



NATIONAL INVENTORY OF WOODLAND AND TREES



ENGLAND

County Report for

NORFOLK



Forestry Commission

Crown Copyright 2002
First Published 2002

Printed in the United Kingdom

Enquiries regarding this report should be directed to:

Head of Woodland Surveys
Forest Research
Forestry Commission
231 Corstorphine Road
Edinburgh
EH12 7AT

Telephone: 0131 314 6122
Email: woodland.surveys@forestry.gsi.gov.uk

CONTENTS

Acknowledgements	v
Introduction	1
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
Summary results from the National Inventory of Woodland and Trees (NIWT)	7
Tables 1 – 5	
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
Results from the Main Woodland Survey (MWS)	13
Tables 6 - 12	
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 1998 Inventory	41
Table 20:	Comparison of High Forest area by species between 1980 Census and 1998 Inventory	42
Chart:	Comparison of High Forest area by species between 1980 Census and 1998 Inventory	43
Table 21:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1998 Inventory	44
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1998 Inventory	45
Table 22:	Comparison of numbers of live trees outside woodland between 1980 Census and 1998 Inventory	46
Table 23:	Comparison of density of non-woodland features between 1980 Census and 1998 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

ACKNOWLEDGEMENTS

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 Norfolk 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 Norfolk 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 Norfolk is 52,740 hectares. This represents 9.8% of the land area. (Table 1)
- Broadleaved woodland is the dominant forest type representing 50.5 % of all woodland. Conifer woodland represents 27.2 %, Mixed woodland 13.5 % and Open Space within woodlands 6.4 %. (Table 2)
- The main conifer species is pine covering 14,218 hectares or 81.1 % of all conifer species. The main broadleaved species is oak covering 7,043 hectares or 23 % of all broadleaved species. (Table 3)
- 13,804 hectares or 31 % of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 30,353 hectares or 69 % of woodland is in Other ownership. (Table 6)
- There are a total of 2191 woods over 2 ha within Norfolk with a mean wood area of 20.3 hectares. (Table 7a) There are a total of 16,110 woods from 0.1 - <2.0 hectares with a mean wood area of 0.53 hectares. (Table 14)
- There are 3.9 million live trees outside woodland in Norfolk. (Table 15)
- Woodland land cover increased by over 9300 hectares from 8.0 % to 9.7 % of the land area between 1980 and 1998. (Table 19)
- The area of broadleaves increased by 63% between 1980 and 1998, with the relative proportion of broadleaves to conifers increasing from 48 % to 63 %. (Table 20)

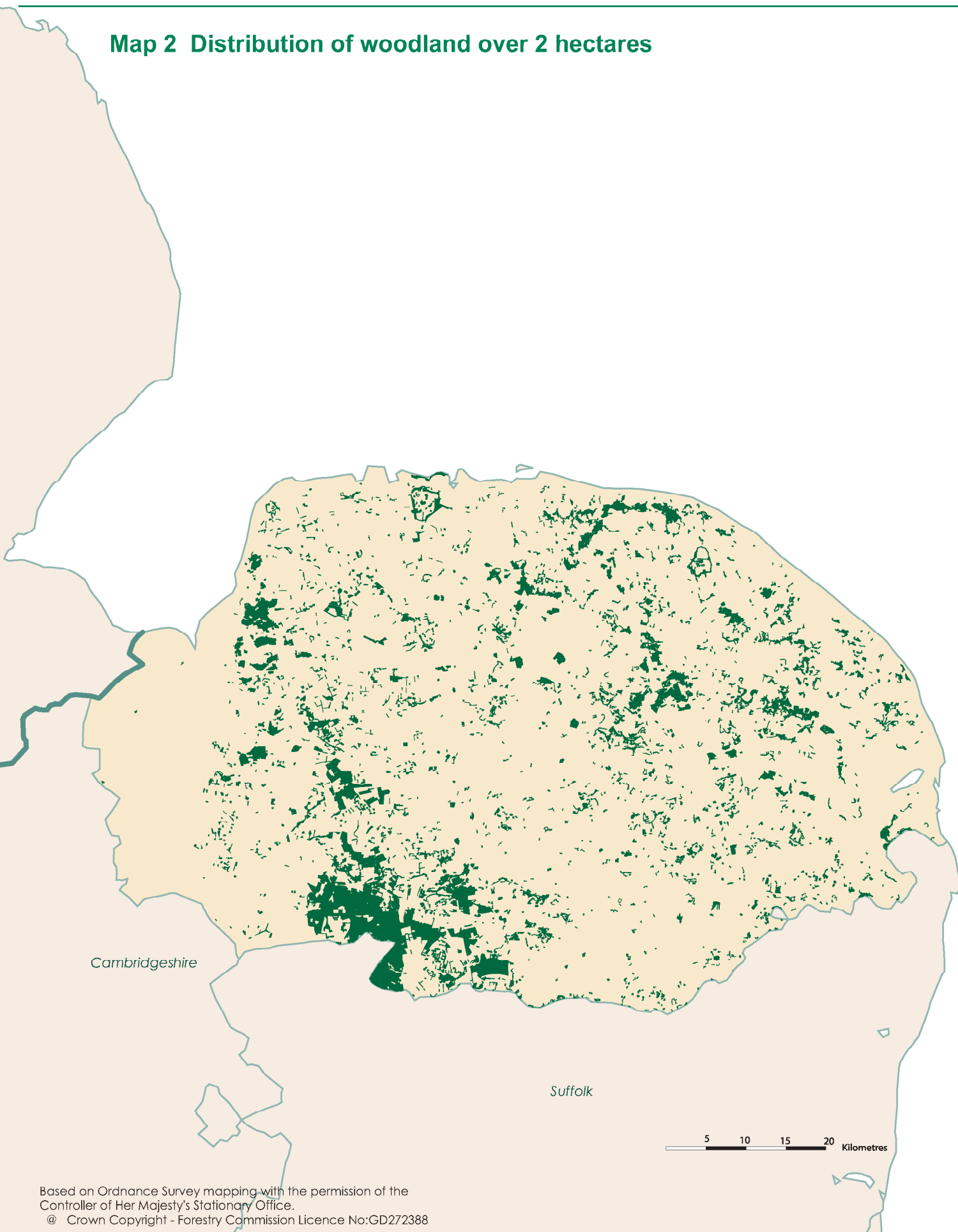
INVENTORY REPORTS

As well as this report for Norfolk, 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.

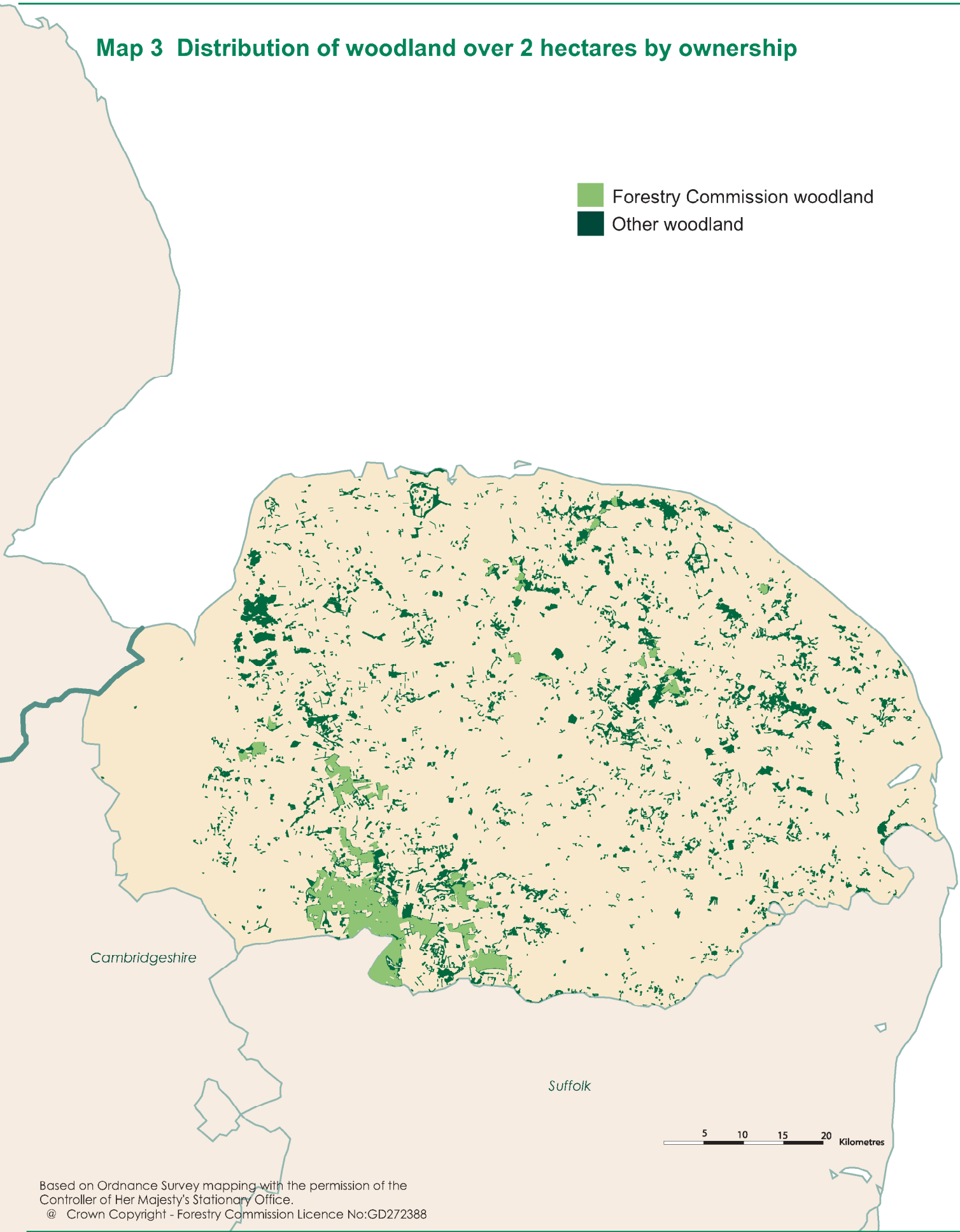
Map 1 Regional and county boundaries



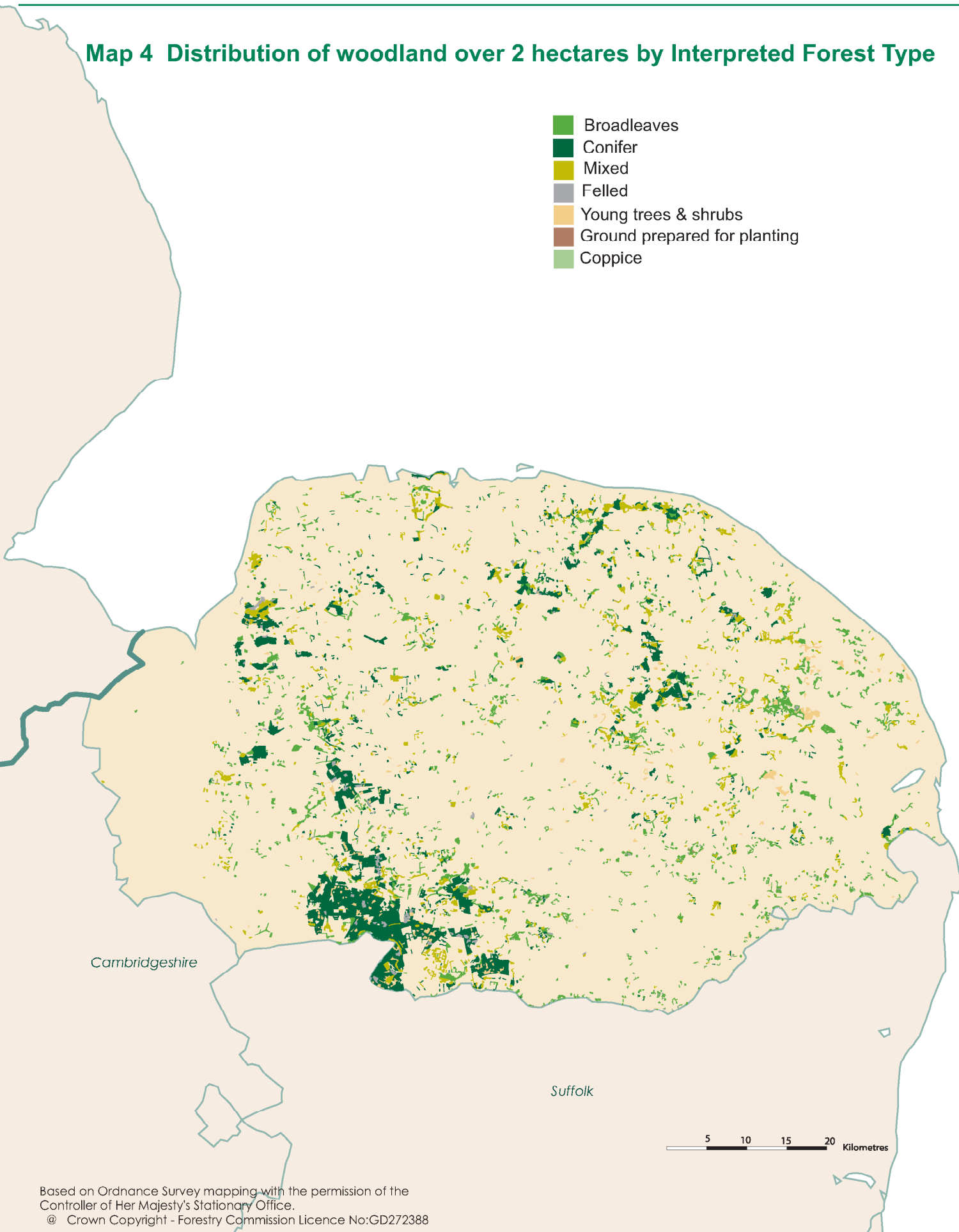
Map 2 Distribution of woodland over 2 hectares



Map 3 Distribution of woodland over 2 hectares by ownership



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



Based on Ordnance Survey mapping with the permission of the
Controller of Her Majesty's Stationary Office.
© Crown Copyright - Forestry Commission Licence No:GD272388

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 Norfolk.

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	44,157	83.7
0.25 - < 2.00	7,889	15.0
0.10 - < 0.25	693	1.3
Total area of woodland	52,740	100.0
% Woodland land cover	9.8	

1. Area of Norfolk, including inland water, 537,234 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	13,225	1,103	14,328	27.2
Broadleaved	20,045	6,586	26,631	50.5
Mixed	6,486	650	7,136	13.5
Coppiced	0	0	0	0.0
Copp-w-standards	332	171	503	1.0
Windblow	0	0	0	0.0
Felled	754	0	754	1.4
Open Space	3,314	73	3,387	6.4
Total	44,157	8,583	52,740	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	13,415	803	14,218	81.1	29.6
Sitka spruce	16	0	16	0.1	0.0
Larch	928	142	1,070	6.1	2.2
Other conifers	1,658	411	2,069	11.8	4.3
Mixed conifers	124	39	163	0.9	0.3
Total conifers	16,140	1,395	17,535	100.0	36.5
Oak	5,427	1,616	7,043	23.0	14.6
Beech	2,095	137	2,232	7.3	4.6
Sycamore	2,931	283	3,214	10.5	6.7
Ash	2,864	944	3,808	12.5	7.9
Birch	2,587	17	2,604	8.5	5.4
Elm	83	241	324	1.1	0.7
Other broadleaves	7,083	2,185	9,268	30.3	19.3
Mixed broadleaves	546	1,521	2,067	6.8	4.3
Total broadleaves	23,616	6,944	30,560	100.0	63.5
Total all species***	39,756	8,339	48,095		100.0

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

**Species/group percentage of all species

***Excludes the 4644ha 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	4%
Broadleaves	3%
Pine	5%
Oak	7%
Sycamore	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	193,800	1,561,600	8	291
Narrow Linear Features	42,900	1,951,100	45	363
Individual Trees	370,300	370,300	1	69
Total		3,883,000		723

1. Land area used to calculate tree density 537,234ha 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	20%
Narrow Linear Features	28%
Individual Trees	15%
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	3,118	546	102
Narrow Linear Features	42,900	2,746	511
Total		3,292	613

1. Land area used to calculate tree density 537,234ha 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	58%
Narrow Linear Features	23%
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	13,804	31
Other	30,353	69
Total area of woodland	44,157	100

1. Woodland area from aerial photographic interpretation map updated to 31 March 1998
2. See Glossary for definitions of ownership types

Woodland area by ownership

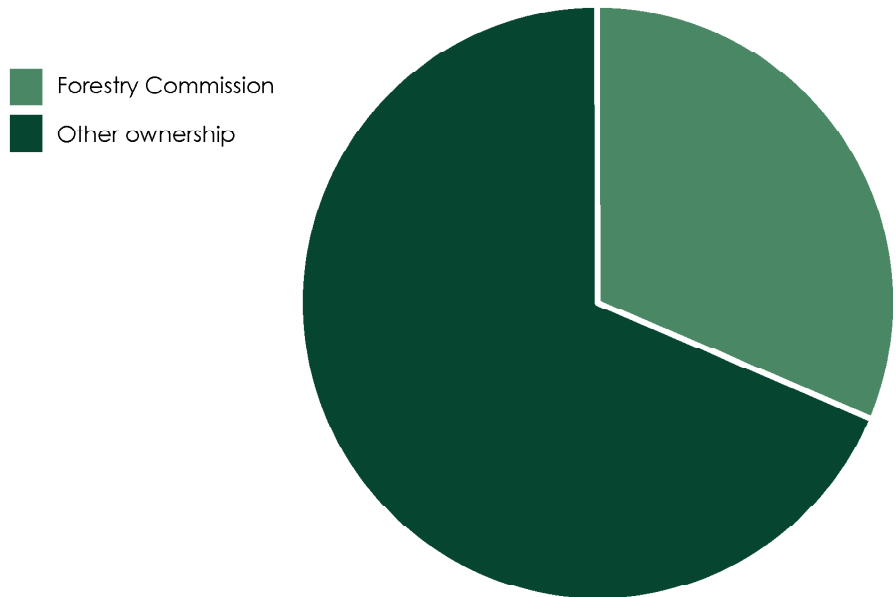


Table 7a Size class distribution of woodland

Size class (ha)	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	1,642	7,156	16	4.4
10 - <20	273	3,838	9	14.1
20 - <50	160	4,774	11	29.8
50 - <100	71	4,853	11	68.4
<100	2,146	20,622	46	9.6
100 - <500	42	8,790	20	209.3
500 and >	8	15,040	34	1880.0
All woods	2,191	44,452	100	20.3

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	14	51	0	5.6
	O	1,755	7,465	17	4.4
10 - <20	FC	2	37	0	18.3
	O	286	4,039	9	14.1
20 - <50	FC	8	269	1	33.6
	O	179	5,401	12	30.2
50 - <100	FC	10	647	1	64.7
	O	73	5,004	11	68.6
<100	FC	34	1,003	2	29.5
	O	2,293	21,909	49	9.6
100 - <500	FC	14	2,362	5	168.7
	O	37	7,599	17	205.4
500 and >	FC	5	10,569	24	2113.8
	O	1	1,010	2	1010.4
Total	FC	53	13,933	31	262.9
	O	2,331	30,519	69	13.1

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 295 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	9,651	69.9	3,574	11.8	13,225	29.9
Broadleaved	1,864	13.5	18,181	59.9	20,045	45.4
Mixed	1,055	7.6	5,431	17.9	6,486	14.7
Coppice	0	0.0	0	0.0	0	0.0
Copp-w-Stds	0	0.0	332	1.1	332	0.8
Windblow	0	0.0	0	0.0	0	0.0
Felled	680	4.9	74	0.2	754	1.7
Open Space	554	4.0	2,760	9.1	3,314	7.5
Total	13,804	100.0	30,353	100.0	44,157	100.0

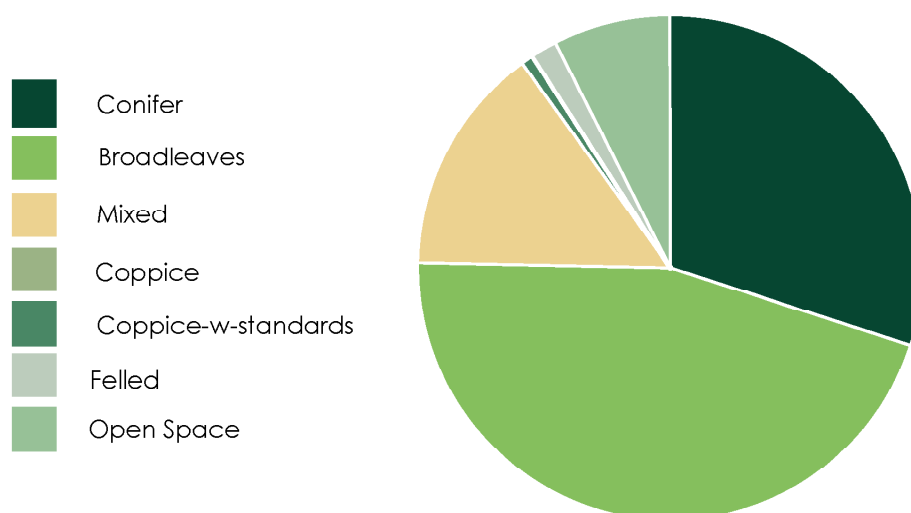
Area of woodland by forest type

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	2,525	25	20	2,539	43	9	5,064	31	13
Corsican pine	6,905	67	55	1,385	23	5	8,290	51	21
Lodgepole pine	61	1	0	0	0	0	61	0	0
Sitka spruce	0	0	0	16	0	0	16	0	0
Norway spruce	0	0	0	368	6	1	368	2	1
European larch	37	0	0	592	10	2	629	4	2
Jap/Hybrid larch	112	1	1	187	3	1	299	2	1
Douglas fir	290	3	2	393	7	1	683	4	2
Other conifers	289	3	2	318	5	1	607	4	2
Mixed conifers	13	0	0	111	2	0	124	1	0
Total conifers	10,232	100	81	5,908	100	22	16,140	100	41
Oak	568	24	5	4,858	23	18	5,427	23	14
Beech	713	30	6	1,382	6	5	2,095	9	5
Sycamore	181	8	1	2,750	13	10	2,931	12	7
Ash	49	2	0	2,815	13	10	2,864	12	7
Birch	400	17	3	2,187	10	8	2,587	11	7
Poplar	210	9	2	781	4	3	991	4	2
Sweet chestnut	12	1	0	1,046	5	4	1,058	4	3
Elm	9	0	0	74	0	0	83	0	0
Other broadleaves	155	7	1	4,879	23	18	5,034	21	13
Mixed broadleaves	40	2	0	506	2	2	546	2	1
Total broadleaves	2,338	100	19	21,278	100	78	23,616	100	59
Total - all species	12,570		100	27,186		100	39,756		100
Felled	680			74			754		
Total High Forest	13,250			27,260			40,510		

*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 3314ha 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	4%
Broadleaves	3%
Corsican pine	6%
Oak	7%
Sycamore	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

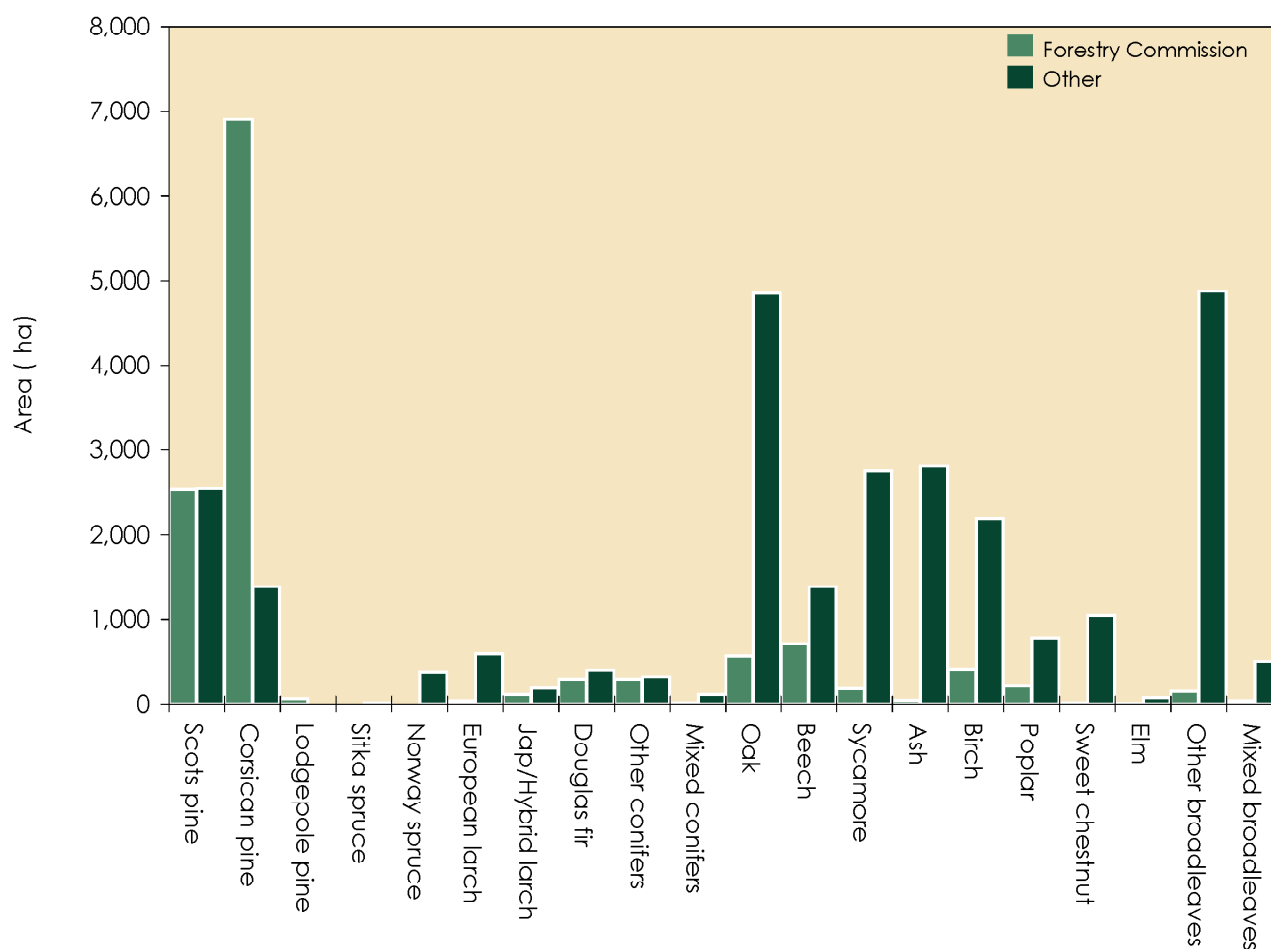


Table 9b Area of High Forest by principal species,ownership and category

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	2,477	47	2,525	2,232	307	2,539	4,709	355	5,064
Corsican pine	6,905	0	6,905	1,364	21	1,385	8,269	21	8,290
Lodgepole pine	61	0	61	0	0	0	61	0	61
Sitka spruce	0	0	0	16	0	16	16	0	16
Norway spruce	0	0	0	368	0	368	368	0	368
European larch	37	0	37	555	37	592	592	37	629
Jap/Hybrid larch	112	0	112	187	0	187	299	0	299
Douglas fir	290	0	290	389	4	393	679	4	683
Other conifers	272	17	289	261	56	318	533	74	607
Mixed conifers	13	0	13	83	28	111	95	28	124
Total conifers	10,168	65	10,232	5,454	454	5,908	15,622	518	16,140
Oak	431	138	568	3,558	1,300	4,858	3,989	1,438	5,427
Beech	597	116	713	1,003	378	1,382	1,600	495	2,095
Sycamore	164	17	181	2,245	505	2,750	2,409	522	2,931
Ash	32	17	49	2,273	541	2,815	2,305	559	2,864
Birch	276	125	400	1,486	700	2,187	1,762	825	2,587
Poplar	180	30	210	718	63	781	898	93	991
Sweet chestnut	8	4	12	782	264	1,046	790	269	1,058
Elm	9	0	9	56	18	74	65	18	83
Other broadleaves	13	142	155	1,507	3,372	4,879	1,520	3,514	5,034
Mixed broadleaves	32	9	40	302	204	506	334	212	546
Total broadleaves	1,739	598	2,338	13,932	7,346	21,278	15,671	7,944	23,616
Total - all species	11,907	663	12,570	19,386	7,800	27,186	31,293	8,463	39,756

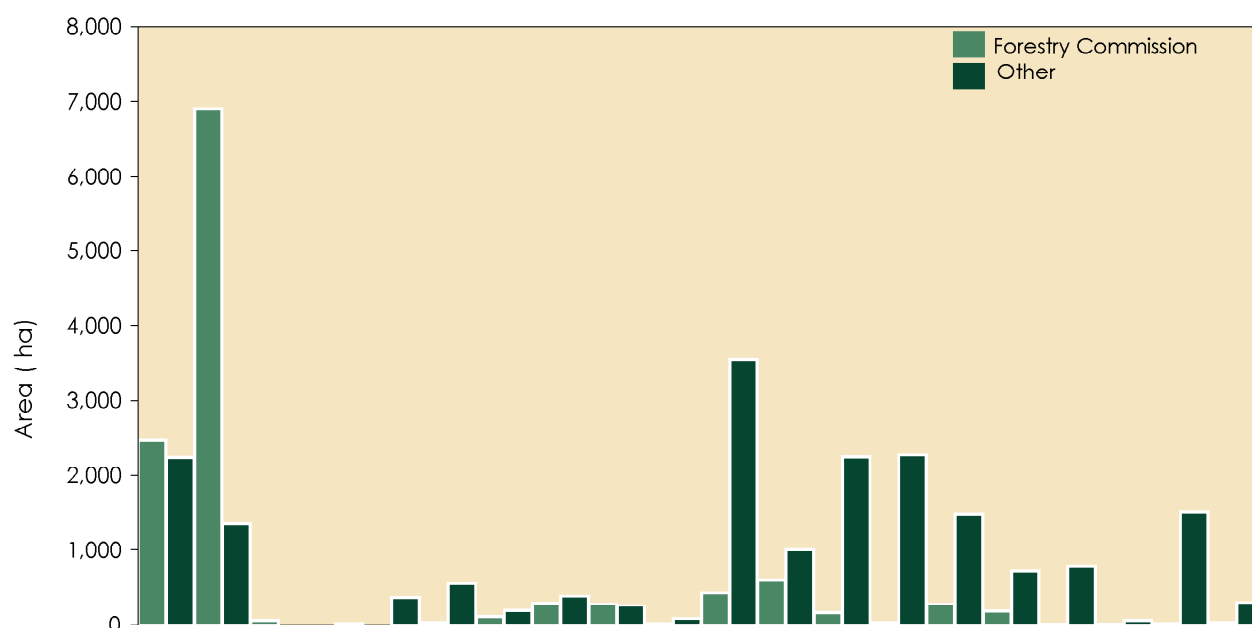
1. The standard errors of the all ownerships area estimates for the most common species or species groups (in all woodland types) are as follows

	Category 1*	Category 2*	Total High Forest	
Conifers	3%	20%	4%	
Broadleaves	4%	5%	3%	
Corsican pine	6%	-	6%	
Oak	8%	12%	7%	
Sycamore	11%	18%	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

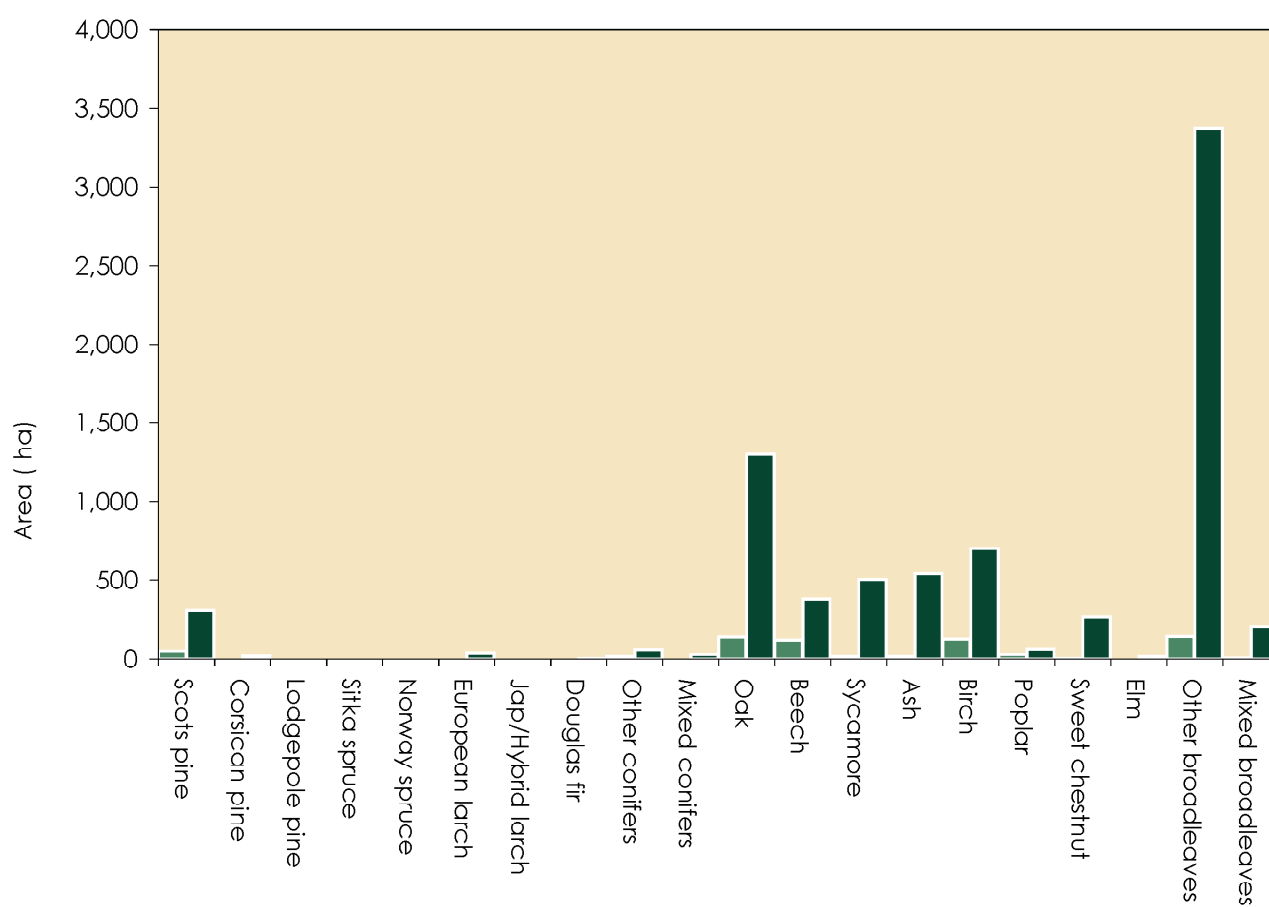
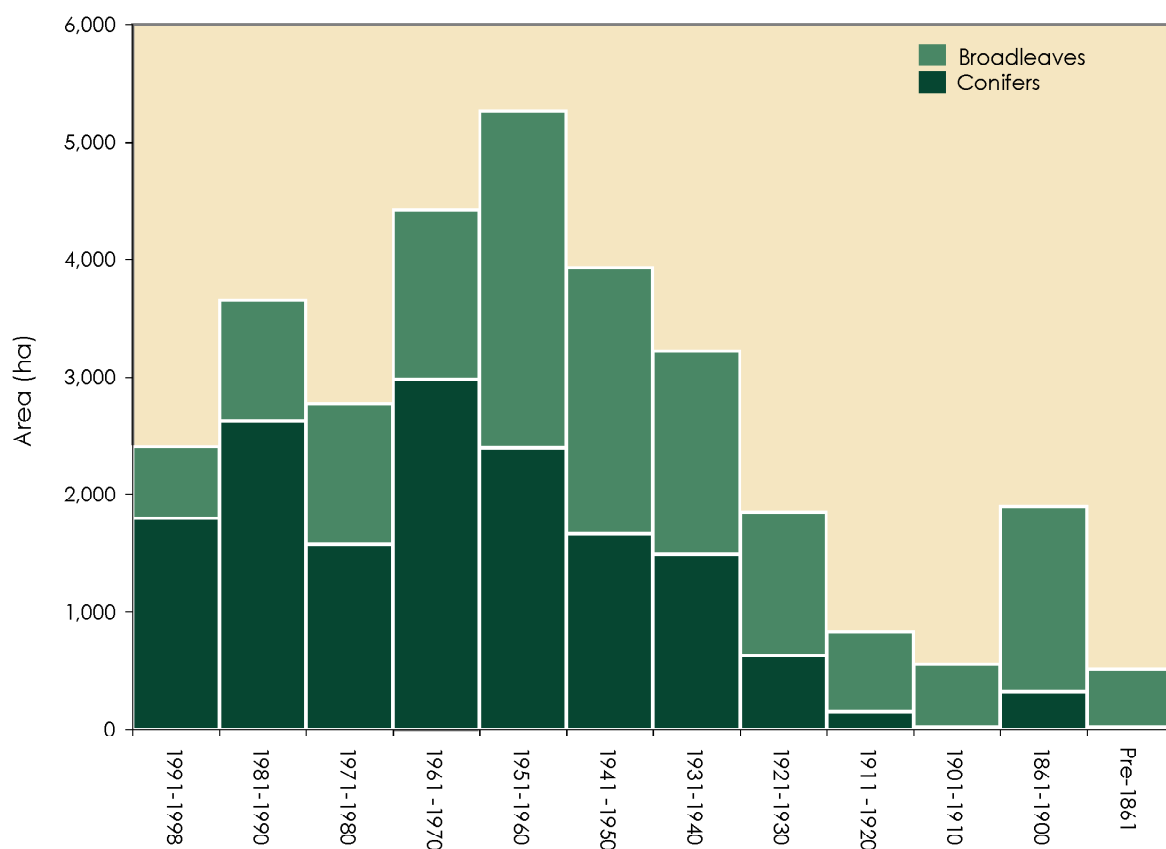


Table 10a High Forest Category 1 - Area by principal species and planting year class

Species	Planting year class*												Total (ha)
	1991-1998	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	293	205	148	959	1,018	774	934	260	55	0	63	0	4,709
Corsican pine	1,467	2,222	1,241	1,298	862	545	330	191	38	4	71	0	8,269
Lodgepole pine	0	0	0	61	0	0	0	0	0	0	0	0	61
Sitka spruce	0	5	0	7	0	3	0	0	0	0	0	0	16
Norway spruce	0	5	115	79	137	0	0	0	10	0	21	0	368
European larch	10	13	0	100	170	71	74	123	21	0	10	0	592
Jap/Hybrid larch	0	26	13	117	26	78	39	0	0	0	0	0	299
Douglas fir	10	31	0	89	102	124	114	54	21	10	122	0	679
Other conifers	10	103	42	218	69	68	0	0	0	0	4	16	533
Mixed conifers	0	9	8	46	8	0	0	0	0	0	23	0	95
Total conifers	1,791	2,621	1,567	2,978	2,393	1,664	1,490	628	145	15	314	16	15,622
Oak	179	287	114	51	303	390	368	277	388	310	944	378	3,989
Beech	0	67	38	186	242	207	193	112	55	168	238	95	1,600
Sycamore	0	103	252	321	752	422	381	152	10	0	15	0	2,409
Ash	89	80	170	205	332	335	352	547	111	21	60	4	2,305
Birch	31	70	190	356	483	377	223	19	15	0	0	0	1,762
Poplar	74	29	47	82	404	202	0	0	39	0	22	0	898
Sweet chestnut	25	136	80	5	34	62	85	51	67	33	210	0	790
Elm	0	9	47	0	9	0	0	0	0	0	0	0	65
Other broadleaves	140	174	229	163	278	243	122	64	0	0	84	20	1,520
Mixed broadleaves	71	79	32	69	36	28	8	0	0	5	5	0	334
Total broadleaves	610	1,035	1,200	1,439	2,873	2,267	1,732	1,222	684	537	1,577	497	15,671
Total - all species	2,401	3,656	2,767	4,416	5,266	3,931	3,222	1,850	829	552	1,891	513	31,293

*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

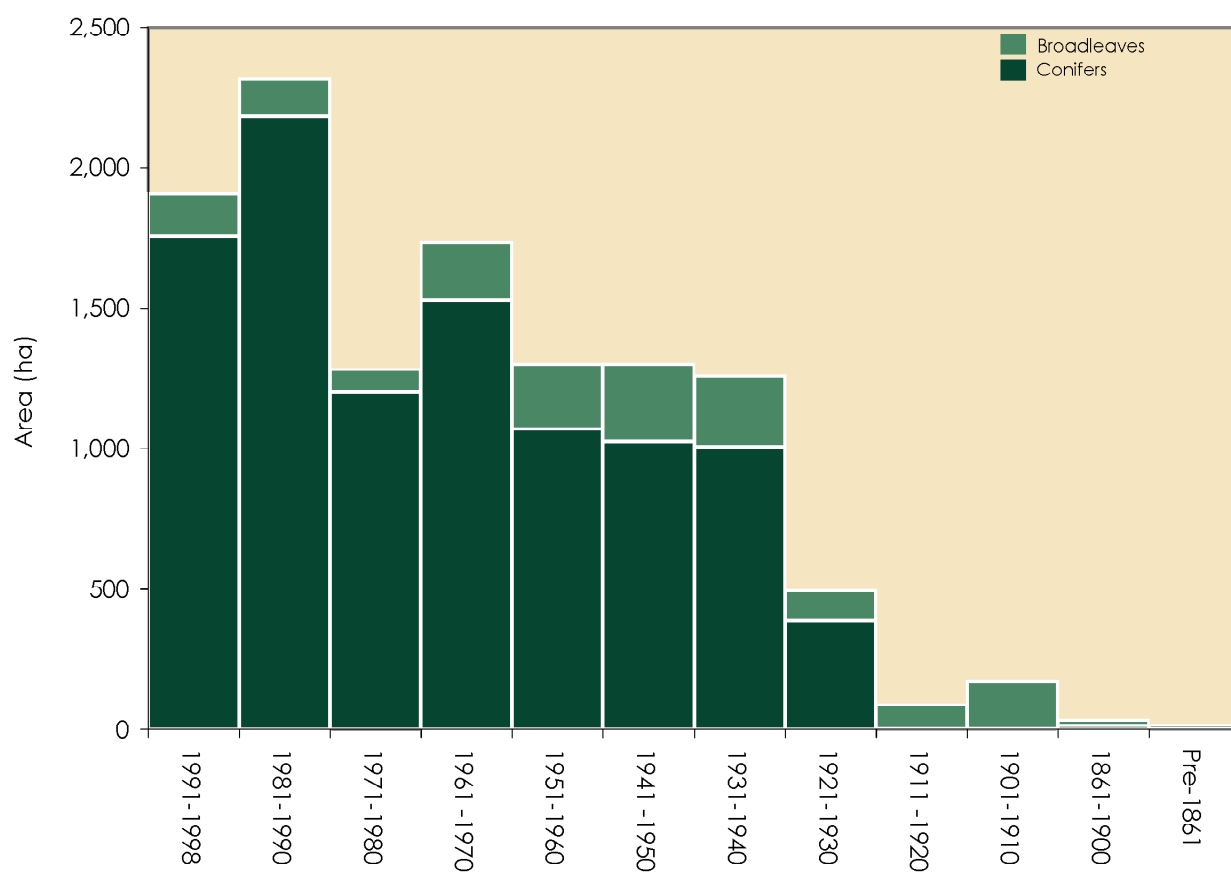


1. Most of the planting year classes cover 10 years, 1991-1998 is 8 years, and the classes prior to 1901 are 40 years or more.

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

Species	Planting year class*												Total (ha)
	1991-1998	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	293	159	77	237	418	456	661	177	0	0	0	0	2,477
Corsican pine	1,462	2,023	1,124	1,001	574	335	219	168	0	0	0	0	6,905
Lodgepole pine	0	0	0	61	0	0	0	0	0	0	0	0	61
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	16	12	9	0	0	0	0	37
Jap/Hybrid larch	0	0	0	0	0	73	39	0	0	0	0	0	112
Douglas fir	0	0	0	47	34	84	77	34	0	0	13	0	290
Other conifers	0	0	0	167	43	62	0	0	0	0	0	0	272
Mixed conifers	0	0	0	13	0	0	0	0	0	0	0	0	13
Total conifers	1,755	2,182	1,201	1,526	1,069	1,026	1,008	387	0	0	13	0	10,232
Oak	62	47	4	0	43	127	34	87	4	4	0	17	431
Beech	0	4	0	137	86	59	82	17	43	168	0	0	597
Sycamore	0	52	4	13	30	4	56	4	0	0	0	0	164
Ash	0	0	0	6	9	17	0	0	0	0	0	0	32
Birch	26	26	56	43	26	22	77	0	0	0	0	0	276
Poplar	55	0	9	4	26	26	0	0	39	0	22	0	180
Sweet chestnut	3	0	0	0	0	0	0	0	4	0	0	0	8
Elm	0	0	0	0	9	0	0	0	0	0	0	0	9
Other broadleaves	0	0	9	0	4	0	0	0	0	0	0	0	13
Mixed broadleaves	4	3	0	4	0	20	0	0	0	0	0	0	32
Total broadleaves	151	133	82	208	232	275	250	108	90	172	22	17	1,739
Total - all species	1,906	2,315	1,283	1,733	1,302	1,300	1,258	496	90	172	34	17	11,907

*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

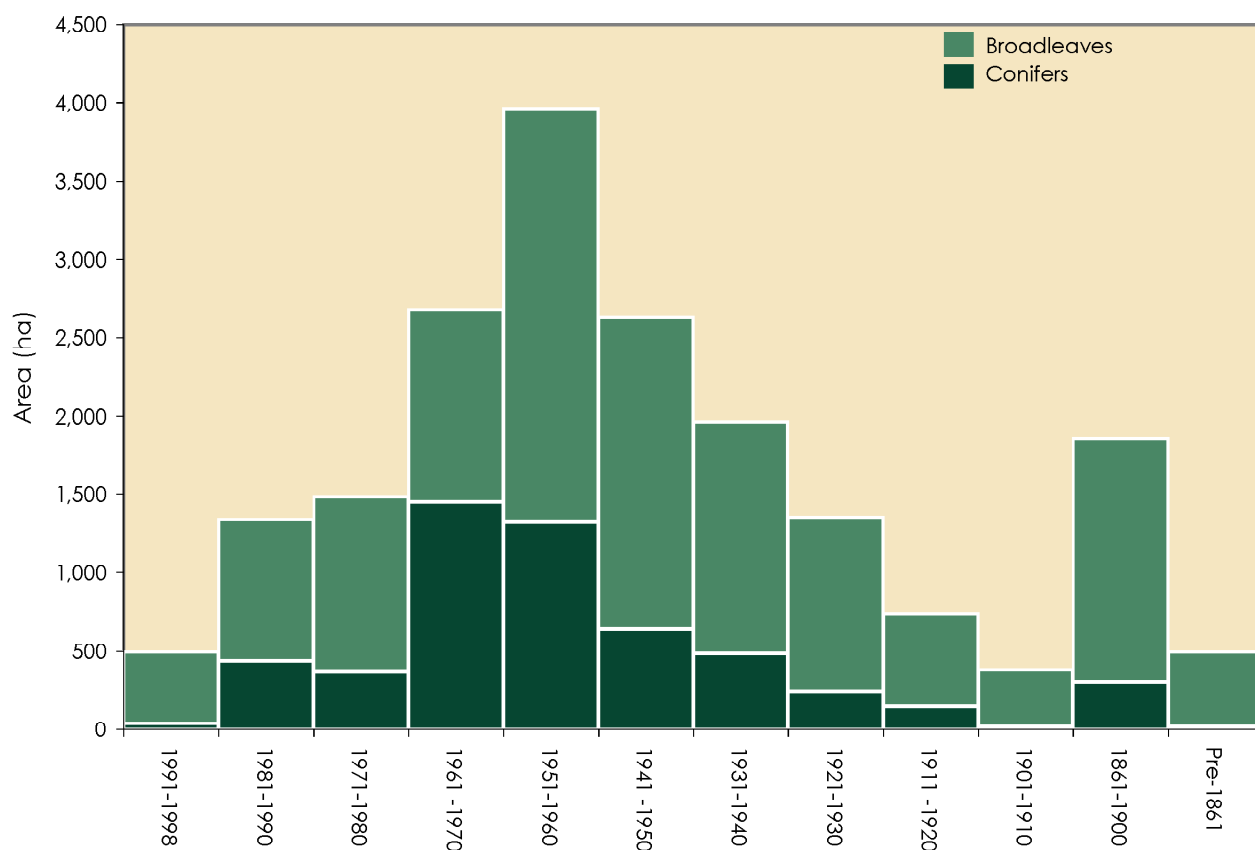
1. Most of the planting year classes cover 10 years, 1991-1998 is 8 years, and the classes prior to 1901 are 40 years or more.

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

Species	Planting year class*												Total (ha)
	1991-1998	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	46	70	722	600	319	273	84	55	0	63	0	2,232
Corsican pine	5	200	117	298	287	210	111	23	38	4	71	0	1,364
Lodgepole pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Silka spruce	0	5	0	7	0	3	0	0	0	0	0	0	16
Norway spruce	0	5	115	79	137	0	0	0	10	0	21	0	368
European larch	10	13	0	100	170	54	62	114	21	0	10	0	555
Jap/Hybrid larch	0	26	13	117	26	5	0	0	0	0	0	0	187
Douglas fir	10	31	0	42	68	41	37	20	21	10	109	0	389
Other conifers	10	103	42	51	26	6	0	0	0	0	4	16	261
Mixed conifers	0	9	8	33	8	0	0	0	0	0	23	0	83
Total conifers	37	439	366	1,452	1,323	639	482	240	145	15	301	16	5,454
Oak	117	239	110	51	260	263	333	190	384	305	944	361	3,558
Beech	0	63	38	49	156	147	111	95	11	0	238	95	1,003
Sycamore	0	51	248	308	722	418	325	147	10	0	15	0	2,245
Ash	89	80	170	199	323	318	352	547	111	21	60	4	2,273
Birch	5	44	134	313	457	355	145	19	15	0	0	0	1,486
Poplar	19	29	38	78	378	176	0	0	0	0	0	0	718
Sweet chestnut	22	136	80	5	34	62	85	51	63	33	210	0	782
Elm	0	9	47	0	0	0	0	0	0	0	0	0	56
Other broadleaves	140	174	220	163	273	243	122	64	0	0	84	20	1,507
Mixed broadleaves	67	75	32	65	36	8	8	0	0	5	5	0	302
Total broadleaves	495	902	1,118	1,231	2,640	1,992	1,482	1,113	594	365	1,555	480	13,932
Total - all species	495	1,341	1,484	2,683	3,964	2,631	1,964	1,354	739	379	1,856	495	19,386

*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, 1991-1998 is 8 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	Corsican pine	61	Scots pine	12	Oak	7
1981-90	Corsican pine	59	Oak	8	Other broadleaves	6
1971-80	Corsican pine	43	Other broadleaves	9	Sycamore	9
1961-70	Corsican pine	24	Scots pine	19	Other broadleaves	12
1951-60	Other broadleaves	21	Scots pine	15	Corsican pine	12
1941-50	Other broadleaves	17	Scots pine	16	Sycamore	10
1931-40	Other broadleaves	21	Scots pine	20	Oak	10
1921-30	Ash	25	Oak	16	Scots pine	14
1911-20	Oak	47	Ash	12	Sweet chestnut	7
1901-10	Oak	53	Beech	30	Sweet chestnut	8
1861-1900	Oak	53	Beech	14	Sweet chestnut	10
Pre 1861	Oak	74	Beech	18	Other broadleaves	3
All years	Corsican pine	21	Oak	14	Scots pine	13

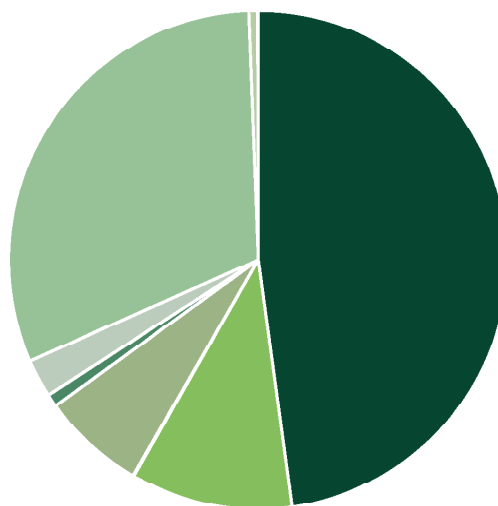
1. Principal species as a percentage of area in the planting year class.

Table 12 Ownership type* by area and percentage

Ownership type	Area (ha)	%
Personal	21,101	47.8
Business	4,627	10.5
Forestry or timber business	0	0.0
Charity	2,976	6.7
Local Authority	356	0.8
Other public (not FC)	1,080	2.4
Forestry Commission	13,804	31.3
Community ownership or common land	212	0.5
Unidentified	0	0.0
Total	44,157	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	12,992	7,180	Area (ha)
Wide Linear Features	3,118	1,403	Area (ha)
Wide Linear Features	3,118	546	Length (Km)
Narrow Linear Features	42,900	2,746	Length (Km)
Narrow Linear Features	42,900	1,951,100	Number of live trees
Groups	193,800	1,561,600	Number of live trees
Individual Trees	370,300	370,300	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	615	6,564	7,180	12,992	0.55
Wide Linear Features	78	1,325	1,403	3,118	0.45
Total	693	7,889	8,583	16,110	0.53

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	0.8	29.9	166.0	197.5	57.7	5.1
Spruce	3.2	0.0	6.3	0.8	10.3	3.0	0.3
Larch	0.0	0.0	0.8	2.3	3.1	0.9	0.1
Cypress	4.7	0.0	47.3	69.4	121.4	35.4	3.1
Other conifers	0.8	2.4	4.7	2.3	10.2	3.0	0.3
Total conifers	9.5	3.2	89.0	240.9	342.5	100.0	8.8
Oak	135.5	17.3	115.8	147.3	415.9	11.7	10.7
Beech	8.7	0.8	26.0	8.6	44.1	1.2	1.1
Sycamore	4.7	0.8	131.6	46.0	183.1	5.2	4.7
Ash	46.5	2.4	145.8	417.8	612.5	17.3	15.8
Birch	5.5	4.7	41.0	34.3	85.5	2.4	2.2
Poplar	5.5	1.6	35.5	26.5	69.1	2.0	1.8
Sweet chestnut	3.9	0.0	0.0	0.0	3.9	0.1	0.1
Horse chestnut	0.0	2.4	9.5	6.2	18.1	0.5	0.5
Alder	8.7	3.2	11.0	135.6	158.5	4.5	4.1
Lime	0.8	0.0	0.8	0.0	1.6	0.0	0.0
Elm	8.7	0.0	78.0	32.7	119.4	3.4	3.1
Willow	11.0	3.9	130.0	148.1	293.0	8.3	7.5
Other broadleaves	61.0	20.1	747.7	707.0	1535.8	43.4	39.6
Total broadleaves	300.5	57.2	1472.6	1710.2	3540.5	100.0	91.2
Total - all species	310.0	60.4	1561.6	1951.1	3883.0		100.0

- 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	15%
Groups	20%
Narrow Linear Features	28%
- 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	17.9	17.9	88.2	26.3
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	2.3	2.3	11.3	3.4
Other conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total conifers	0.0	0.0	0.0	20.3	20.3	100.0	29.8
Oak	0.8	0.8	0.0	1.6	3.2	6.6	4.7
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	0.8	0.8	1.7	1.2
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	1.6	1.6	3.3	2.3
Lime	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm	3.2	0.0	7.9	5.5	16.6	34.4	24.4
Willow	0.0	0.0	0.8	0.0	0.8	1.7	1.2
Other broadleaves	1.6	1.6	14.2	7.8	25.2	52.3	37.0
Total broadleaves	5.6	2.4	22.8	17.1	48.2	100.0	70.8
Total - all species	5.6	2.4	22.8	37.4	68.1		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	15.0	179.5	3.1	0.0	197.6
Spruce	0.0	10.2	0.0	0.0	10.2
Larch	0.0	0.8	2.3	0.0	3.1
Cypress	16.5	103.3	1.6	0.0	121.4
Other conifers	2.4	7.9	0.0	0.0	10.3
Total conifers	33.9	301.7	7.0	0.0	342.6
Oak	95.7	222.0	69.2	29.1	416.0
Beech	4.7	27.5	11.8	0.0	44.0
Sycamore	83.5	91.8	6.3	1.6	183.2
Ash	139.2	447.2	25.1	0.8	612.3
Birch	24.4	61.1	0.0	0.0	85.5
Poplar	3.2	58.8	7.0	0.0	69.0
Sweet chestnut	3.9	0.0	0.0	0.0	3.9
Horse chestnut	1.6	14.9	1.6	0.0	18.1
Alder	8.6	132.7	17.2	0.0	158.5
Lime	0.0	0.8	0.8	0.0	1.6
Elm	38.5	75.4	5.5	0.0	119.4
Willow	112.1	173.9	4.7	2.4	293.1
Other broadleaves	963.1	571.2	1.6	0.0	1,535.9
Total broadleaves	1,478.5	1,877.3	150.8	33.8	3,540.5
Total - all species	1,512.4	2,179.0	157.8	33.8	3,883.0

Table 18 Number of Groups by group size

Number of trees per Group*	Number of Groups (000's)
2	23
3-5	63
6-10	43
11-20	34
21-50	25
51-100	5
>100	2
Total	194

*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 1998 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 1998 Inventory
Table 20:	Comparison of High Forest area by species between 1980 Census and 1998 Inventory
Chart:	Comparison of High Forest area by species between 1980 Census and 1998 Inventory
Table 21:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1998 Inventory
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1998 Inventory
Table 22:	Comparison of numbers of live trees outside woodland between 1980 Census and 1998 Inventory
Table 23:	Comparison of density of non-woodland features between 1980 Census and 1998 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 1998 Inventory

Woodland size (ha)	1980 Census woodland area		1998 Inventory woodland area		Change (%)
	(ha)	(%)	(ha)	(%)	(%)
2.0 or more	39,398	92.3	44,157	84.8	12
0.25 - <2.0	3,299	7.7	7,889	15.2	139
Total	42,697		52,046		22
% Woodland land cover	8.0		9.7		

1. Differences in sampling methodology may account for some of the apparent differences.
2. The above figures from the 1998 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1998 figures above will therefore not match those in the previous sections of the report.
3. Land area used to calculate woodland cover percent (1998), 537,234 ha, was based on the 1991 Census of Population digital boundaries.
4. Land area used to calculate woodland cover percent (1980), 536,823ha, (Ordnance Survey data)

Table 20 Comparison of High Forest area by species between 1980 Census and 1998 Inventory

Species	1980 Census woodland area (ha)	1998 Inventory woodland area (ha)	Change (%)
Scots pine	9,991	5,418	-46
Corsican pine	6,388	8,666	36
Lodgepole pine	43	61	42
Sitka spruce	54	16	-71
Norway spruce	1,098	607	-45
European larch	817	668	-18
Jap/Hybrid larch	104	402	287
Douglas fir	656	683	4
Other conifers	348	692	99
Mixed conifers	792	163	-79
Total conifers	20,291	17,376	-14
Oak	4,203	7,009	67
Beech	1,003	2,180	117
Sycamore	865	3,197	270
Ash	1,108	3,740	238
Birch	1,508	2,604	73
Poplar	1,819	1,196	-34
Sweet chestnut	583	1,468	152
Elm	220	307	40
Other broadleaves	5,138	6,411	25
Mixed broadleaves	1,935	1,914	-1
Total broadleaves	18,382	30,026	63
Total all species	38,672	47,402	23
Felled	887	754	-15
Total High Forest	39,559	48,156	22

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 6.4% (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 6.4%.
3. The above figures from the 1998 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1998 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 1998 Inventory

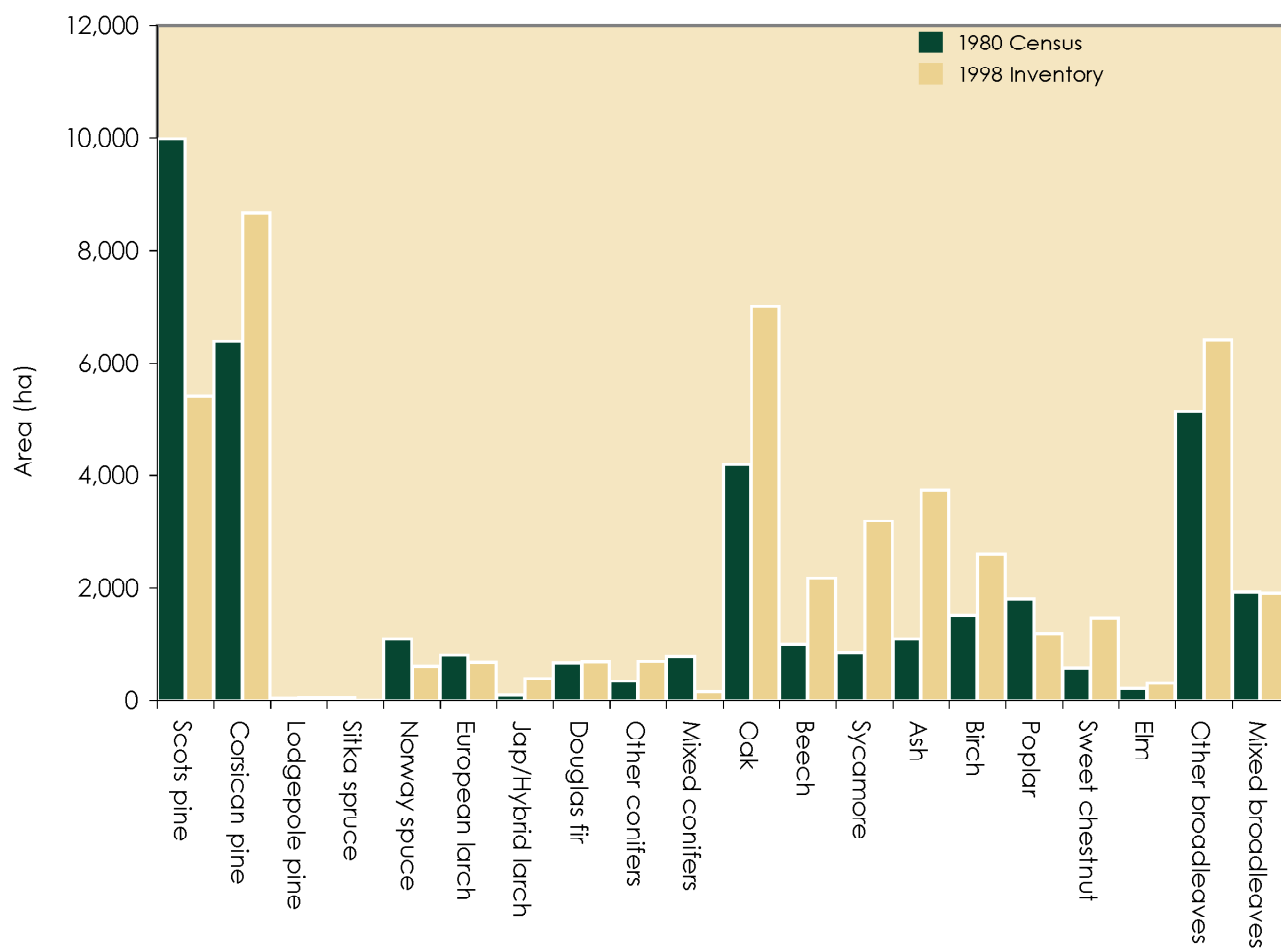


Table 21 Comparison of High Forest Category 1 area by planting year class
between 1980 Census and 1998 Inventory

Planting year class	1980 Census woodland area (ha)	1998 Inventory woodland area (ha)	Change (%)
1991-1998	0	3,615	see note
1981-1990	0	5,348	see note
1971-1980	2,610	3,897	49
1961-1970	5,690	4,537	-20
1951-1960	4,554	5,266	16
1941-1950	4,592	4,385	-5
1931-1940	3,949	3,393	-14
1921-1930	6,082	1,850	-70
1911-1920	1,185	829	-30
1901-1910	1,567	620	-60
1861-1900	2,691	2,062	-23
Pre 1861	1,466	718	-51
Total all years	34,387	36,520	6

1. The first two classes, 1991-1998 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 1998 Inventory

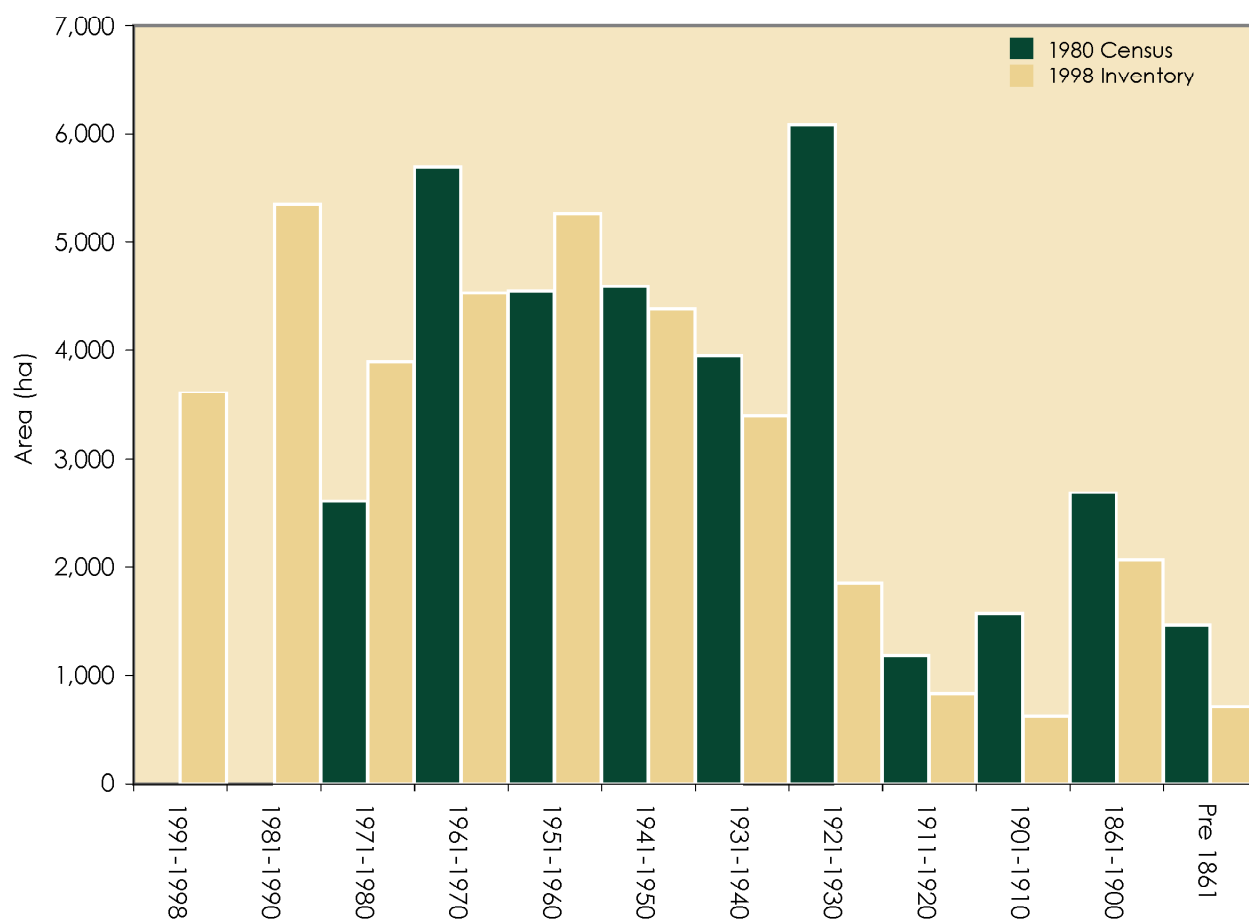


Table 22 Comparison of numbers of live trees outside woodland between 1980 Census and 1998 Inventory (000's)

Feature type	1980 Census	1998 Inventory	Change (%)
Boundary Tree	151	286	89
Middle Tree	270	47	-83
Total Individual Trees	421	332	-21
Groups	407	894	120
Linear Features	341	1,341	293
Total	1,169	2,567	120

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 1998 Inventory figures have been adjusted accordingly. The 1998 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 1998 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1998 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 1998 Inventory

Feature type	1980 Census	1998 Inventory	Change (%)
Individual Trees (per sq km)	78.4	61.9	-21
Groups (per sq km)	14.3	24.6	72
Linear Features (m per sq km)	217.9	504.8	132

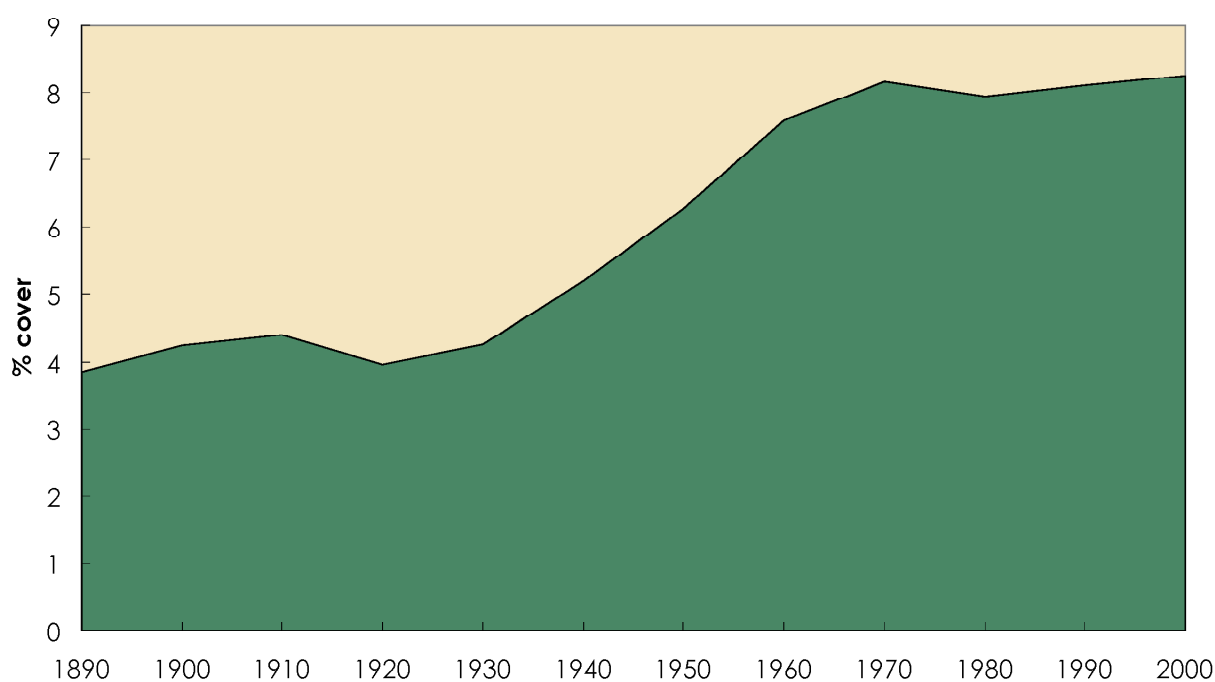
1. The Survey of Small Woodland and Trees did not record information referring to tree features (I.e. Individual trees, Groups and Narrow Linear Features) within developed land.
2. In the 1980 Census hazel, hawthorn, blackthorn and goat willow were excluded, the 1998 Inventory figures have been adjusted accordingly. The 1998 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 1998 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1998 used 2m height, as minimum criteria for inclusion.
4. See Glossary for definitions of feature type.

WOODLAND COVER

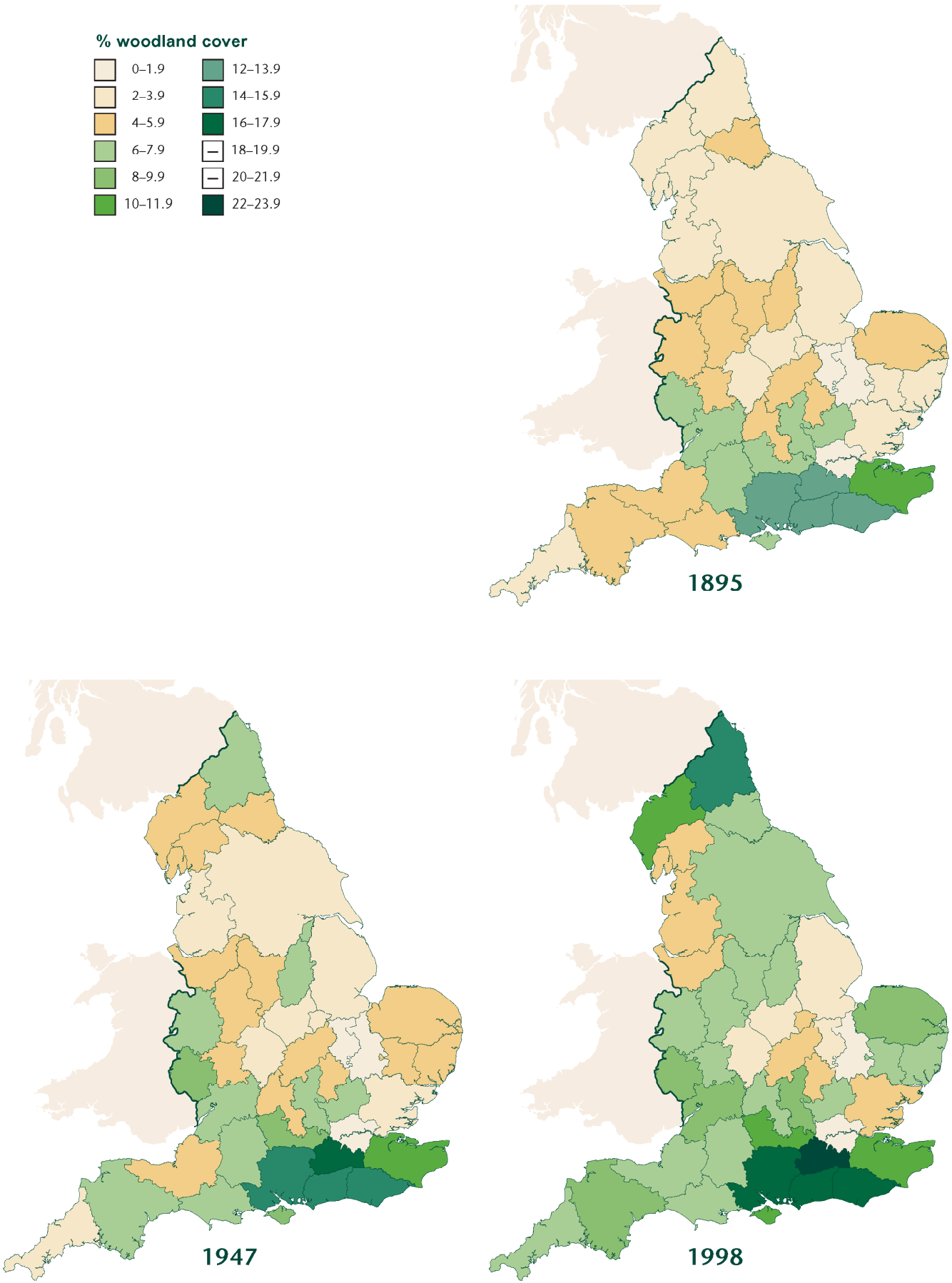
Woodland area data is available from Ministry of Agriculture surveys since 1871, and from Forestry Commission national woodland inventories since 1924. The following chart and maps show the changes in woodland area through time.

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

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



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



GLOSSARY

Woodland

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

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

Interpreted Forest Types

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

High Forest

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

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

Mixtures

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

Forest Types

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

- **Coppice**

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

- **Coppice with Standards**

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

- **Felled**

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

- **Windblow**

Areas of blown woodland which remain uncleared and not regenerated.

- **Open Space**

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

Ownership types

- **Other Ownership**

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

- **Personal**

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

- **Private forestry or timber business**

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

- **Other private business**

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

- **Local Authority**

Region, County, District or other Council

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

Government department/agency, nationalised industry, etc.

- **Charitable organisations**

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

- Community ownership or common land

the common property of all members of the community.

- **Forestry Commission**

Land owned by or land leased to the Forestry Commission

Feature types

- **Small Wood**

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

- **Group**

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

- **Individual Tree**

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

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

- **Linear Feature**

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

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

NOTES



Forestry Commission
231 Corstorphine Road
Edinburgh
EH12 7AT

www.forestry.gov.uk