National Inventory of Woodland and Trees

of Woodland and Trees

England

County Report for

Merseyside

Forestry Commission

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ACKNOWLEDGEMENTS

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INTRODUCTION

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

The Inventory consists of two separate surveys -

- The Main Woodland Survey (MWS) covering woodlands of 2 hectares and over

- The Survey of Small Woodland and Trees (SSWT) covering Small Woods, Groups of Trees, Linear Features and Individual Trees.

BACKGROUND

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 With the statistics becoming increasingly out of date the Forestry Commission decided to undertake a new survey: the *National Inventory of Woodland and Trees*.

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

SURVEY METHODS

Main Woodland Survey

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

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

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

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

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

Survey of Small Woodland and Trees_

The land area of England was stratified into coastal and inland 1 km x 1 km squares and a random sample of 1 km^2 plots were then selected, representing around 1% of the land area. 1:25 000 scale aerial photos were then used to identify features in each sample square. Each 1 km^2 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 Merseyside is 2,478 hectares. This represents 3.8% of the land area. (Table 1)

- Broadleaved woodland is the dominant forest type representing 76.3 % of all woodland. Conifer woodland represents 5.1 %, Mixed woodland 15.7 % and Open Space within woodlands 2.9 %. (Table 2)

- The main conifer species is larch covering 125 hectares or 44.5 % of all conifer species. The main broadleaved species is oak covering 627 hectares or 29.5 % of all broadleaved species. (Table 3)

- There are a total of 226 woods over 2 ha within Merseyside with a mean wood area of 10.6 hectares. (Table 7a) There are a total of 271 woods from 0.1 - <2.0 hectares with a mean wood area of 0.27 hectares. (Table 14)

- There are 279 thousand live trees outside woodland in Merseyside. (Table 15)

- Woodland land cover increased by over 780 hectares from 2.6 % to 3.8 % of the land area between 1980 and 1998. (Table 19)

- The area of broadleaves increased by 64% between 1980 and 1998, with the relative proportion of broadleaves to conifers increasing from 79 % to 88 %. (Table 20)

INVENTORY REPORTS

As well as this report for Merseyside, 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

North East
Region

Cumbria

Yorkshire and the
Humber Region

Lancashire

Greater
Manchester

Merseyside

Cheshire

East Midlands
Region

West Midlands
Region

5 10 15 20 Kilometres

Map 2 Distribution of woodland over 2 hectares

Lancashire

Greater Manchester

Cheshire

5 10 15 20
Kilometres

Reference Date 31 March 1998

Map 3 Distribution of woodland over 2 hectares by ownership

Forestry Commission woodland (none present)

Other woodland
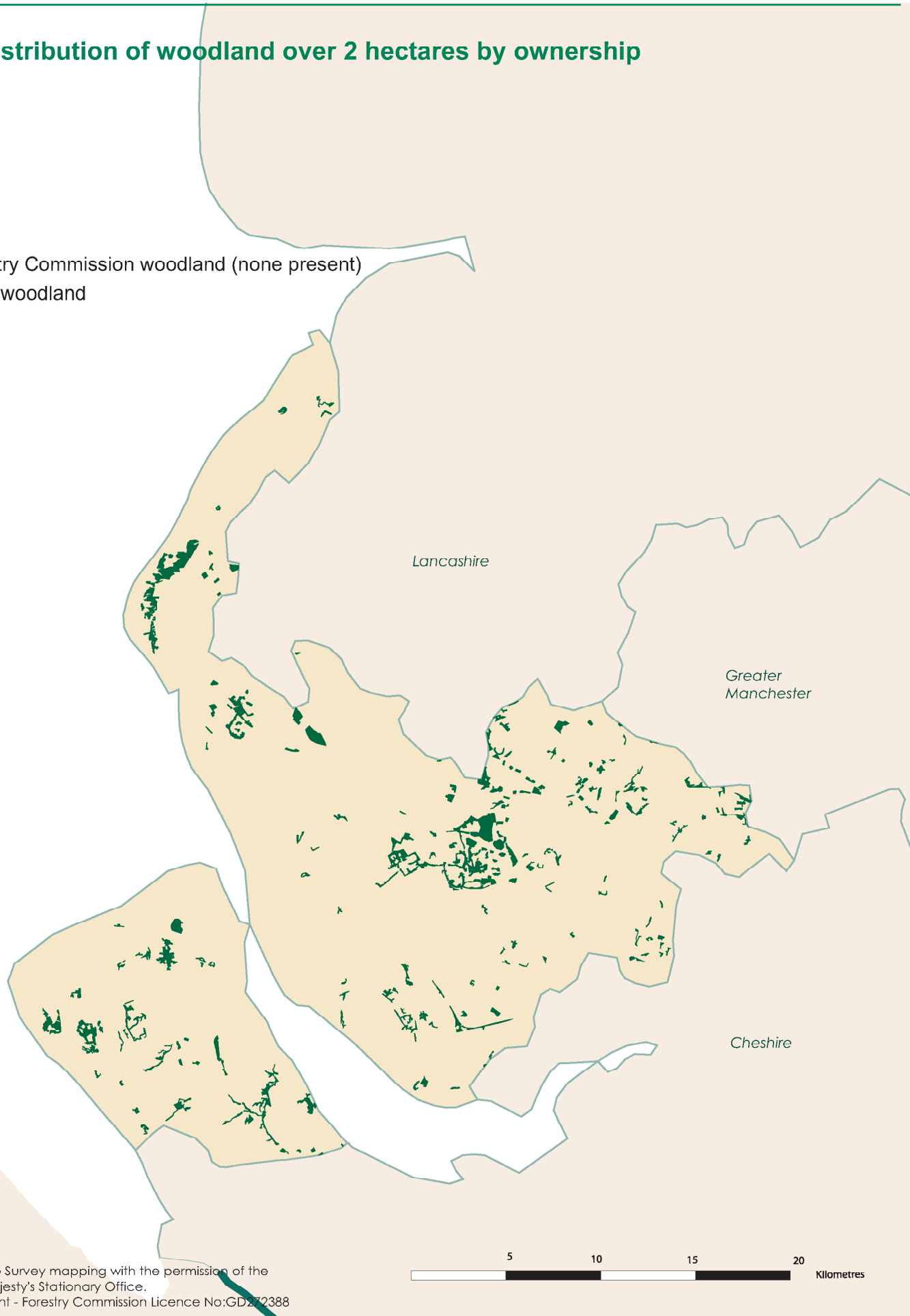
Lancashire

Greater Manchester

Cheshire

5   10   15   20   Kilometres

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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 (none present)
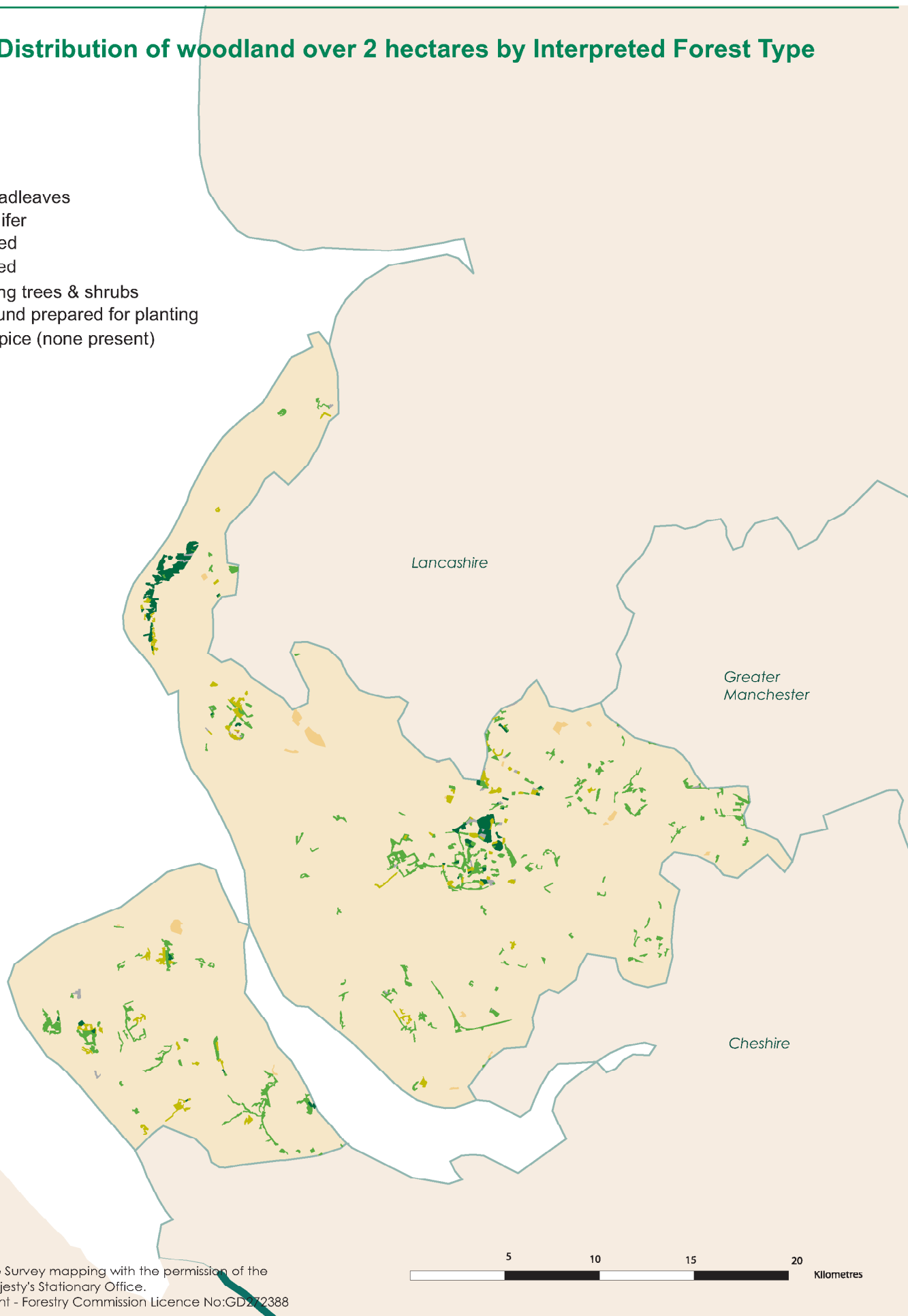
Lancashire

Greater Manchester

Cheshire

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5   10   15   20

Kilometres

Reference Date 31 March 1998

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 Merseyside.

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	2,404	97.0
0.25 - < 2.00	55	2.2
0.10 - < 0.25	19	0.8
Total area of woodland	**2,478**	**100.0**
% Woodland land cover	**3.8**	

1. Area of Merseyside, including inland water, 65,516 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 | Percentage of |
	2.0 and over	0.1 - <2.0	(ha)	total area
Conifer	117	10	127	5.1
Broadleaved	1,844	46	1,890	76.3
Mixed	370	18	388	15.7
Coppiced	0	0	0	0.0
Copp-w-standards	0	0	0	0.0
Windblow	0	0	0	0.0
Felled	0	0	0	0.0
Open Space	73	0	73	2.9
Total	2,404	73	2,477	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	Percentage of total area	
	2.0 and over	0.1 -<2.0	(ha)	Category*	Species**
Pine	102	5	107	38.1	4.5
Sitka spruce	41	5	46	16.4	1.9
Larch	120	5	125	44.5	5.2
Other conifers	0	0	0	0.0	0.0
Mixed conifers	0	2	2	0.7	0.1
Total conifers	**264**	**17**	**281**	**100.0**	**11.7**
Oak	615	12	627	29.5	26.1
Beech	159	2	161	7.6	6.7
Sycamore	365	2	367	17.3	15.3
Ash	123	4	127	6.0	5.3
Birch	364	5	369	17.4	15.3
Elm	22	0	22	1.0	0.9
Other broadleaves	419	17	436	20.5	18.1
Mixed broadleaves	0	15	15	0.7	0.6
Total broadleaves	**2,067**	**57**	**2,124**	**100.0**	**88.4**
Total all species*	**2,331**	**73**	**2,404**		**100.0**

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

***Excludes the 73 ha 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	8%
Broadleaves	7%
Larch	56%
Oak	16%
Sycamore	22%

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	0	0	0	0
Narrow Linear Features	1,900	261,400	138	399
Individual Trees	17,900	17,900	1	27
Total		279,300		426

1. Land area used to calculate tree density 65,516 ha 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	-
Narrow Linear Features	46%
Individual Trees	60%

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

4. See Glossary for definitions of feature types .

Table 5 Lengths of Linear Features

Feature type	Total number of features	Total length of features (km)	Density of features (m per sq km)
Wide Linear Features	0	0	0
Narrow Linear Features	1,900	297	453
Total		297	453

1. Land area used to calculate tree density 65,516 ha 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	51%

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	0	0
Other	2,404	100
Total area of woodland	**2,404**	**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

- Forestry Commission
- Other ownership
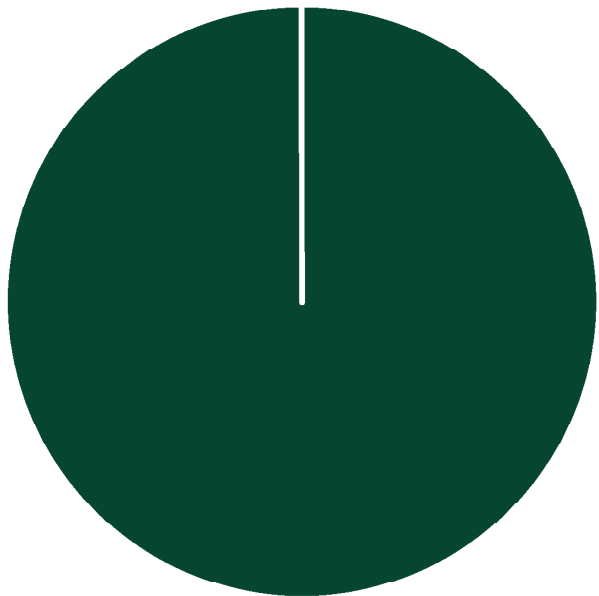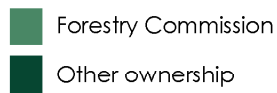
Table 7a Size class distribution of woodland

Size class (ha)	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	175	717	30	4.1
10 - <20	23	317	13	13.8
20 - <50	18	534	22	29.7
50 - <100	7	450	19	64.3
<100	223	2,017	84	9.0
100 - <500	3	387	16	128.9
500 and >	0	0	0	0.0
All woods	226	2,404	100	10.6

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	0	0	0	0.0
	O	175	716	30	4.1
10 - <20	FC	0	0	0	0.0
	O	23	317	13	13.8
20 - <50	FC	0	0	0	0.0
	O	18	534	22	29.7
50 - <100	FC	0	0	0	0.0
	O	7	450	19	64.3
<100	FC	0	0	0	0.0
	O	223	2,017	84	9.0
100 - <500	FC	0	0	0	0.0
	O	3	387	16	128.9
500 and >	FC	0	0	0	0.0
	O	0	0	0	0.0
Total	FC	0	0	0	0.0
	O	226	2,404	100	10.7

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 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 occasionaly 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	117	4.9	117	4.9
Broadleaved	0	0.0	1,844	76.7	1,844	76.7
Mixed	0	0.0	370	15.4	370	15.4
Coppice	0	0.0	0	0.0	0	0.0
Copp-w-Stds	0	0.0	0	0.0	0	0.0
Windblow	0	0.0	0	0.0	0	0.0
Felled	0	0.0	0	0.0	0	0.0
Open Space	0	0.0	73	3.0	73	3.0
Total	**0**	**0.0**	**2,404**	**100.0**	**2,404**	**100.0**

Area of woodland by forest type

- Conifer
- Broadleaves
- Mixed
- Coppice
- Coppice-w-standards
- Felled
- Open Space
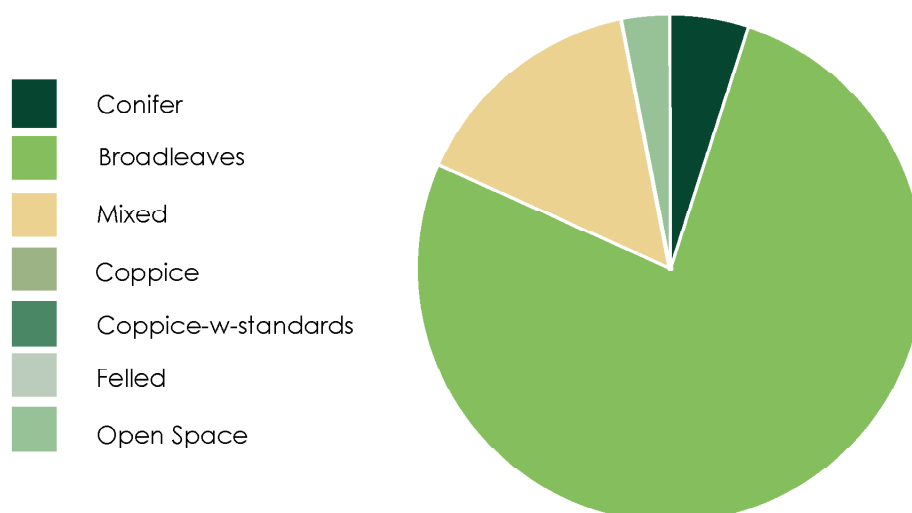
Table 9a   Area of High Forest by principal species and ownership

Species	Forestry Commission			Other			All ownerships		
	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %
Scots pine	0	0	0	102	39	4	102	39	4
Corsican pine	0	0	0	0	0	0	0	0	0
Lodgepole pine	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	41	16	2	41	16	2
Norway spruce	0	0	0	0	0	0	0	0	0
European larch	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	0	0	0	120	45	5	120	45	5
Douglas fir	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	0	0	0	0	0	0
Mixed conifers	0	0	0	0	0	0	0	0	0
Total conifers	**0**	**0**	**0**	**264**	**100**	**11**	**264**	**100**	**11**
Oak	0	0	0	615	30	26	615	30	26
Beech	0	0	0	159	8	7	159	8	7
Sycamore	0	0	0	365	18	16	365	18	16
Ash	0	0	0	123	6	5	123	6	5
Birch	0	0	0	364	18	16	364	18	16
Poplar	0	0	0	0	0	0	0	0	0
Sweet chestnut	0	0	0	38	2	2	38	2	2
Elm	0	0	0	22	1	1	22	1	1
Other broadleaves	0	0	0	381	18	16	381	18	16
Mixed broadleaves	0	0	0	0	0	0	0	0	0
Total broadleaves	**0**	**0**	**0**	**2,067**	**100**	**89**	**2,067**	**100**	**89**
Total - all species	**0**		**0**	**2,331**		**100**	**2,331**		**100**
Felled	**0**			**0**			**0**		
Total High Forest	**0**			**2,331**			**2,331**		

*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 73 ha 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   8%
            Broadleaves   7%
            Jap/Hybrid larch   56%
            Oak   16%
            Sycamore   22%

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

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

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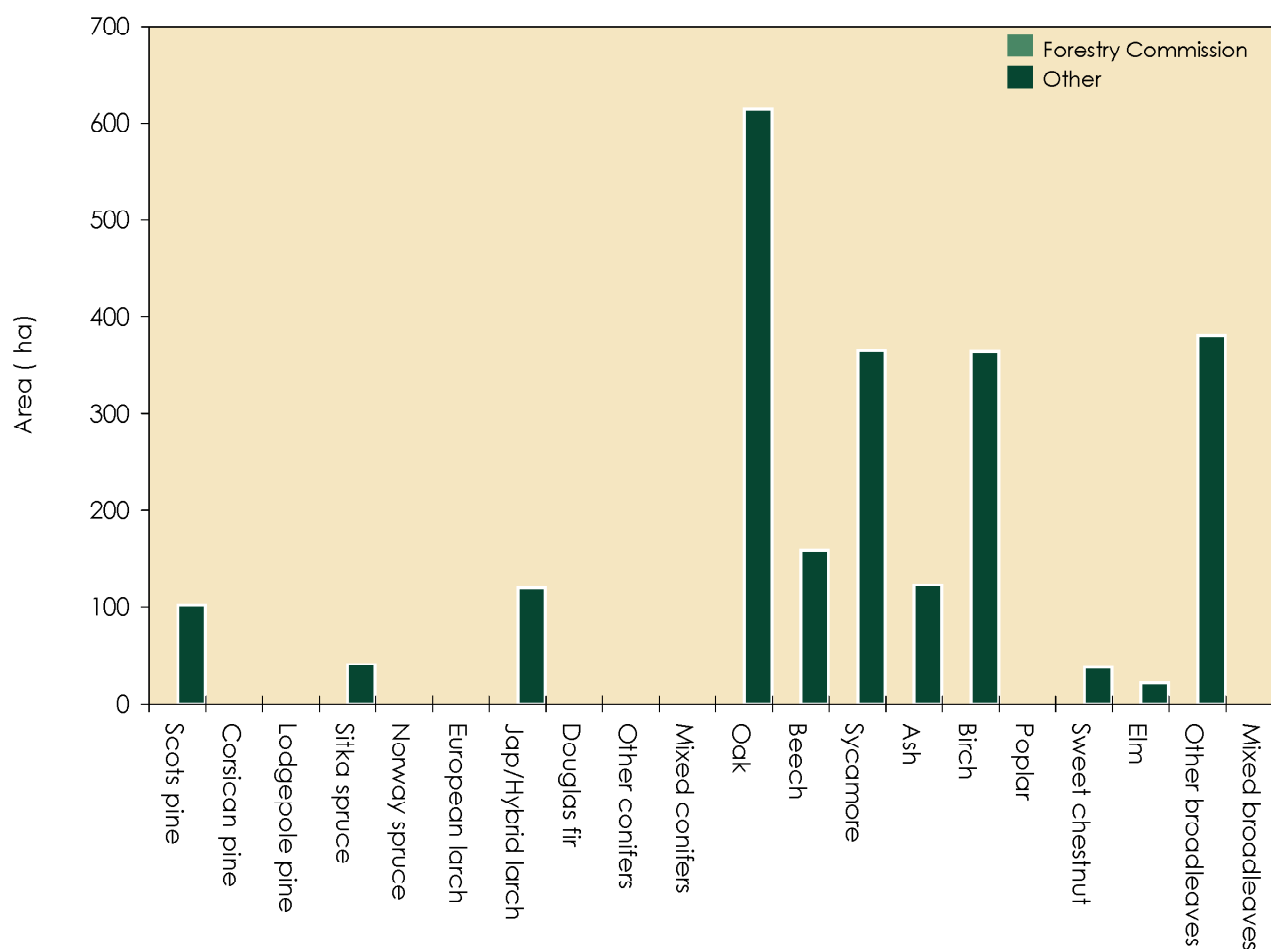
Table 9b Area of High Forest by principal species, ownership and category

Species	Forestry Commission			Other			All ownerships		
	cat. 1	cat. 2	Total (ha)	cat. 1	cat. 2	Total (ha)	cat. 1	cat. 2	Total (ha)
Scots pine	0	0	0	48	54	102	48	54	102
Corsican pine	0	0	0	0	0	0	0	0	0
Lodgepole pine	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	41	0	41	41	0	41
Norway spruce	0	0	0	0	0	0	0	0	0
European larch	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	0	0	0	120	0	120	120	0	120
Douglas fir	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	0	0	0	0	0	0
Mixed conifers	0	0	0	0	0	0	0	0	0
Total conifers	**0**	**0**	**0**	**209**	**54**	**264**	**209**	**54**	**264**
Oak	0	0	0	90	524	615	90	524	615
Beech	0	0	0	64	96	159	64	96	159
Sycamore	0	0	0	120	245	365	120	245	365
Ash	0	0	0	33	90	123	33	90	123
Birch	0	0	0	60	304	364	60	304	364
Poplar	0	0	0	0	0	0	0	0	0
Sweet chestnut	0	0	0	0	38	38	0	38	38
Elm	0	0	0	0	22	22	0	22	22
Other broadleaves	0	0	0	140	240	381	140	240	381
Mixed broadleaves	0	0	0	0	0	0	0	0	0
Total broadleaves	**0**	**0**	**0**	**507**	**1,560**	**2,067**	**507**	**1,560**	**2,067**
Total - all species	**0**	**0**	**0**	**717**	**1,614**	**2,331**	**717**	**1,614**	**2,331**

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	23%	14%	8%	
Broadleaves	19%	9%	7%	
Jap/Hybrid larch	56%	-	56%	
Oak	35%	18%	16%	*See Glossary for Category 1
Sycamore	43%	30%	22%	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 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
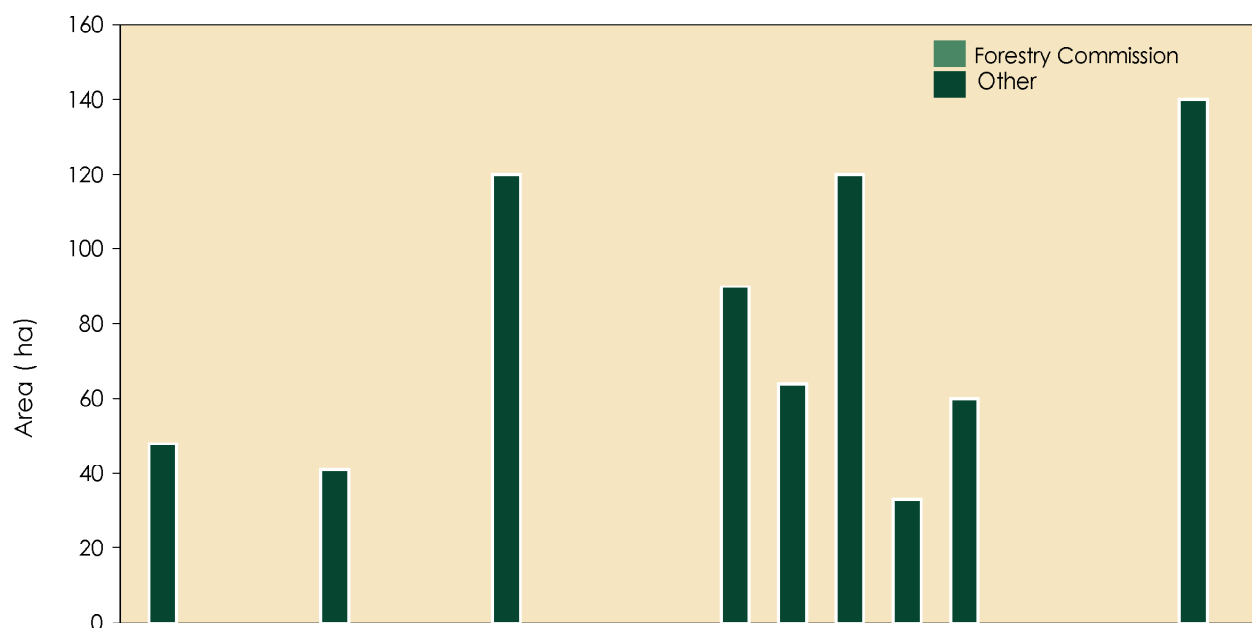
High Forest Category 2 - Area by principal species and ownership
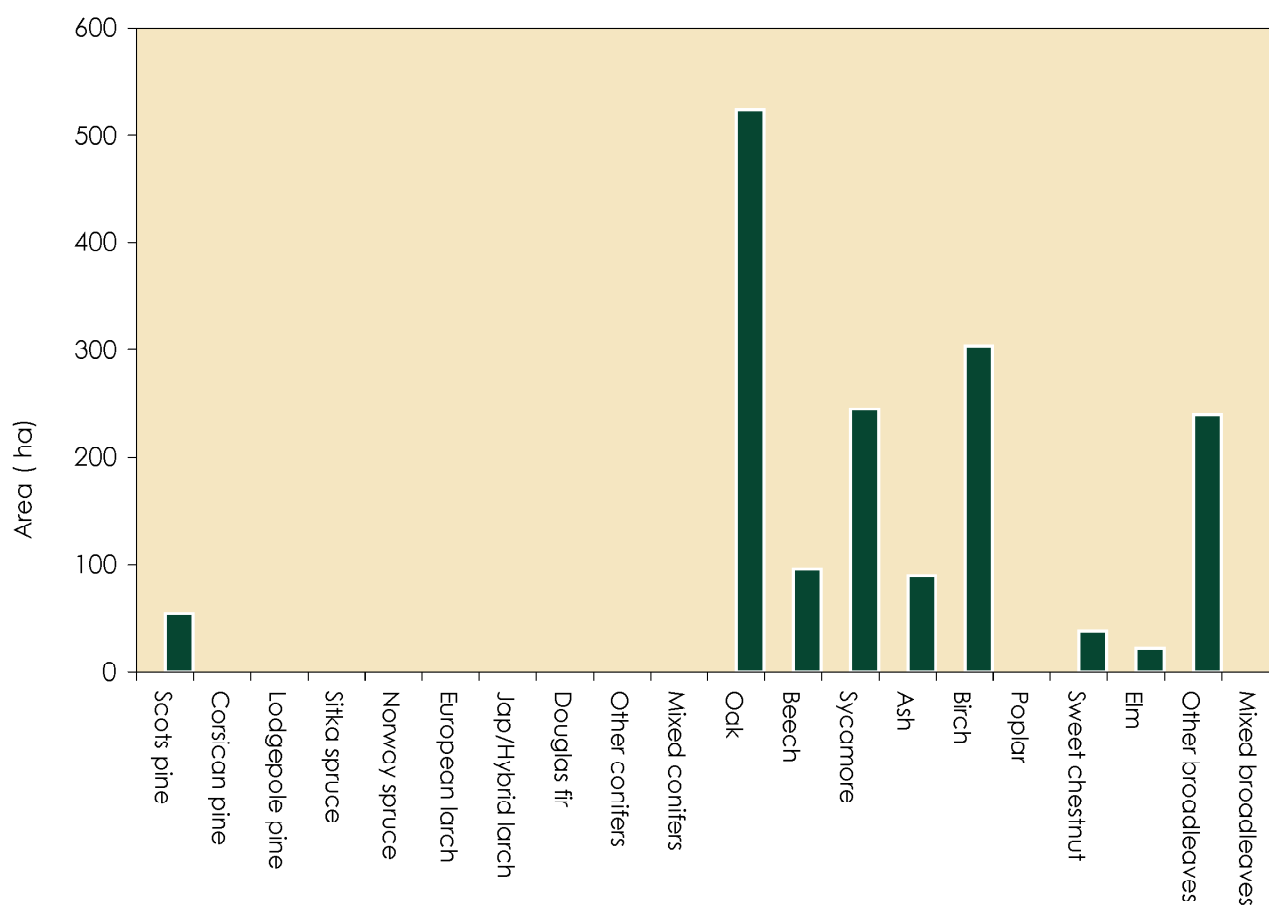
Table 10a High Forest Category 1 - Area by principal species and planting year class

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	30	0	4	0	14	0	0	0	0	0	0	0	48
Corsican pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodgepole pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	0	41	0	0	0	0	0	0	0	41
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	22	0	0	0	98	0	0	0	0	0	0	0	120
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	**52**	**0**	**4**	**0**	**153**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**209**
Oak	30	0	38	5	13	0	0	0	0	0	4	0	90
Beech	0	4	50	0	0	0	0	0	0	0	0	10	64
Sycamore	0	4	0	0	0	0	27	41	11	0	37	0	120
Ash	0	0	7	0	0	0	0	0	21	0	4	0	33
Birch	22	0	32	5	0	0	0	0	0	0	0	0	60
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	30	0	79	11	0	0	0	0	20	0	0	0	140
Mixed broadleaves	0	0	0	0	0	0	0	0	0	0	0	0	0
Total broadleaves	**82**	**9**	**207**	**21**	**13**	**0**	**27**	**41**	**52**	**0**	**46**	**10**	**507**
Total - all species	**134**	**9**	**212**	**21**	**166**	**0**	**27**	**41**	**52**	**0**	**46**	**10**	**717**

*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	0	0	0	0	0	0	0	0	0	0	0	0	0
Corsican pine	0	0	0	0	0	0	0	0	0	0	0	0	0
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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Oak	0	0	0	0	0	0	0	0	0	0	0	0	0
Beech	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
Ash	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
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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total - all species	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

*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.

1. **In Merseyside there was no Forestry Commission woodland at the date of survey.**

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.
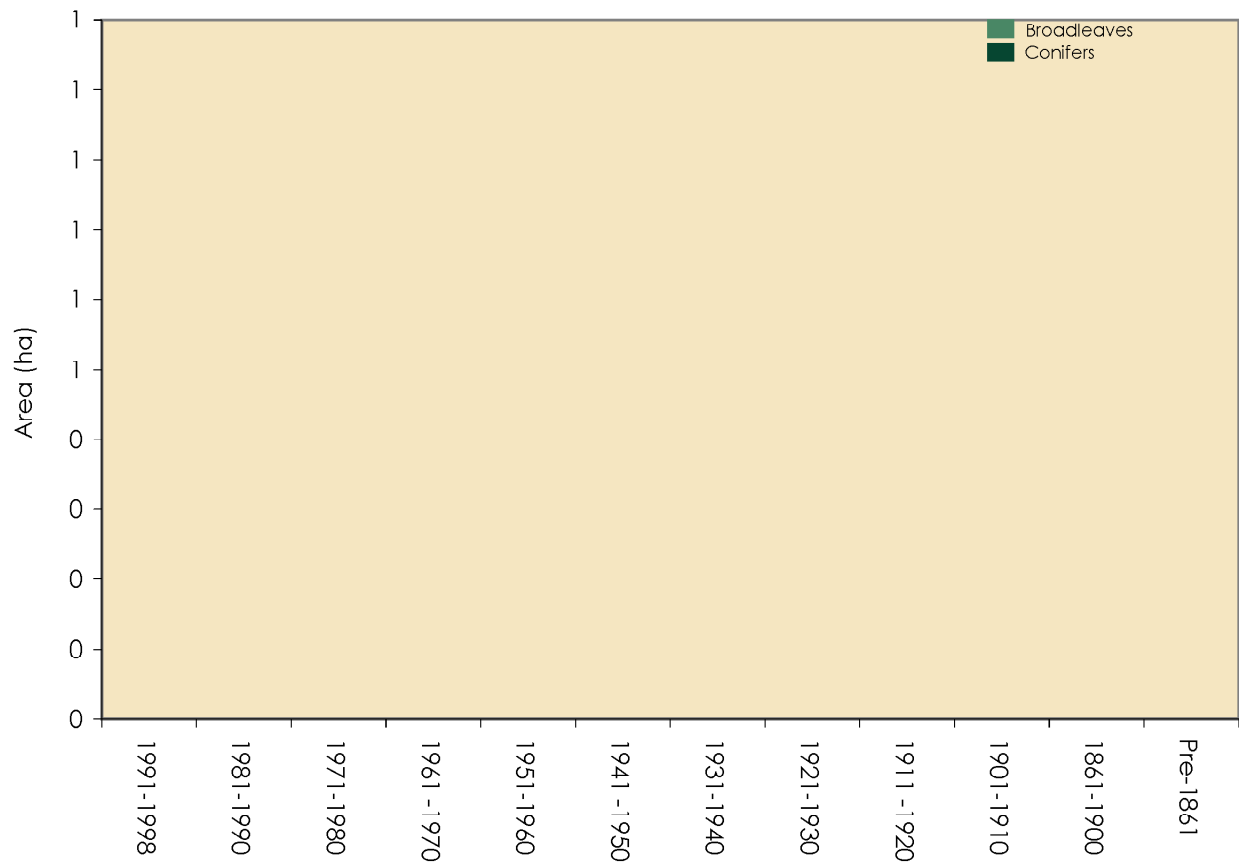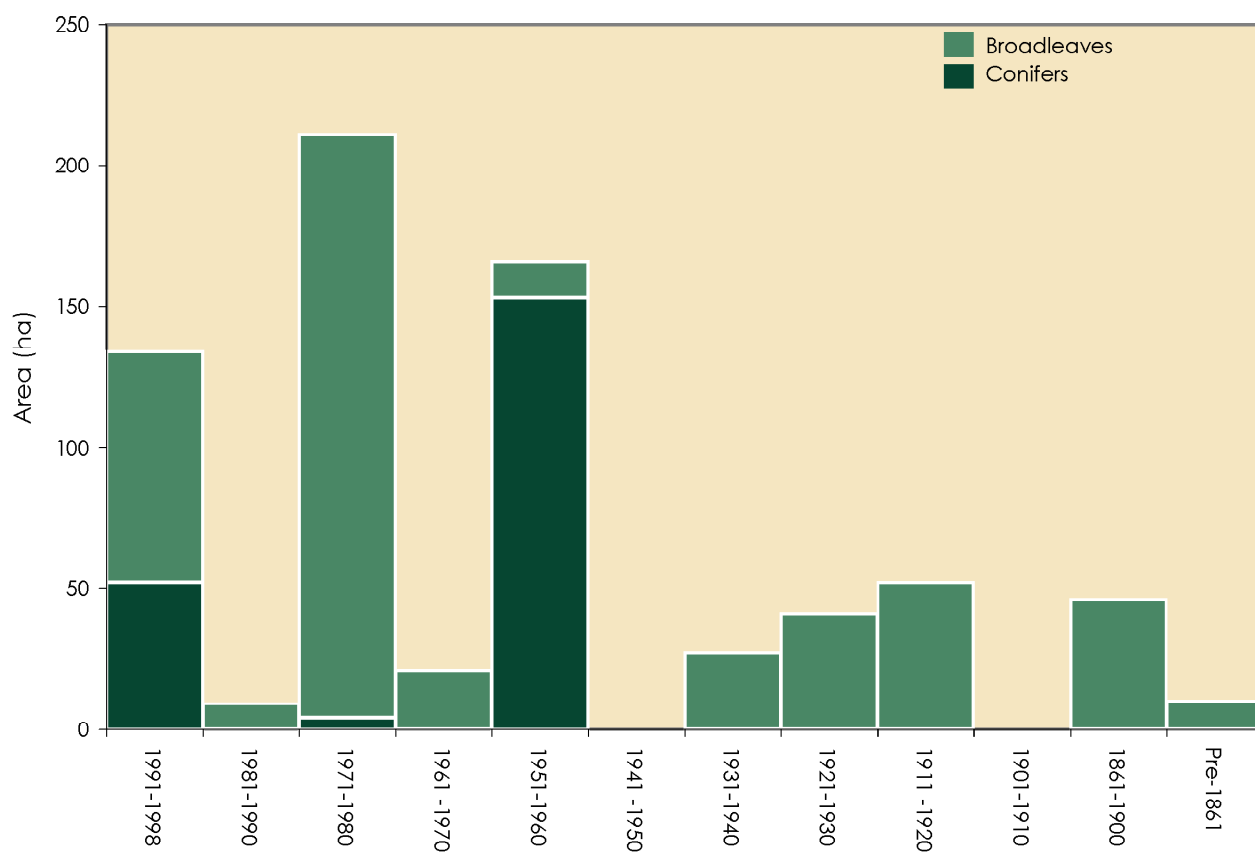
2. **In Merseyside there was no Forestry Commission woodland at the date of survey.**

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	30	0	4	0	14	0	0	0	0	0	0	0	48
Corsican pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodgepole pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Sitka spruce	0	0	0	0	41	0	0	0	0	0	0	0	41
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	22	0	0	0	98	0	0	0	0	0	0	0	120
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	**52**	**0**	**4**	**0**	**153**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**209**
Oak	30	0	38	5	13	0	0	0	0	0	4	0	90
Beech	0	4	50	0	0	0	0	0	0	0	0	10	64
Sycamore	0	4	0	0	0	0	27	41	11	0	37	0	120
Ash	0	0	7	0	0	0	0	0	21	0	4	0	33
Birch	22	0	32	5	0	0	0	0	0	0	0	0	60
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	30	0	79	11	0	0	0	0	20	0	0	0	140
Mixed broadleaves	0	0	0	0	0	0	0	0	0	0	0	0	0
Total broadleaves	**82**	**9**	**207**	**21**	**13**	**0**	**27**	**41**	**52**	**0**	**46**	**10**	**507**
Total - all species	**134**	**9**	**212**	**21**	**166**	**0**	**27**	**41**	**52**	**0**	**46**	**10**	**717**

*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	%
1991-98	SP / OK / Other BL's	22	JL/HL / BI	16	-	
1981-90	Birch	70	BE / SY	13	-	
1971-80	Other broadleaves	38	Beech	24	Oak	18
1961-70	Birch	81	Other broadleaves	16	Oak	3
1951-60	Jap/Hybrid larch	40	Scots pine	21	Sitka spruce	17
1941-50	Other broadleaves	76	Sycamore	24	-	
1931-40	Sycamore	46	Birch	33	Other broadleaves	20
1921-30	Sycamore	49	Birch	42	Other broadleaves	7
1911-20	Sycamore	29	Other broadleaves	28	Birch	18
1901-10	-		-		-	
1861-1900	Oak	53	Sycamore	17	Ash	12
Pre 1861	Beech	39	Oak	38	Sycamore	13
All years	**Oak**	**26**	**Other broadleaves**	**16**	**Sycamore**	**16**

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

2.   SP - Scots pine, OK - Oak, Other BL's - Other broadleaves. JL/HL - Jap.Hybrid larch, BE - Beech, SY - Sycamore

Table 12 Ownership type* by area and percentage

Ownership type	Area (ha)	%
Personal	1,469	61.1
Business	308	12.8
Forestry or timber business	0	0.0
Charity	0	0.0
Local Authority	626	26.0
Other public (not FC)	0	0.0
Forestry Commission	0	0.0
Community ownership or common land	0	0.0
Unidentified	0	0.0
Total	**2,404**	**100.0**

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

Ownership type by area

Legend:
- Personal
- Business
- Forestry or timber business
- Charity
- Local Authority
- Other public
- Forestry Commission
- Community ownership
- Unidentified
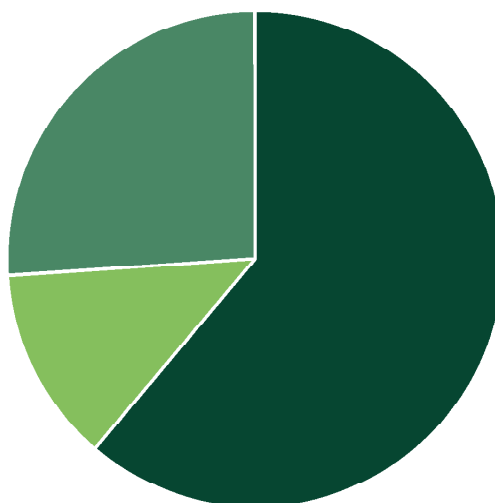
RESULTS FROM THE SURVEY OF SMALL WOODLAND AND TREES (SSWT)

Survey Method

The land area of England was stratified into coastal and inland 1 km x 1 km squares and a random sample of 1 km^2 plots were then selected, representing around 1% of the land area. 1:25 000 scale aerial photos were then used to identify features in each sample square. Each 1 km^2 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.

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	271	73	Area (ha)
Wide Linear Features	0	0	Area (ha)
Wide Linear Features	0	0	Length (Km)
Narrow Linear Features	1,900	297	Length (Km)
Narrow Linear Features	1,900	261,400	Number of live trees
Groups	0	0	Number of live trees
Individual Trees	17,900	17,900	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	Number of	Mean size
	0.1 - <0.25	0.25 - <2.0	(ha)	features	(ha)
Small Woods	19	55	73	271	0.27
Wide Linear Features	0	0	0	0	0.00
Total	19	55	73	271	0.27

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	117.8	117.8	100.0	42.2
Other conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total conifers	**0.0**	**0.0**	**0.0**	**117.8**	**117.8**	**100.0**	**42.2**
Oak	6.8	0.0	0.0	12.2	19.0	11.8	6.8
Beech	0.0	0.0	0.0	2.8	2.8	1.7	1.0
Sycamore	4.3	0.0	0.0	30.1	34.4	21.3	12.3
Ash	2.6	0.0	0.0	2.8	5.4	3.3	1.9
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	0.9	0.0	0.0	0.0	0.9	0.6	0.3
Other broadleaves	3.4	0.0	0.0	95.6	99.0	61.3	35.4
Total broadleaves	**17.9**	**0.0**	**0.0**	**143.7**	**161.5**	**100.0**	**57.8**
Total - all species	**17.9**	**0.0**	**0.0**	**261.5**	**279.4**		**100.0**

1.   Percentages

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

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

        Individual Trees   60%
        Groups   -
        Narrow Linear Features   46%

3.   See Glossary for definitions of feature types.

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

Species	Feature type				Total dead trees	Percent of total trees	
	Boundary Trees	Middle Trees	Groups	Narrow Linear Features		Category	Species
Pine	0.0	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	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0	0.0
Total broadleaves	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total - all species	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**		**0.0**

1.   See Glossary for definitions of feature types.

2.   **At the time of the survey in Merseyside no dead trees were recorded within the field samples.**

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	117.8	0.0	0.0	0.0	117.8
Other conifers	0.0	0.0	0.0	0.0	0.0
Total conifers	**117.8**	**0.0**	**0.0**	**0.0**	**117.8**
Oak	1.9	8.9	8.3	0.0	19.1
Beech	0.0	2.4	0.5	0.0	2.9
Sycamore	16.0	9.3	9.1	0.0	34.4
Ash	1.4	3.5	0.5	0.0	5.4
Birch	0.0	0.0	0.0	0.0	0.0
Poplar	0.0	0.0	0.0	0.0	0.0
Sweet chestnut	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0	0.0
Willow	0.9	0.0	0.0	0.0	0.9
Other broadleaves	63.7	35.3	0.0	0.0	99.0
Total broadleaves	**83.9**	**59.4**	**18.3**	**0.0**	**161.7**
Total - all species	**201.6**	**59.4**	**18.3**	**0.0**	**279.4**

Table 18 Number of Groups by group size

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

*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	1,422	84.8	2,404	97.8	69
0.25 - <2.0	255	15.2	55	2.2	-78
Total	1,677		2,459		47
% Woodland land cover	2.6		3.8		

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), 65,516 ha,
        was based on the 1991 Census of Population digital boundaries.

4.   Land area used to calculate woodland cover percent (1980), 65,202 ha,

        (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	138	106	-23
Corsican pine	117	0	-100
Lodgepole pine	25	0	-100
Sitka spruce	6	45	673
Norway spuce	4	0	-100
European larch	0	0	0
Jap/Hybrid larch	19	125	544
Douglas fir	1	0	-100
Other conifers	2	0	-100
Mixed conifers	23	2	-91
Total conifers	**336**	**278**	**-17**
Oak	252	623	147
Beech	146	161	11
Sycamore	352	365	4
Ash	28	127	351
Birch	137	369	170
Poplar	6	0	-100
Sweet chestnut	4	38	879
Elm	109	22	-80
Other broadleaves	38	392	936
Mixed broadleaves	214	12	-94
Total broadleaves	**1,285**	**2,109**	**64**
Total all species	**1,621**	**2,387**	**47**
Felled	**7**	**0**	**-100**
Total High Forest	**1,628**	**2,387**	**47**

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 2.9 % (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 2.9 %.

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

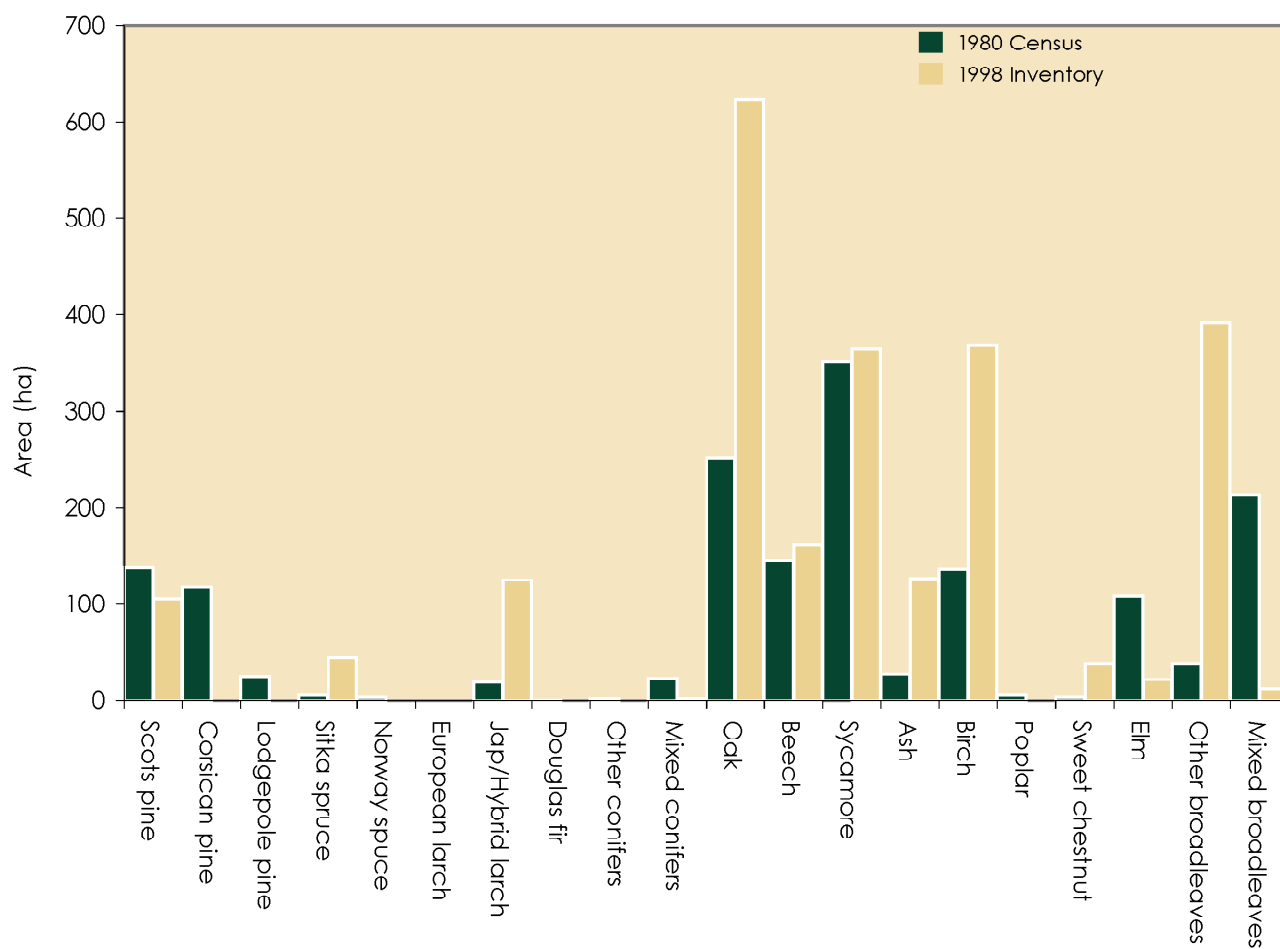**Comparison of High Forest area by species between 1980 Census and 1998 Inventory**

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	145	see note
1981-1990	0	9	see note
1971-1980	35	211	504
1961-1970	49	26	-47
1951-1960	92	166	80
1941-1950	197	5	-97
1931-1940	214	27	-87
1921-1930	78	41	-47
1911-1920	308	52	-83
1901-1910	190	0	-100
1861-1900	425	46	-89
Pre 1861	18	14	-24
Total all years	**1,607**	**742**	**-54**

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.

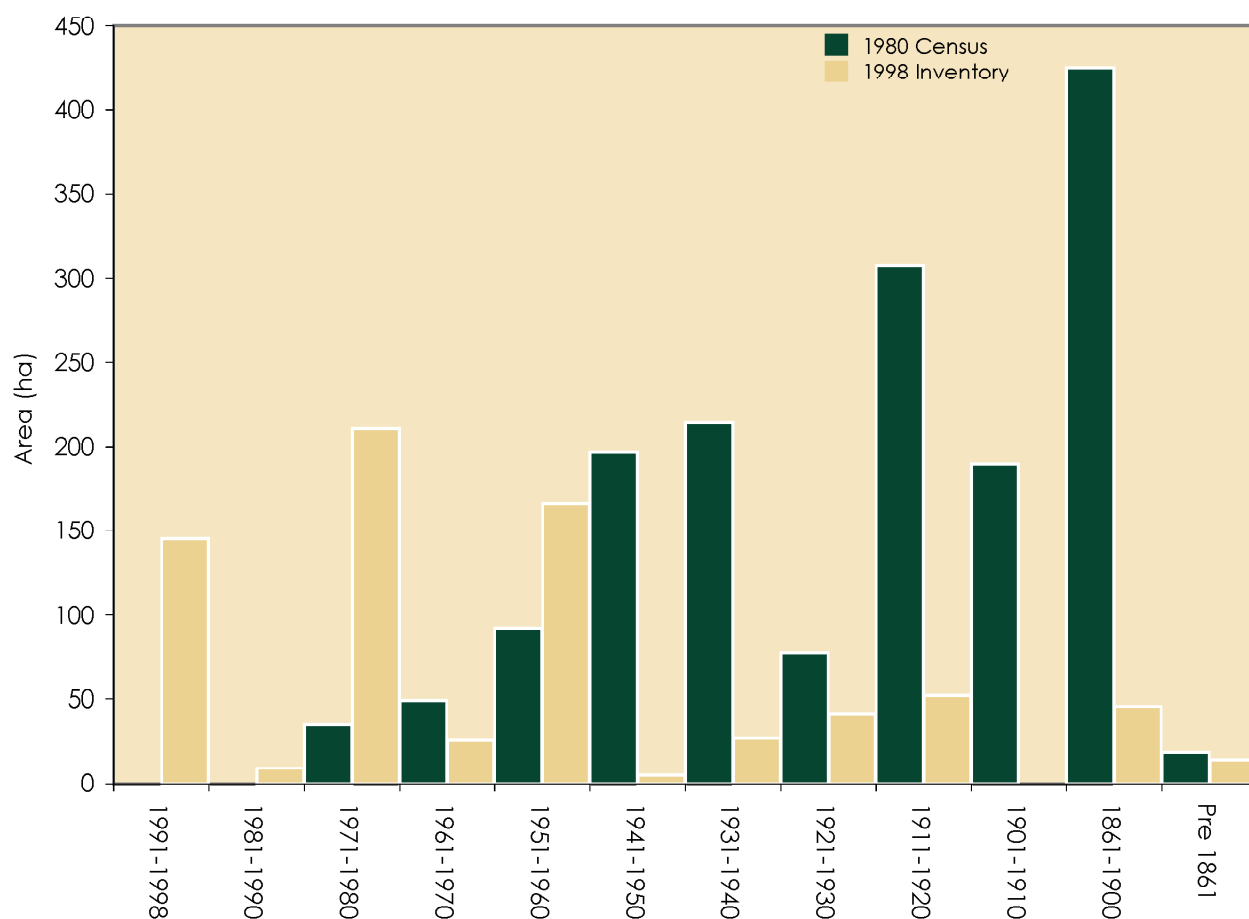**Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1998 Inventory**

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

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

Table 23 Comparison of density of non-woodland features between 1980
Census and 1998 Inventory

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

WOODLAND COVER

Woodland area data is available from Ministry of Agriculture surveys since 1871, and from Forestry Commission national woodland inventories since 1924.
The following chart and maps show the changes in woodland area through time.
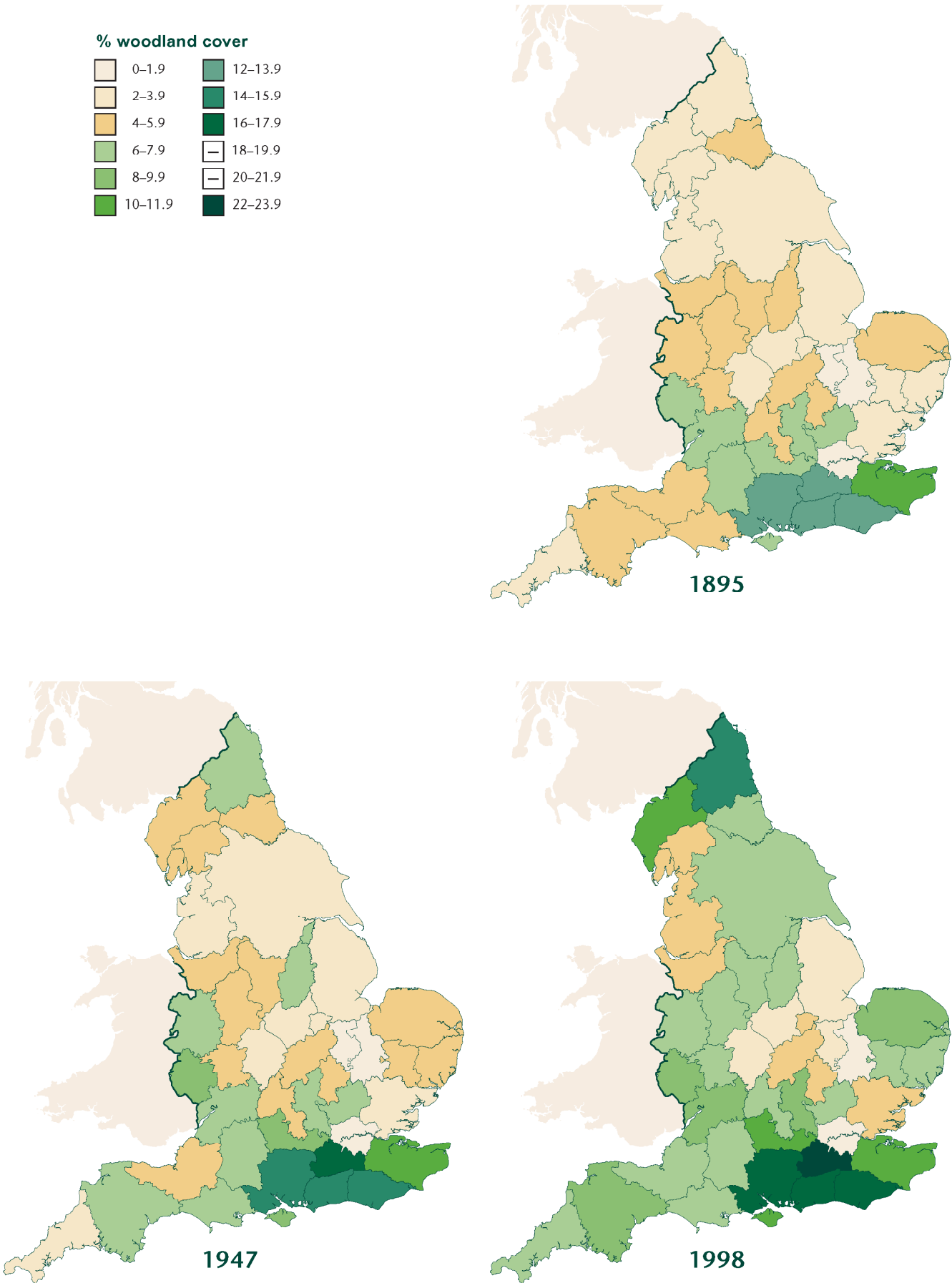
The maps use the old County structure data of England, as reported on in 1895 and 1947. The data from these counties could not be re-worked for different geographic areas. In contrast, the digital woodland map, which forms the basis of the current inventory, can be analysed for any geographic area.

Change in county woodland cover through time (1890 – 2000)
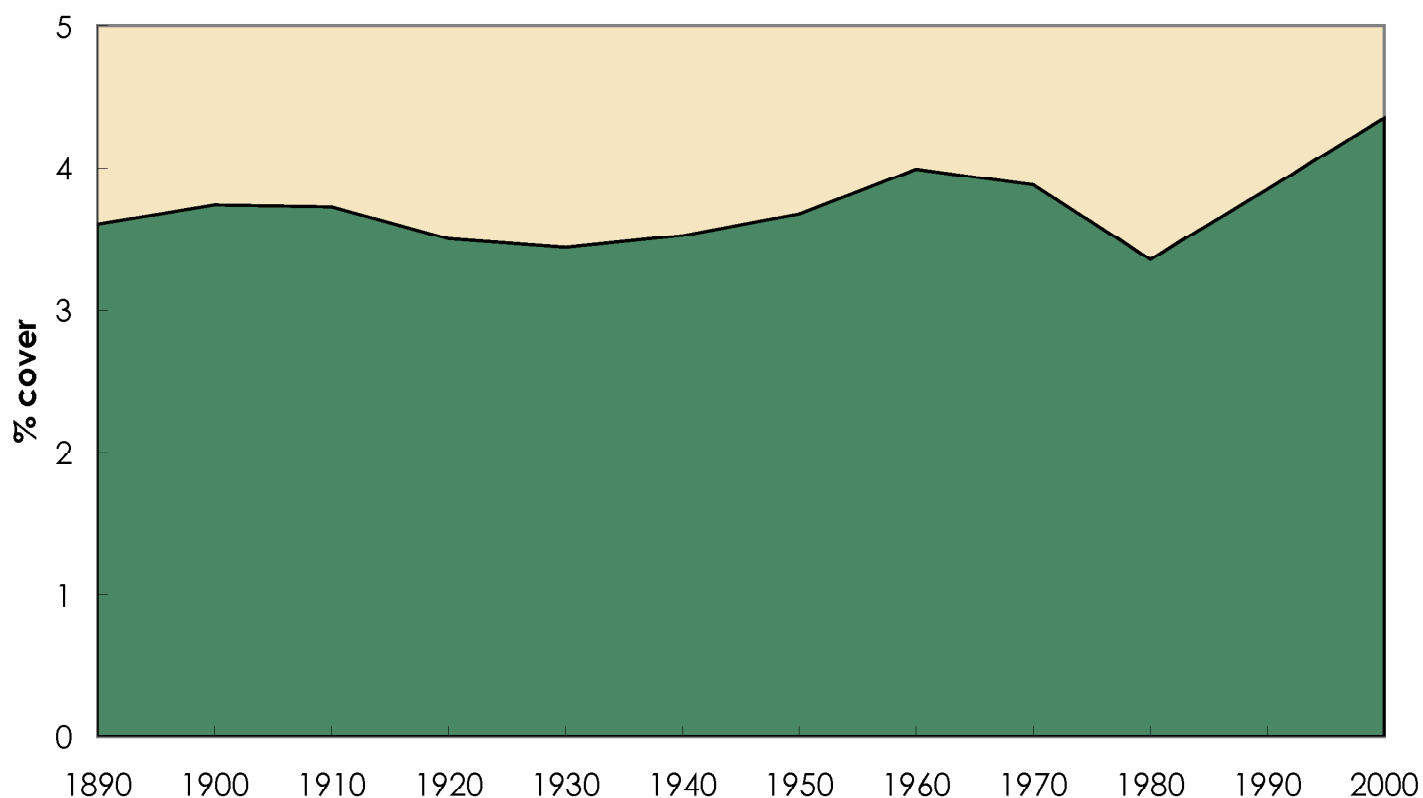
1.   Following local government reorganisation the boundaries of the county of the report have changed significantly since 1890 and therefore data from a wider geographic area have been used.

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

% woodland cover

0–1.9		12–13.9	
2–3.9		14–15.9	
4–5.9		16–17.9	
6–7.9		18–19.9	
8–9.9		20–21.9	
10–11.9		22–23.9	

1895

1947

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 16 m or less)
  - Wide Linear Features (with a width greater than 16 m)

NOTES