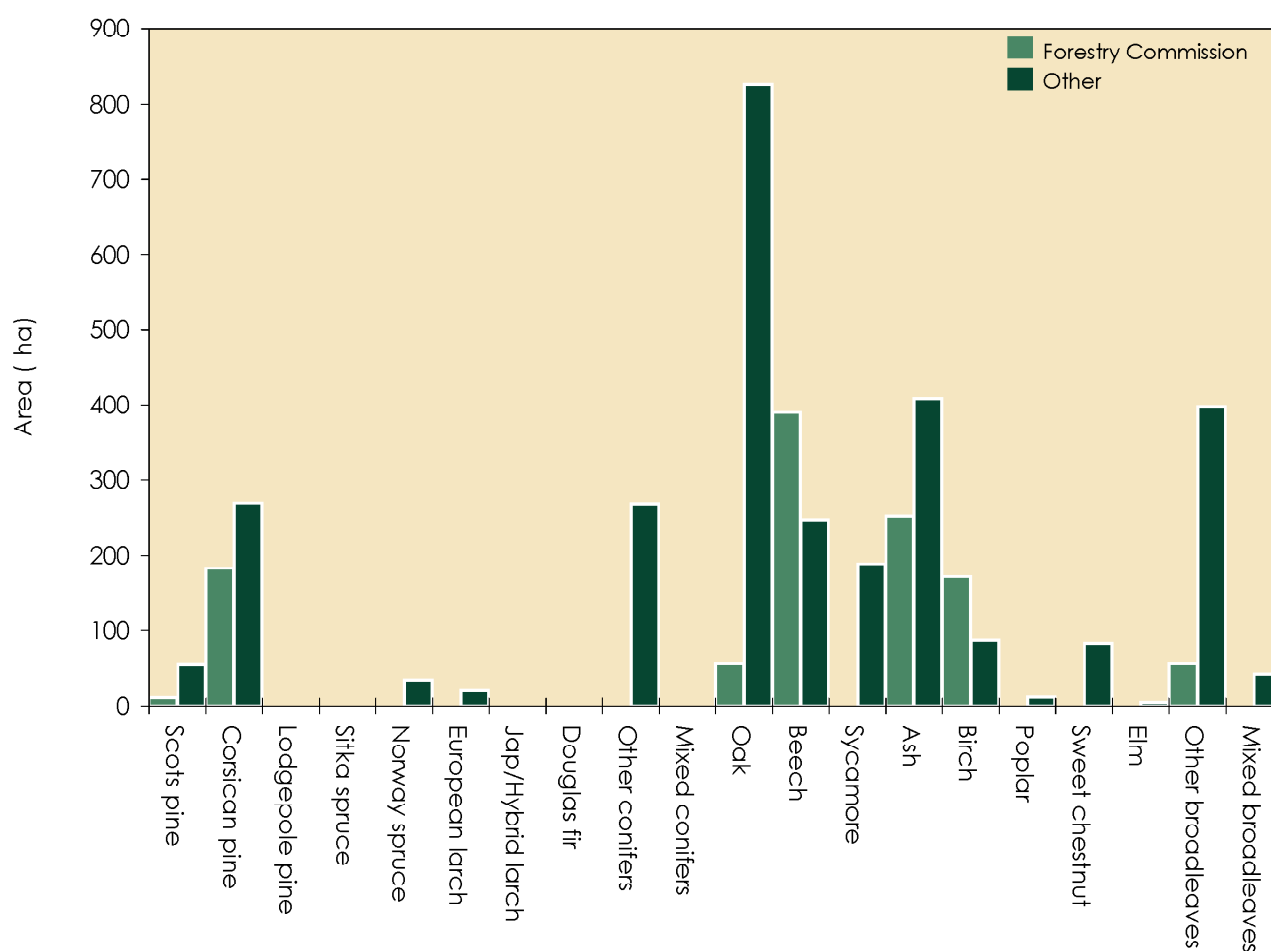


Table 9b Area of High Forest by principal species,ownership and category

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	11	0	11	56	0	56	67	0	67
Corsican pine	183	0	183	270	0	270	453	0	453
Lodgepole pine	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	0	0	0	0	0	0
Norway spruce	0	0	0	34	0	34	34	0	34
European larch	0	0	0	20	0	20	20	0	20
Jap/Hybrid larch	0	0	0	0	0	0	0	0	0
Douglas fir	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	248	21	269	248	21	269
Mixed conifers	0	0	0	0	0	0	0	0	0
Total conifers	195	0	195	627	21	648	822	21	843
Oak	23	34	57	640	186	826	663	220	883
Beech	390	0	390	154	92	247	544	92	637
Sycamore	0	0	0	143	46	189	143	46	189
Ash	252	0	252	367	41	408	619	41	660
Birch	0	172	172	72	16	88	72	188	260
Poplar	0	0	0	12	0	12	12	0	12
Sweet chestnut	0	0	0	56	27	83	56	27	83
Elm	0	0	0	0	5	5	0	5	5
Other broadleaves	0	57	57	199	200	398	199	257	455
Mixed broadleaves	0	0	0	21	21	42	21	21	42
Total broadleaves	665	264	928	1,663	635	2,298	2,328	898	3,226
Total - all species	860	264	1,123	2,290	656	2,946	3,150	919	4,069

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

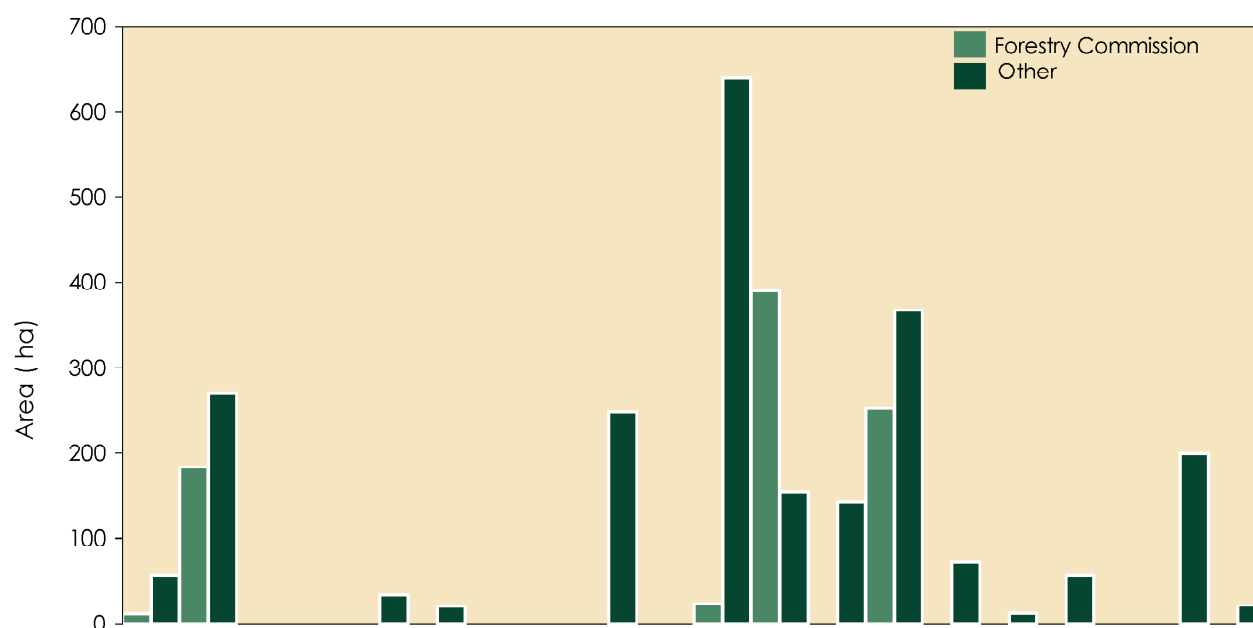
	Category 1*	Category 2*	Total High Forest
Conifers	24%	-	25%
Broadleaves	12%	22%	9%
Corsican pine	40%	-	41%
Oak	23%	32%	18%
Ash	21%	42%	21%

*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

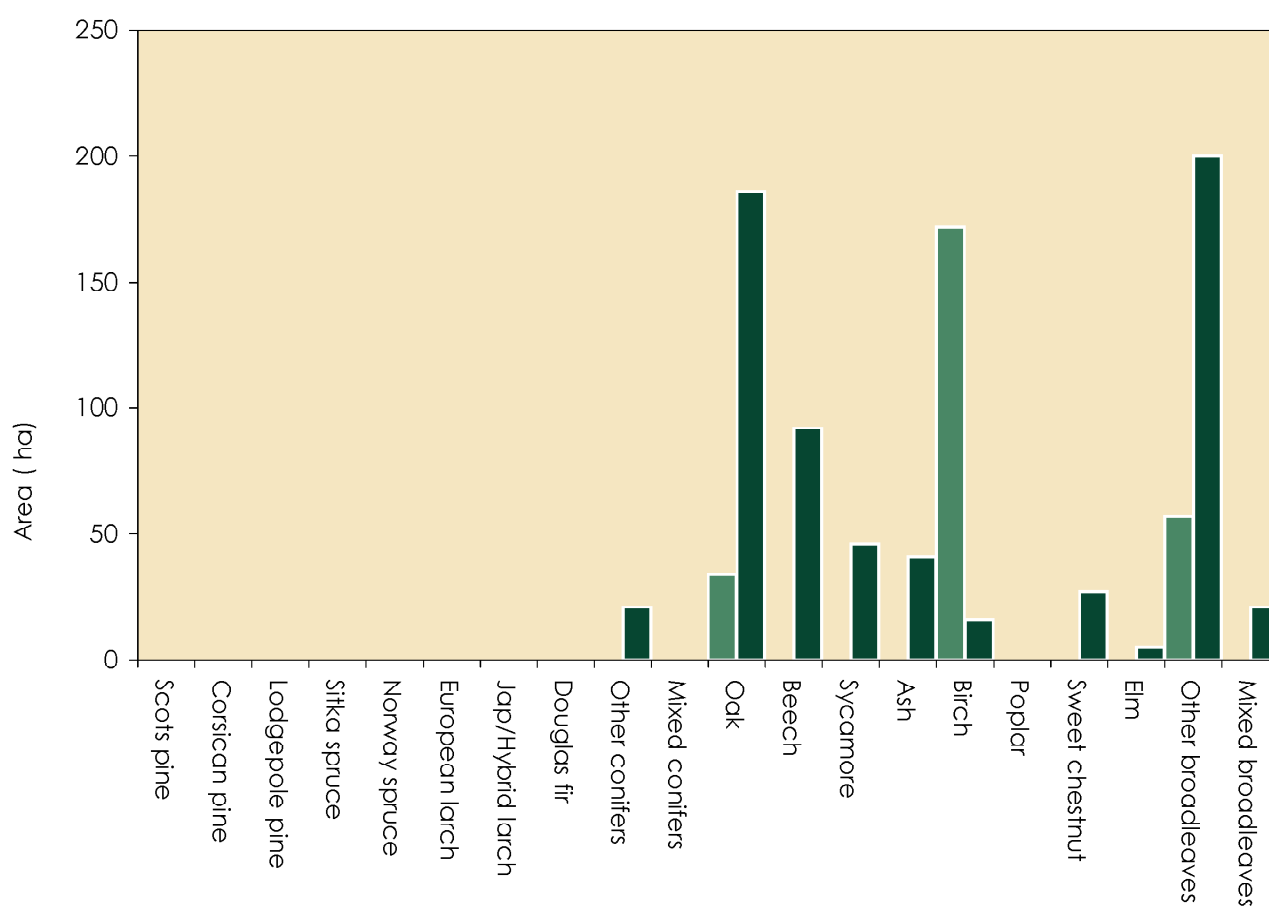
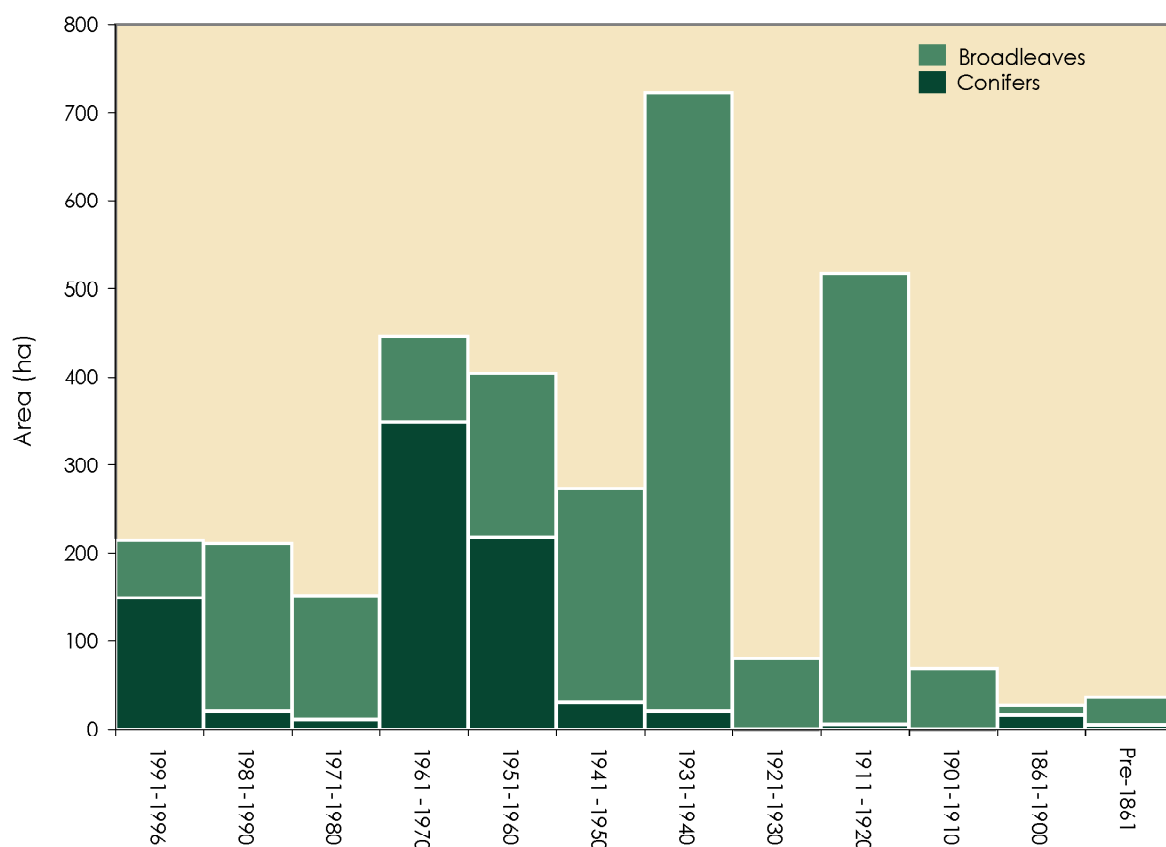


Table 10a High Forest Category 1 - Area by principal species and planting year class

Species	Planting year class*												Total (ha)
	1991-1996	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	0	20	11	0	0	30	0	0	5	0	0	0	67
Corsican pine	149	0	0	105	183	0	0	0	0	0	16	0	453
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	34	0	0	0	0	0	0	0	34
European larch	0	0	0	0	0	0	20	0	0	0	0	0	20
Jap/Hybrid larch	0	0	0	0	0	0	0	0	0	0	0	0	0
Douglas fir	0	0	0	0	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	244	0	0	0	0	0	0	0	4	248
Mixed conifers	0	0	0	0	0	0	0	0	0	0	0	0	0
Total conifers	149	20	11	349	217	30	20	0	5	0	16	4	822
Oak	0	28	4	0	17	19	28	27	443	64	0	32	663
Beech	4	21	11	7	11	160	292	26	0	0	11	0	544
Sycamore	0	11	0	0	0	4	123	0	5	0	0	0	143
Ash	30	73	63	11	138	48	161	26	63	5	0	0	619
Birch	0	34	7	11	11	0	11	0	0	0	0	0	72
Poplar	0	0	0	0	0	12	0	0	0	0	0	0	12
Sweet chestnut	0	19	15	0	0	0	22	0	0	0	0	0	56
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	22	5	37	68	11	0	56	0	0	0	0	0	199
Mixed broadleaves	8	0	4	0	0	0	8	0	0	0	0	0	21
Total broadleaves	65	191	141	97	187	243	702	80	512	69	11	32	2,328
Total - all species	214	211	153	445	404	273	722	80	517	69	26	36	3,150

*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



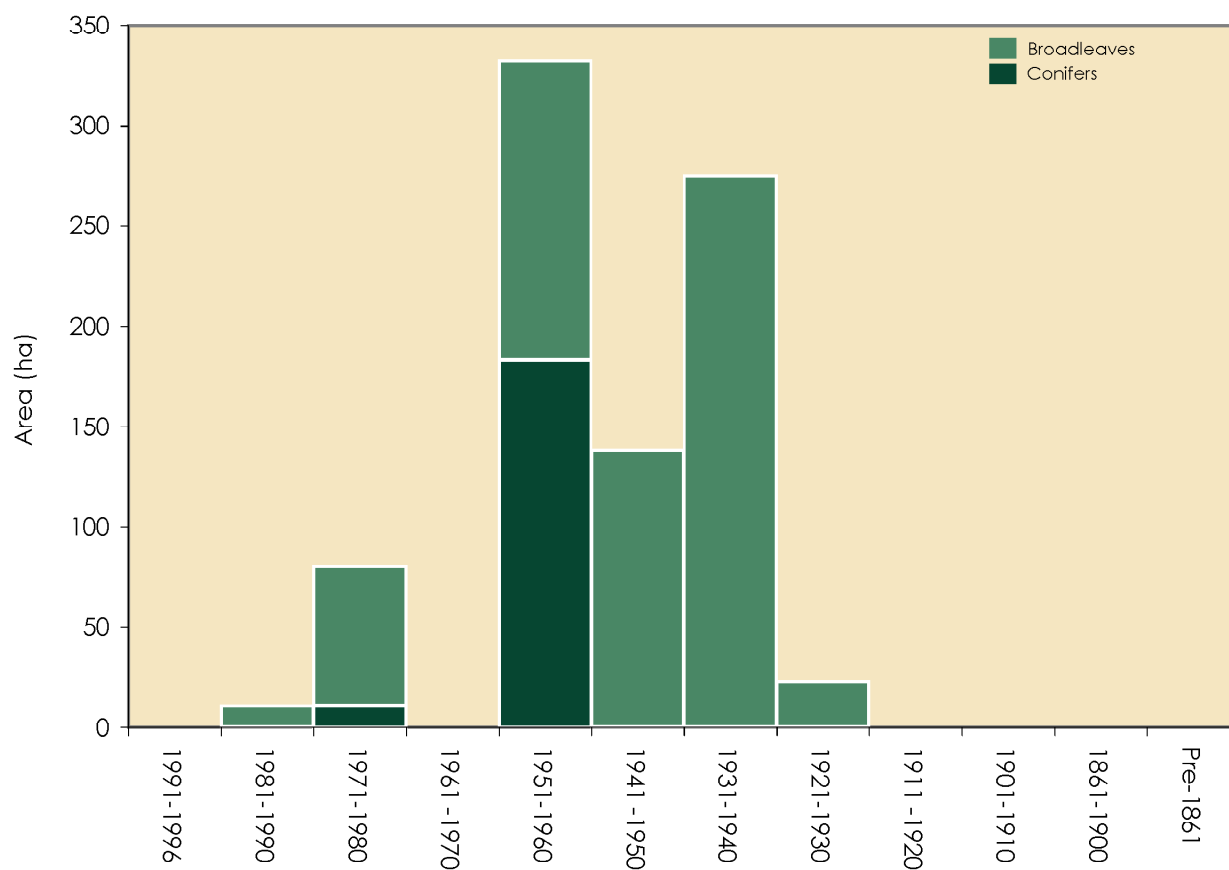
1. Most of the planting year classes cover 10 years, 1991-1996 is 6 years, and the classes prior to 1901 are 40 years or more.

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	0	0	11	0	0	0	0	0	0	0	0	0	11
Corsican pine	0	0	0	0	183	0	0	0	0	0	0	0	183
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	0	0	0	0	0	0	0	0	0	0
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
Total conifers	0	0	11	0	183	0	0	0	0	0	0	0	195
Oak	0	0	0	0	0	0	0	23	0	0	0	0	23
Beech	0	0	11	0	11	138	229	0	0	0	0	0	390
Sycamore	0	0	0	0	0	0	0	0	0	0	0	0	0
Ash	0	11	57	0	138	0	46	0	0	0	0	0	252
Birch	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
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	0	0	0	0	0	0	0	0	0	0
Mixed broadleaves	0	0	0	0	0	0	0	0	0	0	0	0	0
Total broadleaves	0	11	69	0	149	138	275	23	0	0	0	0	665
Total - all species	0	11	80	0	332	138	275	23	0	0	0	0	860

*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



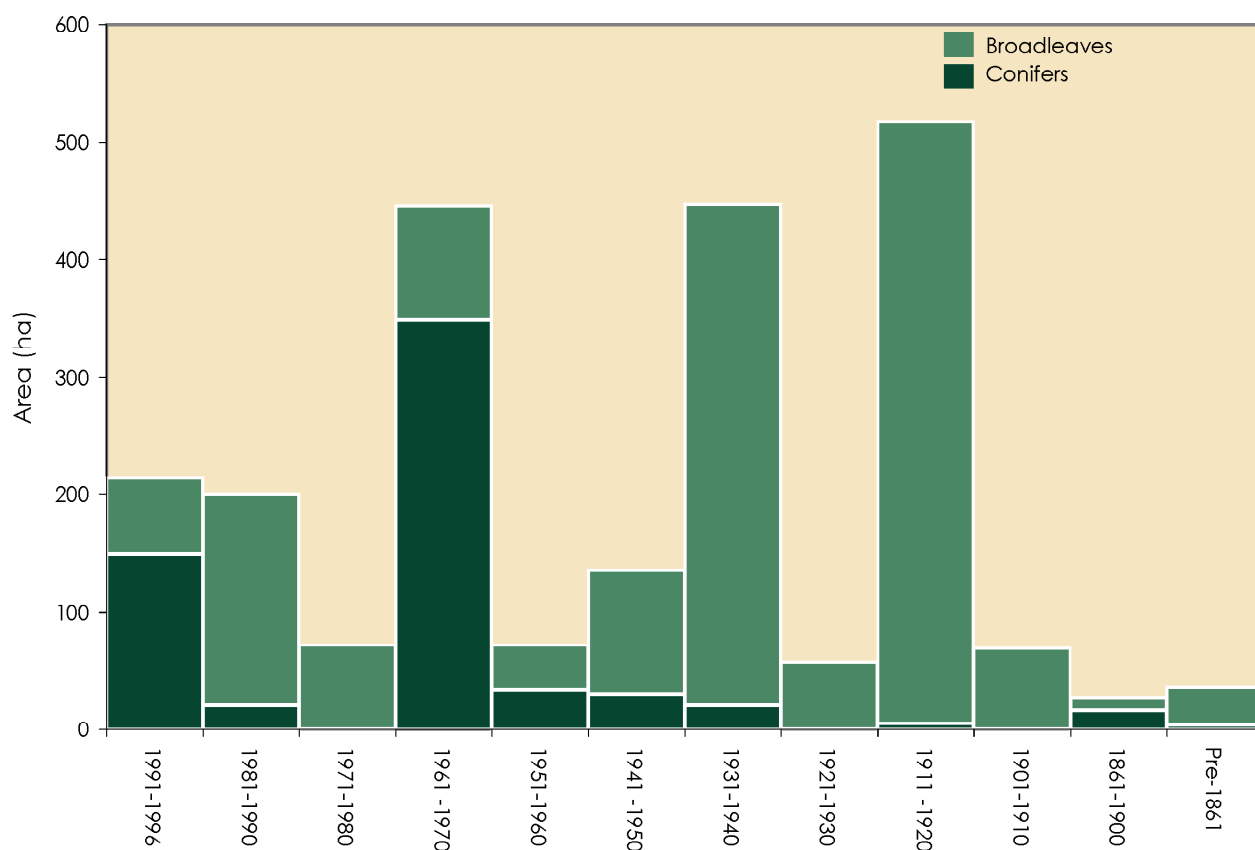
1. Most of the planting year classes cover 10 years, 1991-1996 is 6 years, and the classes prior to 1901 are 40 years or more.

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	0	20	0	0	0	30	0	0	5	0	0	0	56
Corsican pine	149	0	0	105	0	0	0	0	0	0	16	0	270
Lodgepole pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Silka spruce	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway spruce	0	0	0	0	34	0	0	0	0	0	0	0	34
European larch	0	0	0	0	0	0	20	0	0	0	0	0	20
Jap/Hybrid larch	0	0	0	0	0	0	0	0	0	0	0	0	0
Douglas fir	0	0	0	0	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	244	0	0	0	0	0	0	0	4	248
Mixed conifers	0	0	0	0	0	0	0	0	0	0	0	0	0
Total conifers	149	20	0	349	34	30	20	0	5	0	16	4	627
Oak	0	28	4	0	17	19	28	4	443	64	0	32	640
Beech	4	21	0	7	0	22	63	26	0	0	11	0	154
Sycamore	0	11	0	0	0	4	123	0	5	0	0	0	143
Ash	30	62	5	11	0	48	116	26	63	5	0	0	367
Birch	0	34	7	11	11	0	11	0	0	0	0	0	72
Poplar	0	0	0	0	0	12	0	0	0	0	0	0	12
Sweet chestnut	0	19	15	0	0	0	22	0	0	0	0	0	56
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	22	5	3	68	11	0	56	0	0	0	0	0	199
Mixed broadleaves	8	0	4	0	0	0	8	0	0	0	0	0	21
Total broadleaves	65	180	72	97	38	105	427	57	512	69	11	32	1,663
Total - all species	214	200	72	445	71	136	446	57	517	69	26	36	2,290

*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	Corsican pine	70	Ash	14	Other broadleaves	10
1981-90	Ash	33	Birch	15	Oak	13
1971-80	Birch	40	Other broadleaves	36	Ash	14
1961-70	Other conifers	54	Corsican pine	23	Other broadleaves	15
1951-60	Corsican pine	35	Ash	27	Oak / Other BL'S	12
1941-50	Beech	52	Ash	15	Scots pine	10
1931-40	Beech	33	Ash	22	Sycamore	16
1921-30	Beech	44	Oak	33	Ash	14
1911-20	Oak	84	Ash	12	SP/SY/SC/Other BL's	1
1901-10	Oak	81	Beech	10	Ash / Other BL's	4
1861-1900	Beech	37	Other conifers	23	CP / Other BL's	18
Pre 1861	Oak	89	Other conifers	11	-	
All years	Oak	22	Ash	16	Beech	16

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

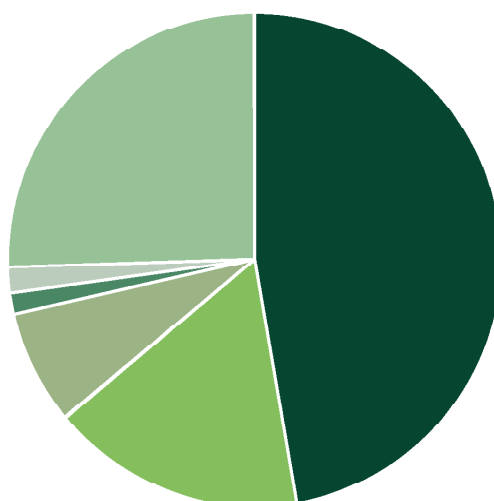
2. SP = Scots pine, SY = Sycamore, SC=Sweet chestnut, CP - Corsican pine, Other BL's - Other broadleaves

Table 12 Ownership type* by area and percentage

Ownership type	Area (ha)	%
Personal	2,126	47.3
Business	744	16.6
Forestry or timber business	0	0.0
Charity	330	7.3
Local Authority	65	1.4
Other public (not FC)	79	1.8
Forestry Commission	1,146	25.5
Community ownership or common land	0	0.0
Unidentified	0	0.0
Total	4,490	100.0

* 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 km² 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 km² 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	136	59	Area (ha)
Wide Linear Features	0	0	Area (ha)
Wide Linear Features	0	0	Length (Km)
Narrow Linear Features	2,200	602	Length (Km)
Narrow Linear Features	2,200	103,400	Number of live trees
Groups	7,600	69,700	Number of live trees
Individual Trees	11,800	11,800	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	6	53	59	136	0.43
Wide Linear Features	0	0	0	0	0.00
Total	6	53	59	136	0.43

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	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	0.8	0.8	0.0	0.0	1.6	100.0	0.9
Total conifers	0.8	0.8	0.0	0.0	1.6	100.0	0.9
Oak	5.9	0.0	39.5	92.2	137.6	75.2	74.4
Beech	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sycamore	0.8	0.0	0.0	0.0	0.8	0.4	0.4
Ash	0.8	0.8	4.2	11.2	17.0	9.3	9.2
Birch	0.0	0.0	0.8	0.0	0.8	0.4	0.4
Poplar	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweet chestnut	0.8	0.0	0.0	0.0	0.8	0.4	0.4
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	0.8	0.0	4.2	0.0	5.0	2.7	2.7
Willow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other broadleaves	0.0	0.0	21.0	0.0	21.0	11.5	11.4
Total broadleaves	9.2	0.8	69.7	103.4	183.0	100.0	99.0
Total - all species	10.0	1.6	69.7	103.4	184.9		99.8

- 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	38%
Groups	37%
Narrow Linear Features	86%
- 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
Total conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oak	0.0	0.0	1.7	0.0	1.7	68.0	68.0
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	0.0	0.0	0.0	0.0	0.0
Willow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other broadleaves	0.0	0.0	0.8	0.0	0.8	32.0	32.0
Total broadleaves	0.0	0.0	2.5	0.0	2.5	100.0	100.0
Total - all species	0.0	0.0	2.5	0.0	2.5		100.0

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	0.0	0.0	0.0	0.0
Spruce	0.0	0.0	0.0	0.0	0.0
Larch	0.0	0.0	0.0	0.0	0.0
Cypress	0.0	0.0	0.0	0.0	0.0
Other conifers	0.0	1.7	0.0	0.0	1.7
Total conifers	0.0	1.7	0.0	0.0	1.7
Oak	23.3	109.7	4.5	0.0	137.5
Beech	0.0	0.0	0.0	0.0	0.0
Sycamore	0.8	0.0	0.0	0.0	0.8
Ash	12.1	5.0	0.0	0.0	17.1
Birch	0.0	0.8	0.0	0.0	0.8
Poplar	0.0	0.0	0.0	0.0	0.0
Sweet chestnut	0.8	0.0	0.0	0.0	0.8
Horse chestnut	0.0	0.0	0.0	0.0	0.0
Alder	0.0	0.0	0.0	0.0	0.0
Lime	0.0	0.0	0.0	0.0	0.0
Elm	0.8	4.2	0.0	0.0	5.0
Willow	0.0	0.0	0.0	0.0	0.0
Other broadleaves	21.0	0.0	0.0	0.0	21.0
Total broadleaves	58.9	119.7	4.5	0.0	183.0
Total - all species	58.9	121.5	4.5	0.0	184.9

Table 18 Number of Groups by group size

Number of trees per Group*	Number of Groups (000's)
2	1
3-5	1
6-10	2
11-20	3
21-50	2
51-100	0
>100	0
Total	8

*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	3,334	90.2	4,490	98.8	35
0.25 - <2.0	361	9.8	53	1.2	-85
Total	3,695		4,543		23
% Woodland land cover	9.7		12.0		

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), 38,014 ha, was based on the 1991 Census of Population digital boundaries.
4. Land area used to calculate woodland cover percent (1980), 38,097ha, (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	80	69	-14
Corsican pine	404	453	12
Lodgepole pine	0	0	0
Sitka spruce	7	0	-100
Norway spruce	21	34	63
European larch	25	20	-21
Jap/Hybrid larch	49	0	-100
Douglas fir	64	0	-100
Other conifers	278	271	-2
Mixed conifers	76	1	-99
Total conifers	1,004	848	-16
Oak	951	894	-6
Beech	268	641	139
Sycamore	147	191	30
Ash	364	665	83
Birch	38	260	582
Poplar	15	13	-11
Sweet chestnut	23	83	266
Elm	1	6	561
Other broadleaves	288	462	60
Mixed broadleaves	197	55	-72
Total broadleaves	2,291	3,270	43
Total all species	3,296	4,118	25
Felled	35	0	-100
Total High Forest	3,331	4,118	24

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 9.2% (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 9.2%
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

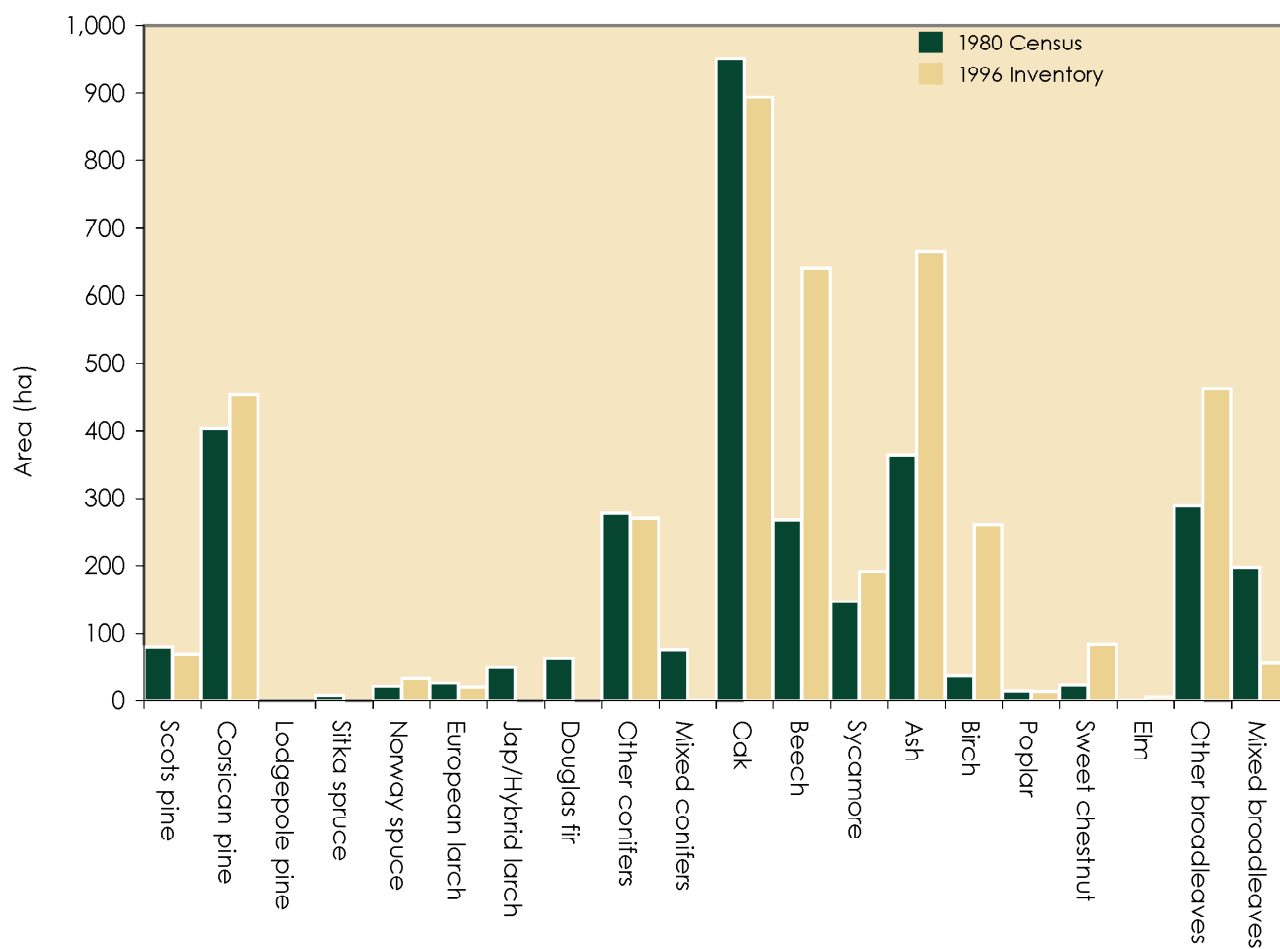


Table 21 Comparison of High Forest Category 1 area by planting year class
between 1980 Census and 1996 Inventory

Planting year class	1980 Census woodland area (ha)	1996 Inventory woodland area (ha)	Change (%)
1991-1996	0	218	see note
1981-1990	0	211	see note
1971-1980	66	155	134
1961-1970	232	450	94
1951-1960	648	411	-37
1941-1950	389	277	-29
1931-1940	299	722	142
1921-1930	282	86	-69
1911-1920	110	519	372
1901-1910	96	69	-28
1861-1900	484	28	-94
Pre 1861	219	36	-84
Total all years	2,824	3,182	13

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

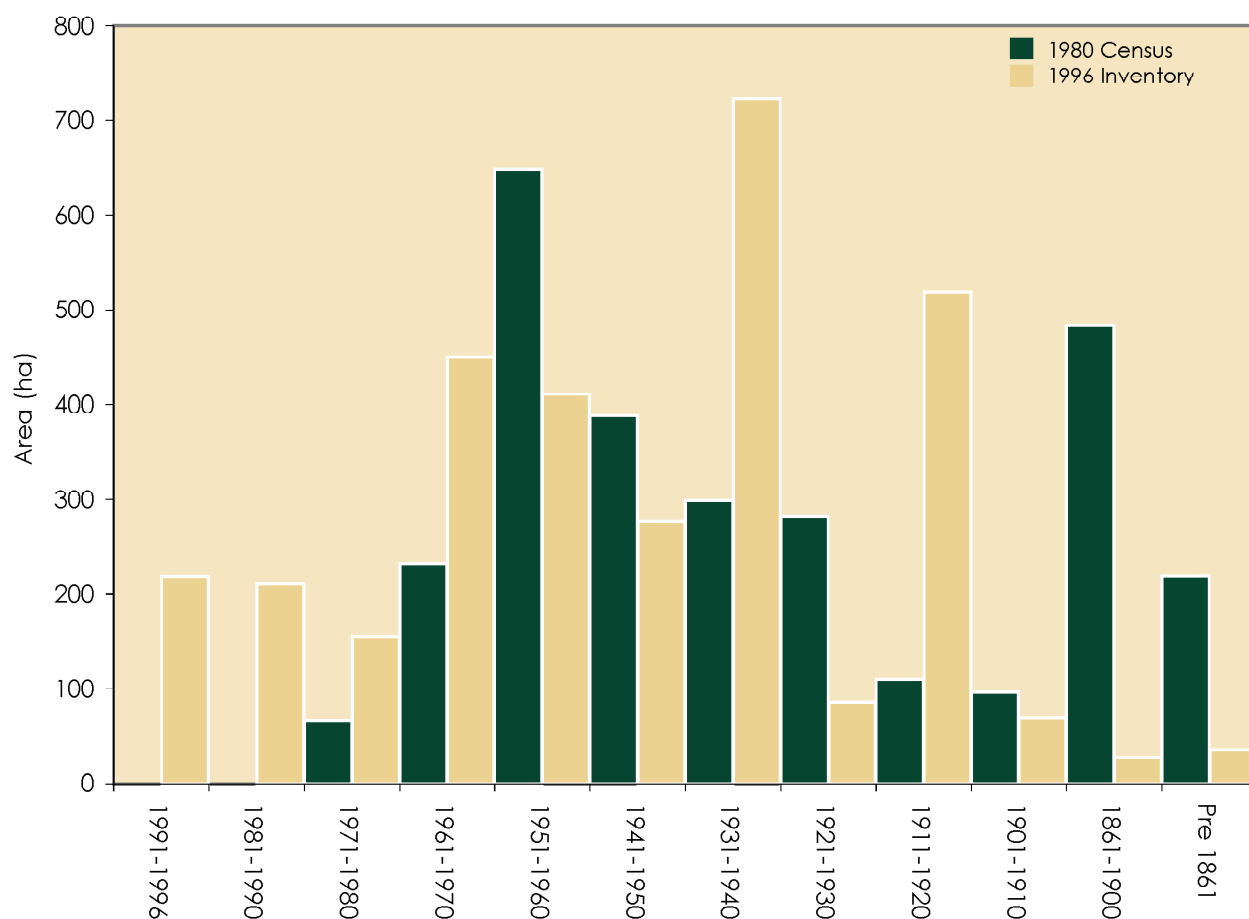


Table 22 Comparison of numbers of live trees outside woodland between 1980 Census and 1996 Inventory (000's)

Feature type	1980 Census	1996 Inventory	Change (%)
Boundary Tree	9	10	15
Middle Tree	12	2	-85
Total Individual Trees	20	12	-42
Groups	34	55	60
Linear Features	81	103	27
Total	136	170	25

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)	53.7	31.0	-42
Groups (per sq km)	14.7	20.0	36
Linear Features (m per sq km)	787.5	1,584.6	101

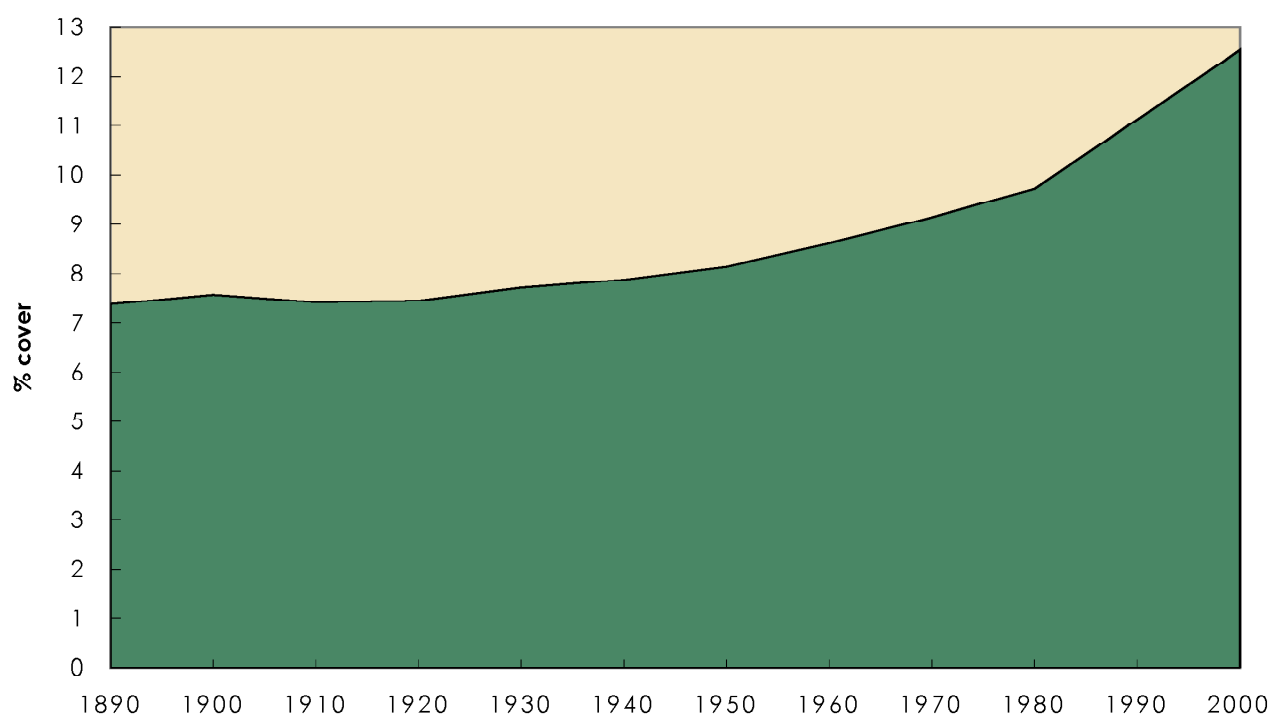
1. The Survey of Small Woodland and Trees did not record information referring to tree features (I.e. Individual trees, Groups and Narrow Linear Features) within developed land.
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WOODLAND COVER

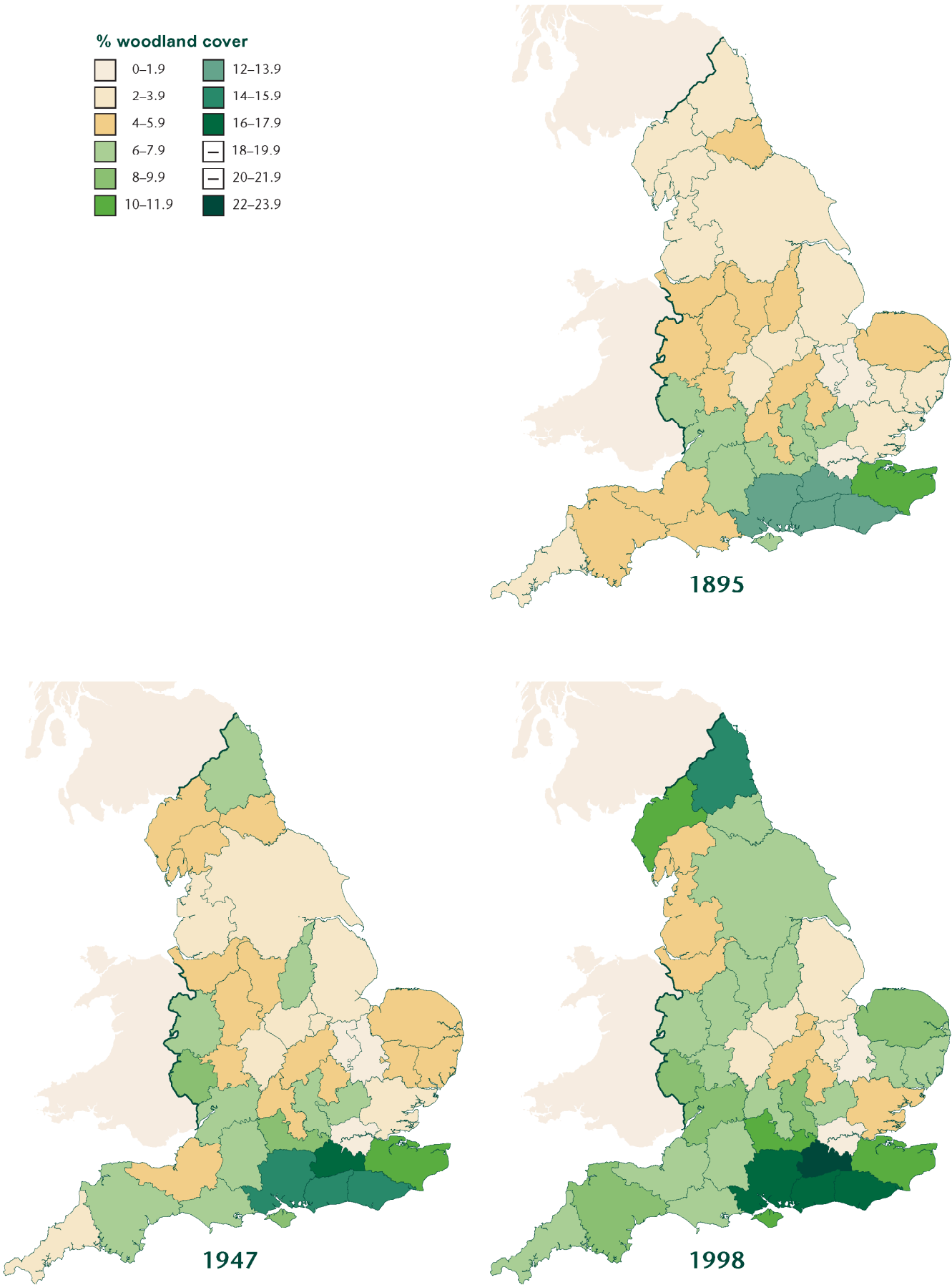
Woodland area data is available from Ministry of Agriculture surveys since 1871, and from Forestry Commission national woodland inventories since 1924. The following chart and maps show the changes in woodland area through time.

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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