National Inventory of Woodland and Trees

of Woodland and Trees

England

County Report for

Staffordshire

Forestry Commission

Printed in the United Kingdom

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ACKNOWLEDGEMENTS

INTRODUCTION

This report presents the results for Staffordshire 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 With the statistics becoming increasingly out of date the Forestry Commission decided to undertake a new survey: the *National Inventory of Woodland and Trees*.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 Staffordshire is 21,175 hectares. This represents 7.8 % of the land area. (Table 1)

- Broadleaved woodland is the dominant forest type representing 59.2 % of all woodland. Conifer woodland represents 26.2 %, Mixed woodland 6.7 % and Open Space within woodlands 6.2 %. (Table 2)

- The main conifer species is pine covering 4,695 hectares or 75.2 % of all conifer species. The main broadleaved species is birch covering 2,819 hectares or 21.3 % of all broadleaved species. (Table 3)

- 4,317 hectares or 24 % of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 13,944 hectares or 76 % of woodland is in Other ownership. (Table 6)

- There are a total of 1,192 woods over 2 ha within Staffordshire with a mean wood area of 15.4 hectares. (Table 7a) There are a total of 7,298 woods from 0.1 - <2.0 hectares with a mean wood area of 0.37 hectares. (Table 14)

- There are 4.6 million live trees outside woodland in Staffordshire. (Table 15)

- Woodland land cover increased by over 3700 hectares from 6.2 % to 7.6 % of the land area between 1980 and 1998. (Table 19)

- The area of broadleaves increased by 55% between 1980 and 1998, with the relative proportion of broadleaves to conifers increasing from 56 % to 68 %. (Table 20)

INVENTORY REPORTS

As well as this report for Staffordshire, 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

North West Region

Staffordshire

Shropshire

East Midlands Region

West Midlands Region

West Midlands

Warwickshire

Hereford & Worcester

South West Region

South East Region

0   10   20   30   40 Kilometres

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Map 2 Distribution of woodland over 2 hectares

Shropshire

West
Midlands

Warwickshire

Hereford &
Worcester

5   10   15   20
Kilometres

Reference Date 31 March 1998
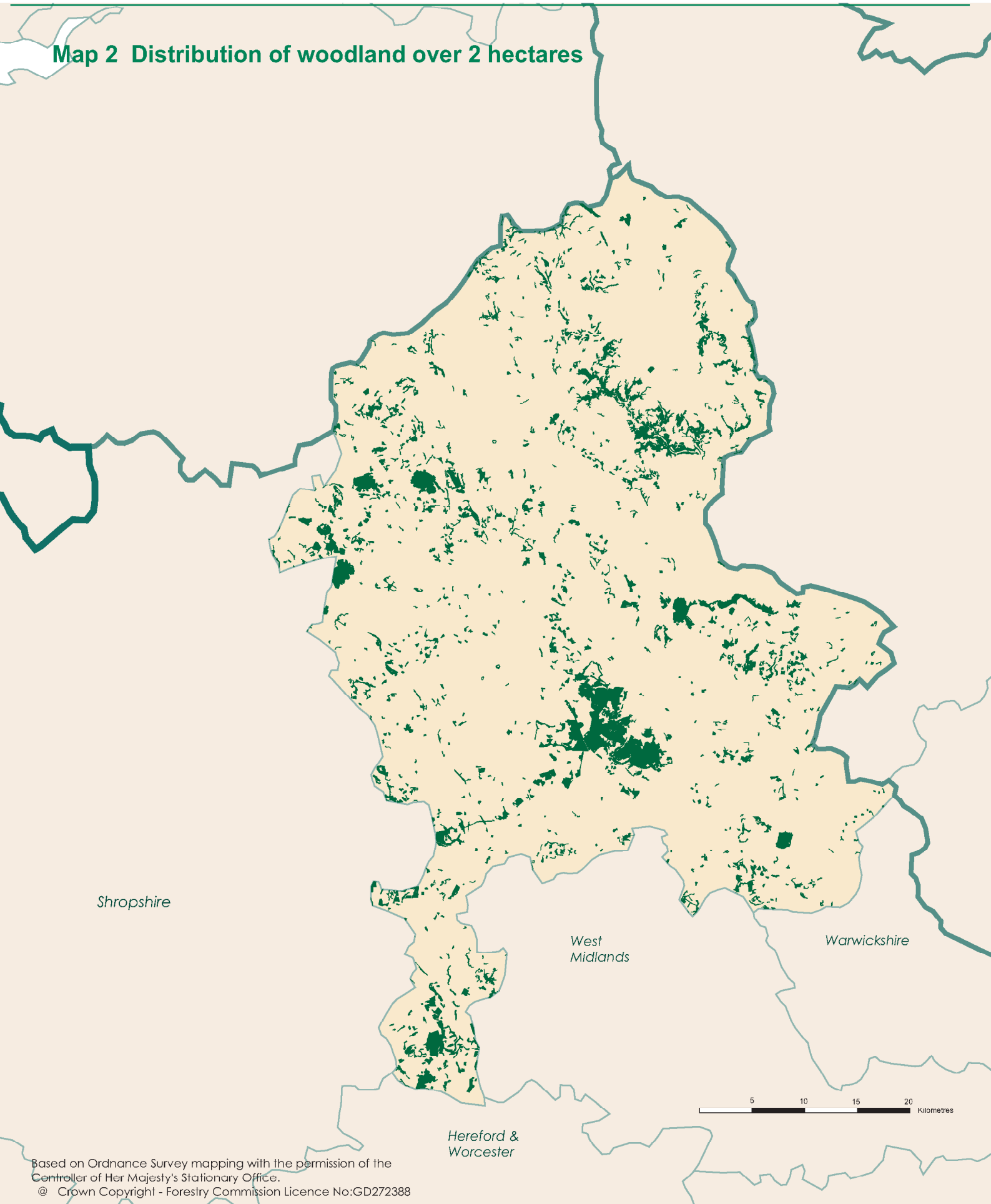
Map 3 Distribution of woodland over 2 hectares by ownership

■ Forestry Commission woodland
■ Other woodland
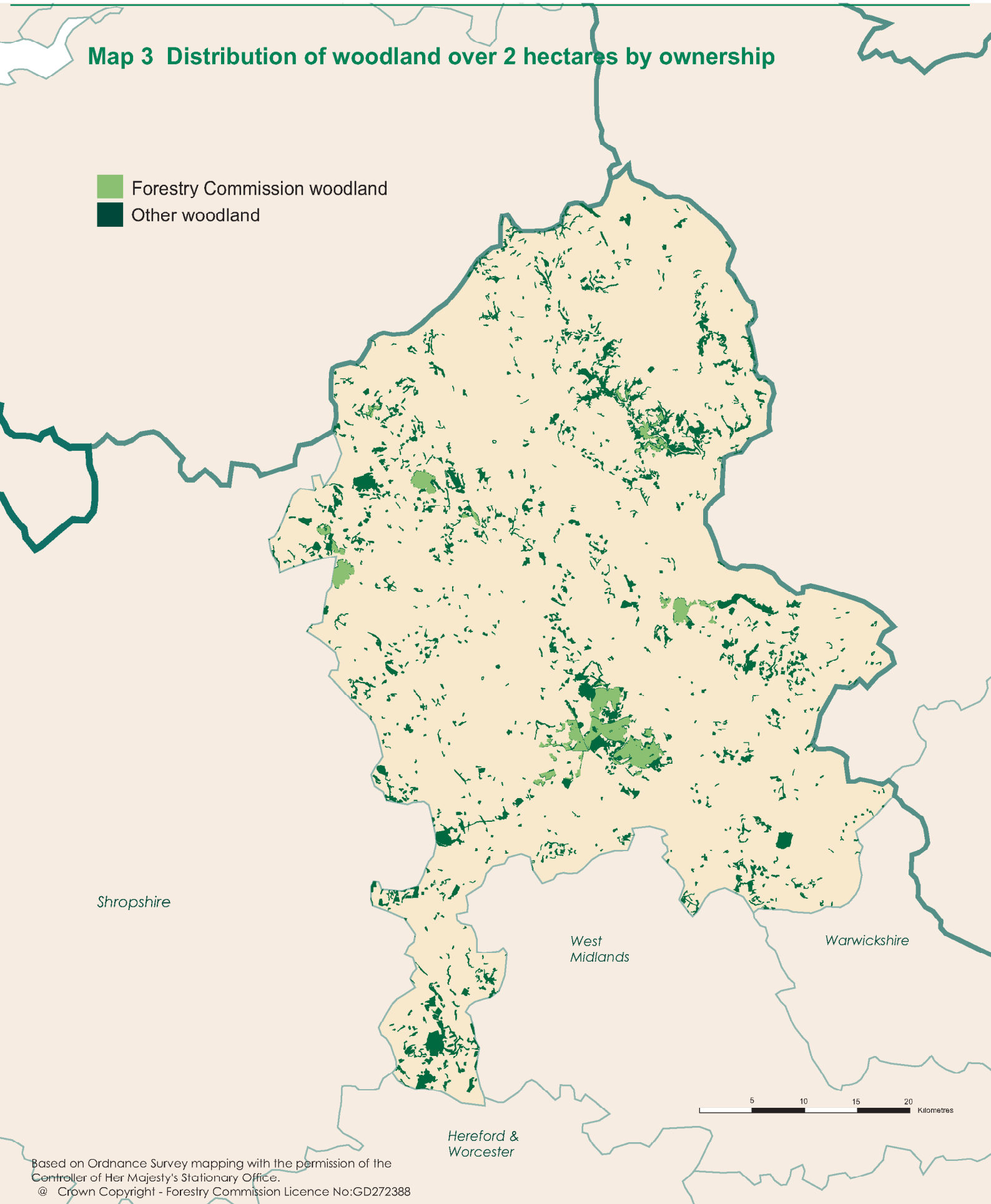
Shropshire

West
Midlands

Warwickshire

Hereford &
Worcester

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)
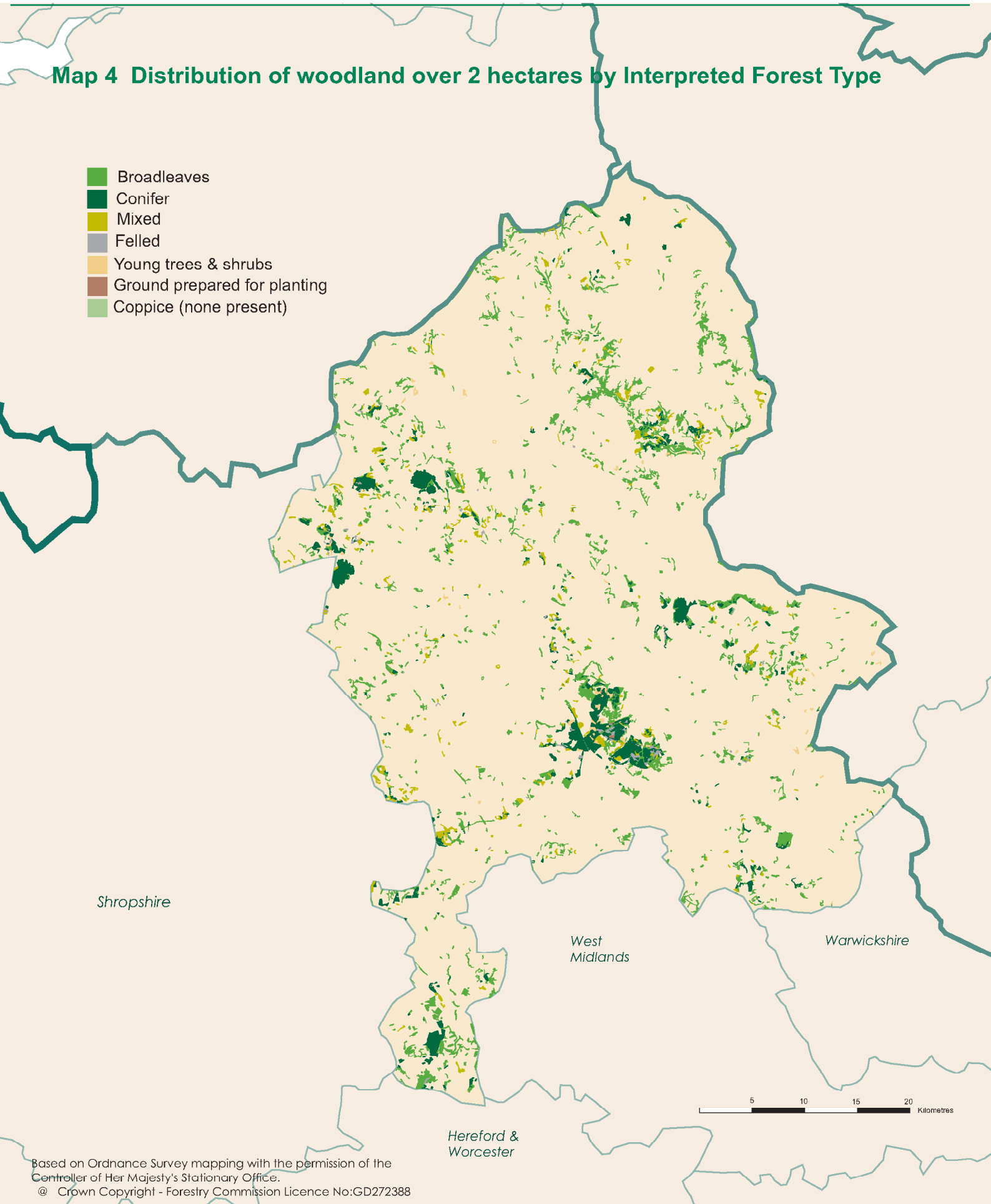
Shropshire

West
Midlands

Warwickshire

Hereford &
Worcester

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 Staffordshire.

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	18,261	86.2
0.25 - < 2.00	2,391	11.3
0.10 - < 0.25	524	2.5
Total area of woodland	**21,175**	**100.0**
% Woodland land cover	**7.8**	

1. Area of Staffordshire, including inland water, 271,545 ha based on digital boundaries used in the 1991 Census of Population

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

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

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 were required. 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

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)
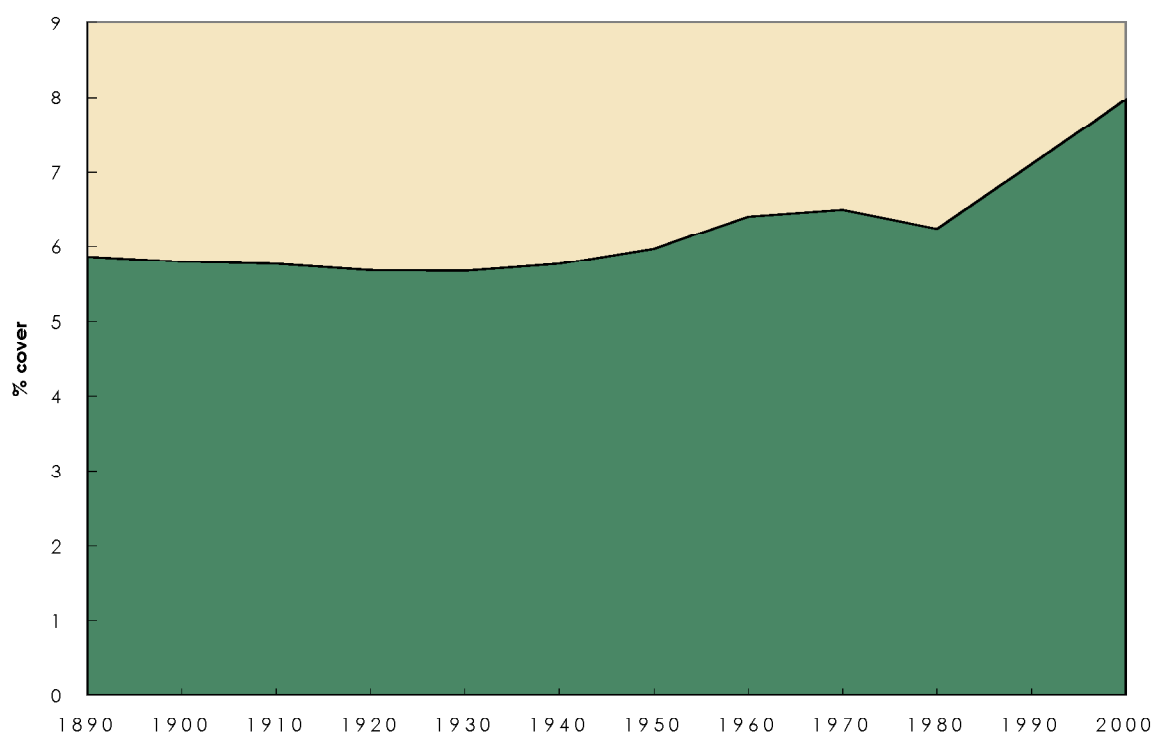
GLOSSARY

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

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	5,471	71	5,542	26.2
Broadleaved	9,767	2,769	12,536	59.2
Mixed	1,375	34	1,409	6.7
Coppiced	0	0	0	0.0
Copp-w-standards	0	0	0	0.0
Windblow	0	0	0	0.0
Felled	368	0	368	1.7
Open Space	1,280	41	1,321	6.2
Total	**18,261**	**2,914**	**21,175**	**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	4,669	26	4,695	75.2	24.1
Sitka spruce	104	0	104	1.7	0.5
Larch	1,246	0	1,246	19.9	6.4
Other conifers	137	55	192	3.1	1.0
Mixed conifers	8	0	8	0.1	0.0
Total conifers	**6,165**	**81**	**6,246**	**100.0**	**32.1**
Oak	2,324	306	2,630	19.9	13.5
Beech	373	0	373	2.8	1.9
Sycamore	1,123	160	1,283	9.7	6.6
Ash	1,342	240	1,582	11.9	8.1
Birch	2,781	38	2,819	21.3	14.5
Elm	74	20	94	0.7	0.5
Other broadleaves	2,010	1,518	3,528	26.6	18.1
Mixed broadleaves	423	511	934	7.1	4.8
Total broadleaves	**10,449**	**2,793**	**13,242**	**100.0**	**67.9**
Total all species*	**16,614**	**2,874**	**19,488**		**100.0**

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

***Excludes the 1.688ha 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   7%
        Broadleaves   4%
        Pine   9%
        Birch   11%
        Other broadleave   7%

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

Table 4 Numbers of live trees outside woodland by feature type

Feature type	Total number of features	Total number of live trees	Mean number of trees per feature	Tree density (per sq km)
Groups	193,800	1,205,700	6	444
Narrow Linear Features	73,700	3,157,000	43	1,163
Individual Trees	295,800	295,800	1	109
Total		4,658,500		1,716

1.   Land area used to calculate tree density 271,545 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	20%
Narrow Linear Features	18%
Individual Trees	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 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	2,257	261	96
Narrow Linear Features	73,700	5,172	1,904
Total		5,433	2,001

1.   Land area used to calculate tree density 271,545 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	54%
Narrow Linear Features	19%

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 .

Table 6 Summary of woodland area by ownership

Ownership	ha	% woodland
Forestry Commission	4,317	24
Other	13,944	76
Total area of woodland	**18,261**	**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
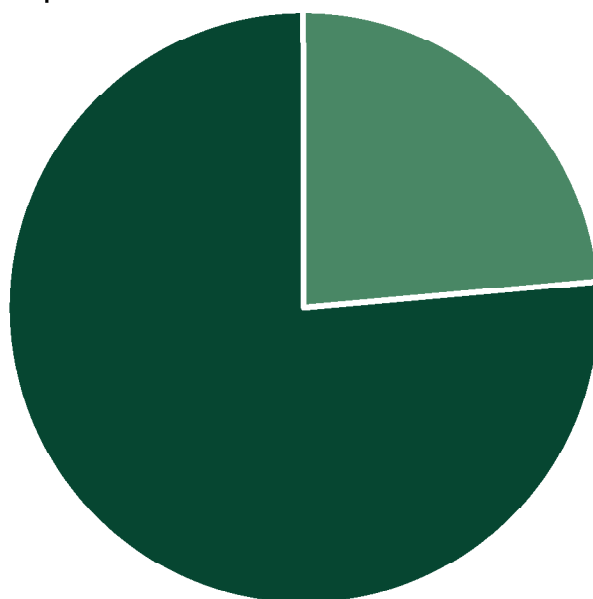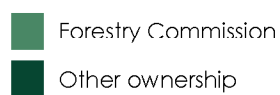
Table 7a Size class distribution of woodland

Size class (ha)	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	911	3,945	22	4.3
10 - <20	128	1,806	10	14.1
20 - <50	107	3,373	18	31.5
50 - <100	27	1,749	10	64.8
<100	**1,173**	**10,874**	**59**	**9.3**
100 - <500	**16**	**3,714**	**20**	**232.1**
500 and >	**3**	**3,711**	**20**	**1,237.1**
All woods	**1,192**	**18,299**	**100**	**15.4**

Table 7b Size class distribution of woodland by ownership units

Size class (ha)	FC or Other	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	FC	5	18	0	3.6
	O	982	4,156	23	4.2
10 - <20	FC	8	125	1	15.6
	O	137	1,943	11	14.2
20 - <50	FC	11	352	2	32.0
	O	109	3,414	19	31.3
50 - <100	FC	6	410	2	68.3
	O	25	1,584	9	63.4
<100	FC	30	906	5	30.2
	O	1,253	11,097	61	8.8
100 - <500	FC	4	1,113	6	278.2
	O	14	2,885	16	206.1
500 and >	FC	3	2,299	13	766.3
	O	0	0	0	0.0
Total	**FC**	**37**	**4,317**	**24**	**116.7**
	O	**1,267**	**13,982**	**76**	**11.0**

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 38 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 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	3,016	69.9	2,455	17.6	5,471	30.0
Broadleaved	688	15.9	9,079	65.1	9,767	53.5
Mixed	139	3.2	1,236	8.9	1,375	7.5
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	299	6.9	68	0.5	368	2.0
Open Space	173	4.0	1,106	7.9	1,280	7.0
Total	**4,317**	**100.0**	**13,944**	**100.0**	**18,261**	**100.0**

Area of woodland by forest type

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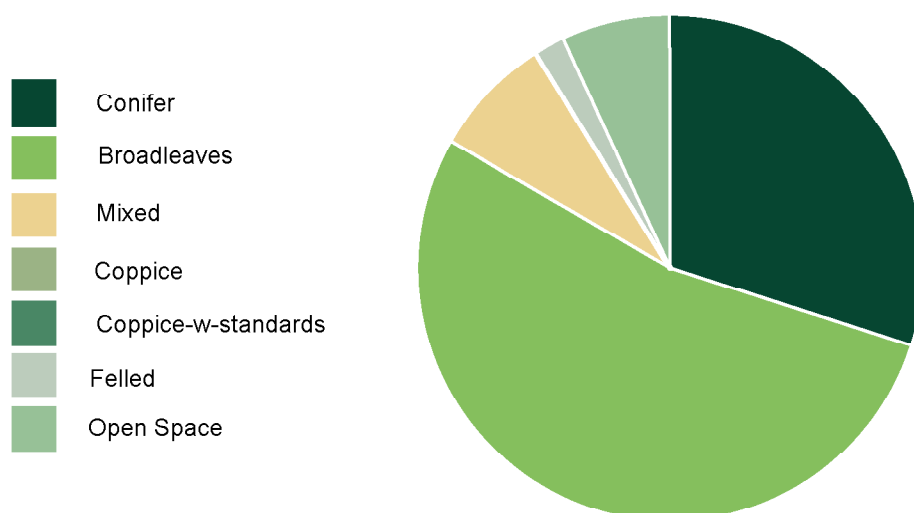
Table 9a   Area of high forest by principal species and ownership

Species	Forestry Commission			Other			All ownerships		
	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %
Scots pine	1,439	47	37	1,061	34	8	2,500	41	15
Corsican pine	1,220	40	32	681	22	5	1,901	31	11
Lodgepole pine	25	1	1	243	8	2	268	4	2
Sitka spruce	15	0	0	89	3	1	104	2	1
Norway spruce	0	0	0	69	2	1	69	1	0
European larch	101	3	3	87	3	1	189	3	1
Jap/Hybrid larch	269	9	7	788	26	6	1,057	17	6
Douglas fir	0	0	0	22	1	0	22	0	0
Other conifers	7	0	0	39	1	0	46	1	0
Mixed conifers	0	0	0	8	0	0	8	0	0
Total conifers	**3,075**	**100**	**80**	**3,089**	**100**	**24**	**6,165**	**100**	**37**
Oak	189	25	5	2,135	22	17	2,324	22	14
Beech	68	9	2	305	3	2	373	4	2
Sycamore	66	9	2	1,057	11	8	1,123	11	7
Ash	0	0	0	1,342	14	11	1,342	13	8
Birch	283	37	7	2,498	26	20	2,781	27	17
Poplar	0	0	0	234	2	2	234	2	1
Sweet chestnut	29	4	1	151	2	1	180	2	1
Elm	0	0	0	74	1	1	74	1	0
Other broadleaves	79	10	2	1,517	16	12	1,596	15	10
Mixed broadleaves	54	7	1	368	4	3	423	4	3
Total broadleaves	**769**	**100**	**20**	**9,680**	**100**	**76**	**10,449**	**100**	**63**
Total - all species	**3,844**		**100**	**12,769**		**100**	**16,614**		**100**
Felled	**299**			**68**			**368**		
Total High Forest	**4,143**			**12,837**			**16,982**		

*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 1280ha 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   7%
          Broadleaves   4%
          Scots pine   12%
          Oak   12%
          Birch   11%

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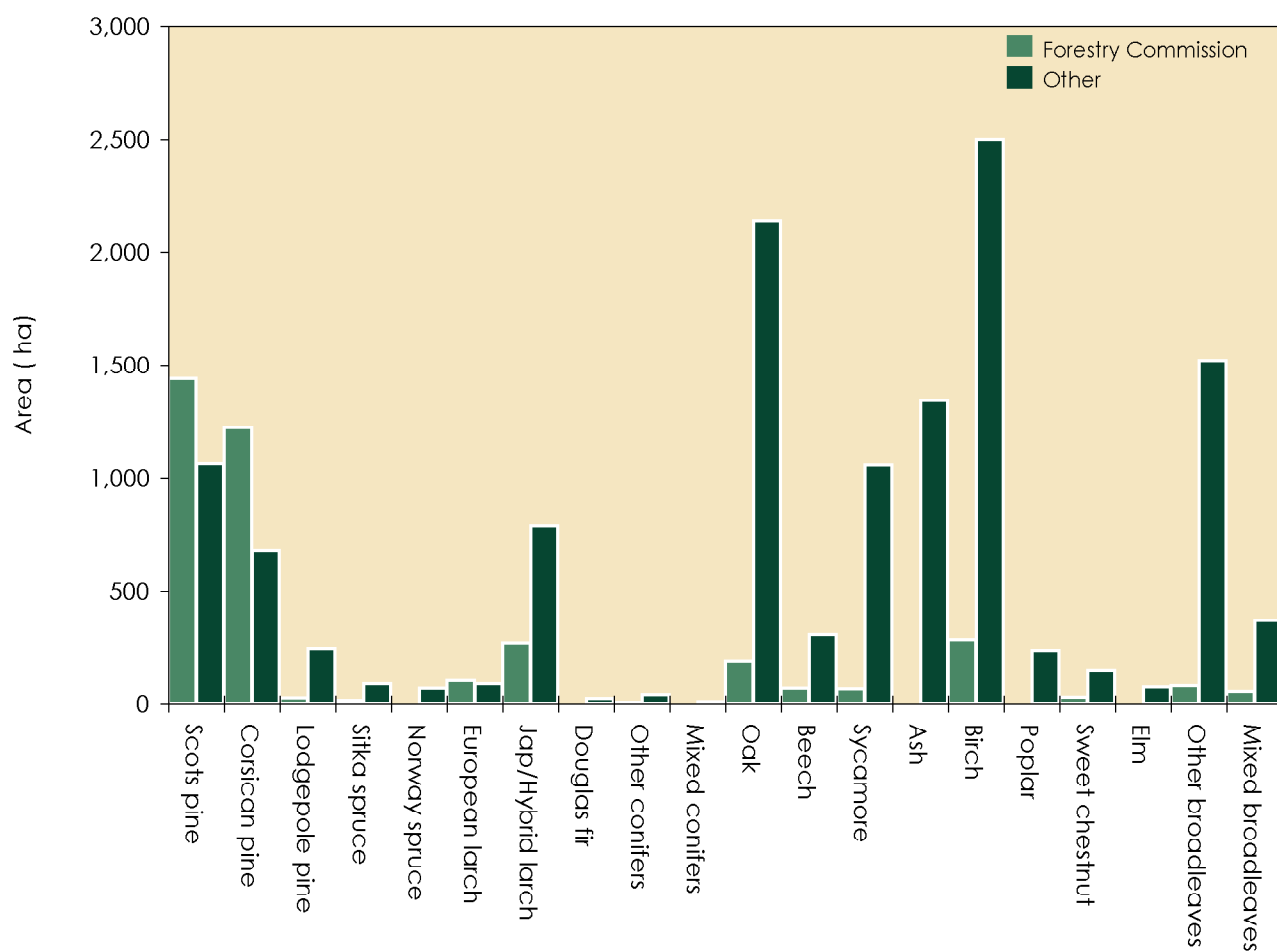
Table 9b Area of High Forest by principal species,ownership and category

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	1,439	0	1,439	929	132	1,061	2,368	132	2,500
Corsican pine	1,220	0	1,220	671	11	681	1,890	11	1,901
Lodgepole pine	25	0	25	243	0	243	268	0	268
Sitka spruce	15	0	15	89	0	89	104	0	104
Norway spruce	0	0	0	69	0	69	69	0	69
European larch	101	0	101	45	42	87	147	42	189
Jap/Hybrid larch	269	0	269	788	0	788	1,057	0	1,057
Douglas fir	0	0	0	7	15	22	7	15	22
Other conifers	7	0	7	32	7	39	39	7	46
Mixed conifers	0	0	0	8	0	8	8	0	8
Total conifers	**3,075**	**0**	**3,075**	**2,883**	**206**	**3,089**	**5,958**	**206**	**6,165**
Oak	57	132	189	1,064	1,071	2,135	1,121	1,203	2,324
Beech	68	0	68	232	74	305	299	74	373
Sycamore	66	0	66	799	258	1,057	865	258	1,123
Ash	0	0	0	773	569	1,342	773	569	1,342
Birch	137	147	283	921	1,577	2,498	1,058	1,724	2,781
Poplar	0	0	0	234	0	234	234	0	234
Sweet chestnut	29	0	29	35	116	151	64	116	180
Elm	0	0	0	6	67	74	6	67	74
Other broadleaves	79	0	79	304	1,213	1,517	383	1,213	1,596
Mixed broadleaves	44	10	54	172	197	368	216	207	423
Total broadleaves	**480**	**289**	**769**	**4,539**	**5,141**	**9,680**	**5,019**	**5,430**	**10,449**
Total - all species	**3,555**	**289**	**3,844**	**7,422**	**5,347**	**12,769**	**10,977**	**5,636**	**16,614**

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	7%	36%	7%
Broadleaves	7%	7%	4%
Scots pine	13%	44%	12%
Oak	15%	17%	12%
Birch	17%	15%	11%

*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 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'.

Reference Date: 31 March 1998

High Forest Category 1 - Area by principal species and ownership
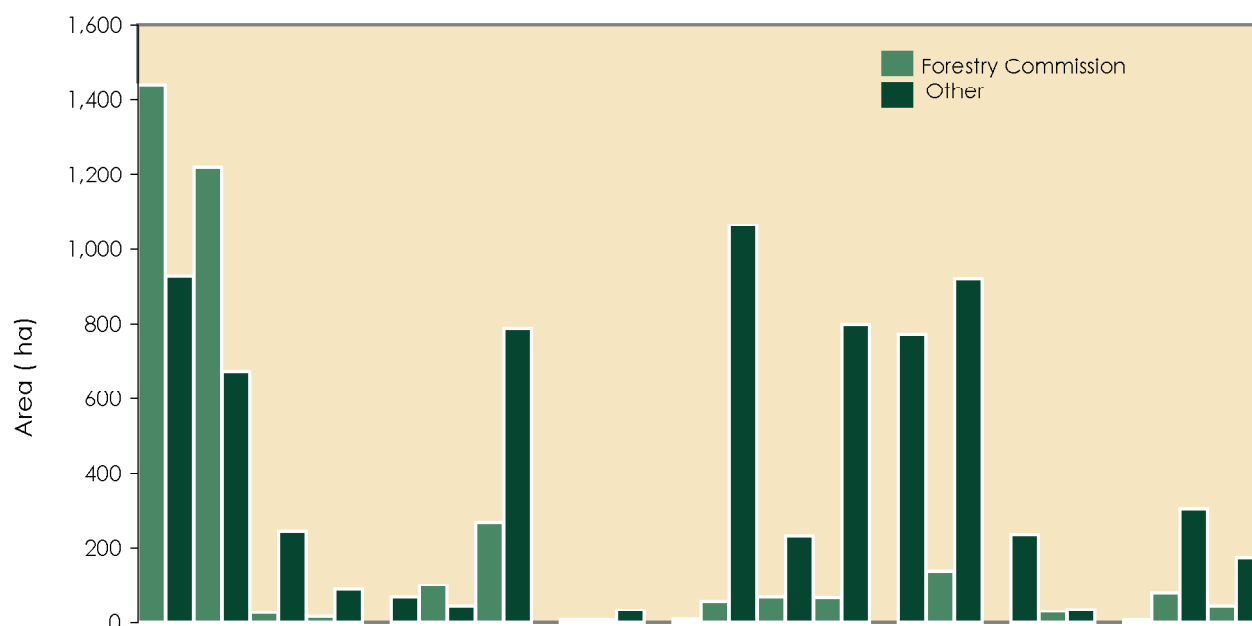
High Forest Category 2 - Area by principal species and ownership
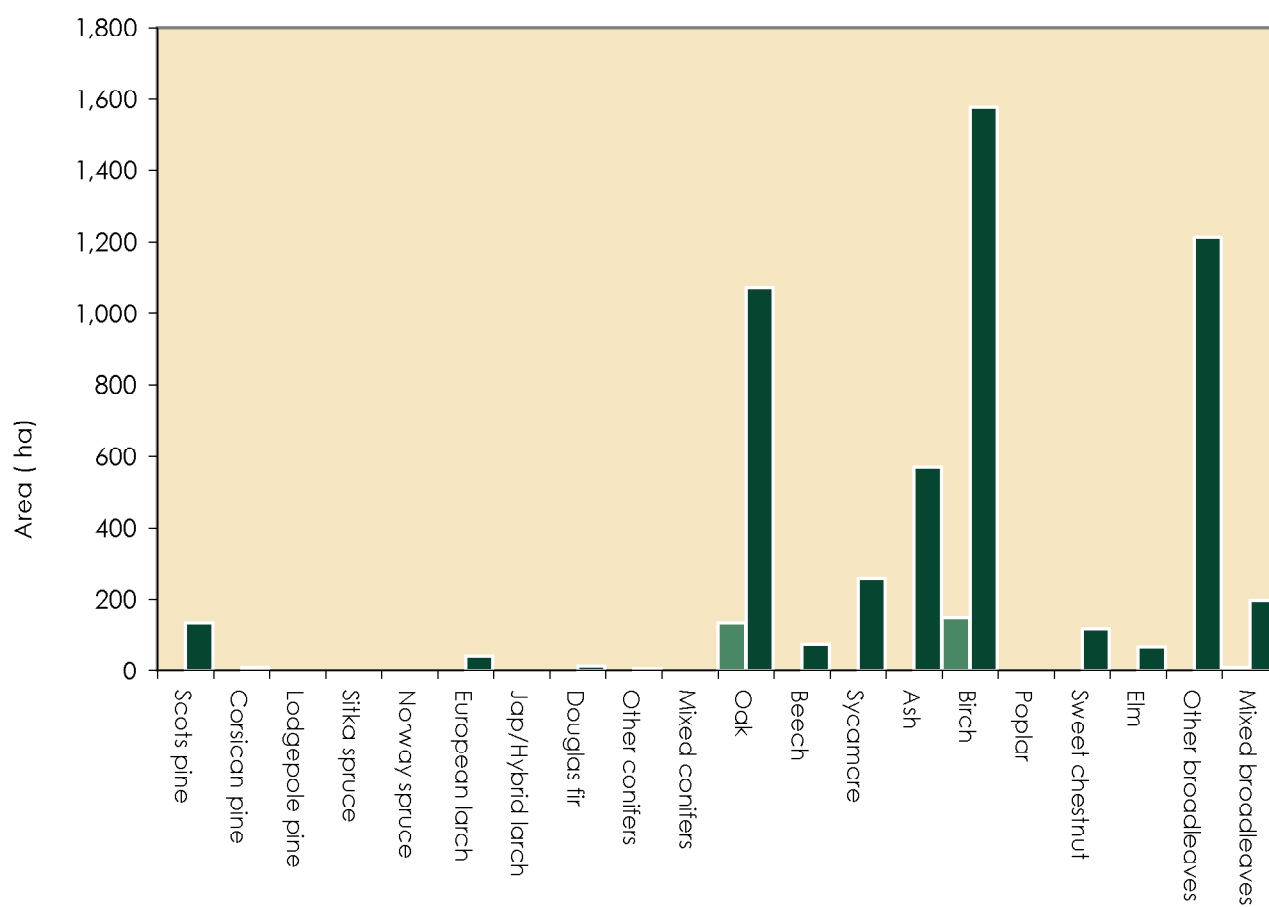
Table 10a   High Forest Category 1 - Area by principal species and planting year class

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	18	0	201	255	1,458	241	63	132	0	0	0	0	2,368
Corsican pine	97	125	317	505	659	169	0	14	0	0	5	0	1,890
Lodgepole pine	0	0	143	0	46	79	0	0	0	0	0	0	268
Sitka spruce	0	0	18	23	0	45	0	18	0	0	0	0	104
Norway spruce	0	0	28	0	19	22	0	0	0	0	0	0	69
European larch	0	0	0	0	0	19	22	105	0	0	0	0	147
Jap/Hybrid larch	5	0	48	61	495	383	5	9	0	0	49	0	1,057
Douglas fir	0	0	0	0	0	7	0	0	0	0	0	0	7
Other conifers	0	0	0	7	32	0	0	0	0	0	0	0	39
Mixed conifers	3	0	0	5	0	0	0	0	0	0	0	0	8
Total conifers	**123**	**125**	**756**	**856**	**2,708**	**966**	**91**	**279**	**0**	**0**	**55**	**0**	**5,958**
Oak	112	4	57	19	92	226	59	138	22	0	393	0	1,121
Beech	0	0	74	60	87	9	0	20	0	0	31	18	299
Sycamore	0	16	0	26	162	216	123	212	38	0	72	0	865
Ash	32	20	0	3	63	54	0	209	0	0	392	0	773
Birch	28	72	256	102	214	166	35	162	19	0	4	0	1,058
Poplar	46	0	81	0	106	0	0	0	0	0	0	0	234
Sweet chestnut	0	0	0	4	0	0	0	0	0	0	60	0	64
Elm	0	6	0	0	0	0	0	0	0	0	0	0	6
Other broadleaves	0	0	132	45	129	41	0	0	17	0	19	0	383
Mixed broadleaves	52	5	16	7	29	15	5	60	0	0	21	5	216
Total broadleaves	**269**	**123**	**615**	**267**	**885**	**727**	**222**	**801**	**96**	**0**	**990**	**23**	**5,019**
Total - all species	**392**	**248**	**1,370**	**1,123**	**3,593**	**1,693**	**313**	**1,080**	**96**	**0**	**1,045**	**23**	**10,977**

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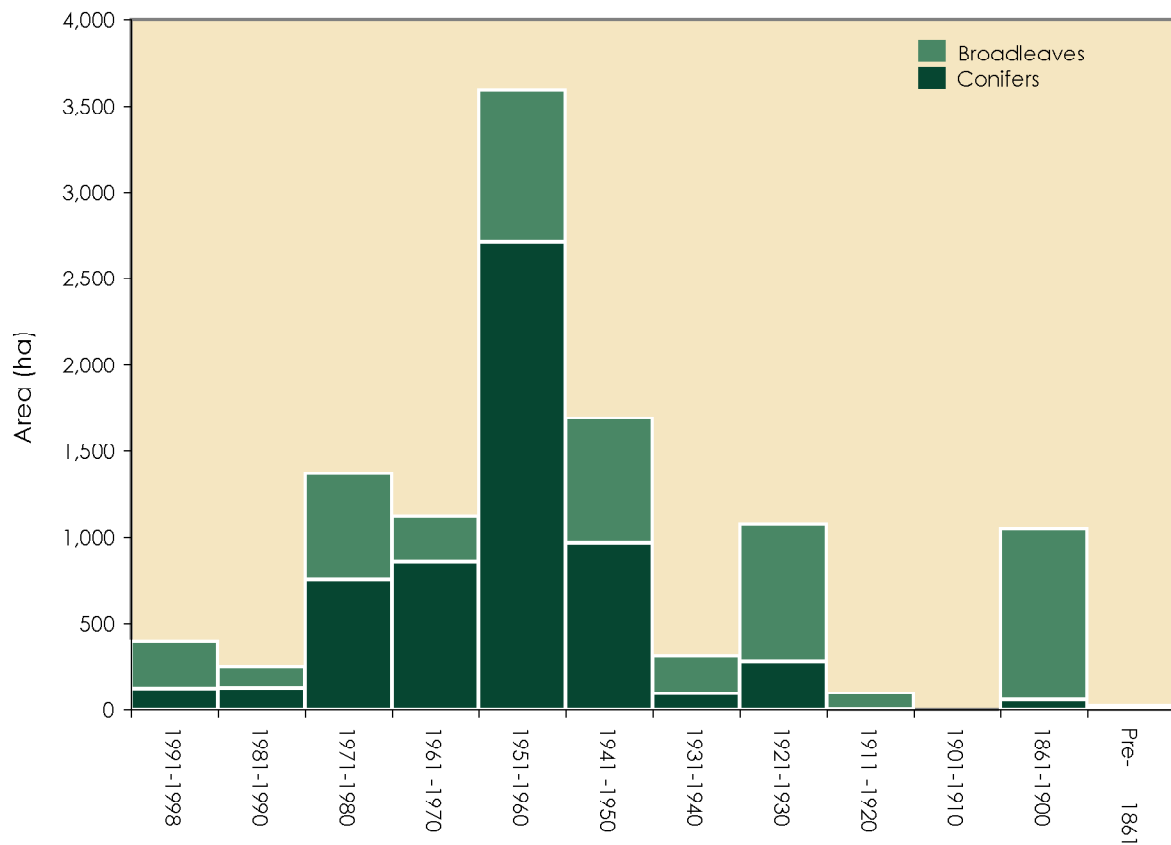
1. Most of the planting year classes cover 10 years, 1991-1998 is 8 years, and the classes prior to 1901 are 40 years or more.

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	15	26	1,210	56	0	132	0	0	0	0	1,439
Corsican pine	66	73	134	188	615	144	0	0	0	0	0	0	1,220
Lodgepole pine	0	0	0	0	25	0	0	0	0	0	0	0	25
Sitka spruce	0	0	0	0	0	0	0	15	0	0	0	0	15
Norway spruce	0	0	0	0	0	0	0	0	0	0	0	0	0
European larch	0	0	0	0	0	0	0	101	0	0	0	0	101
Jap/Hybrid larch	0	0	0	0	167	101	0	0	0	0	0	0	269
Douglas fir	0	0	0	0	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	7	0	0	0	0	0	0	0	0	7
Mixed conifers	0	0	0	0	0	0	0	0	0	0	0	0	0
Total conifers	**66**	**73**	**148**	**222**	**2,017**	**301**	**0**	**248**	**0**	**0**	**0**	**0**	**3,075**
Oak	0	0	0	7	44	6	0	0	0	0	0	0	57
Beech	0	0	7	60	0	0	0	0	0	0	0	0	68
Sycamore	0	0	0	0	0	0	0	66	0	0	0	0	66
Ash	0	0	0	0	0	0	0	0	0	0	0	0	0
Birch	0	0	0	28	65	0	0	44	0	0	0	0	137
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	29	0	29
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	0	0	0	0	79	0	0	0	0	0	0	0	79
Mixed broadleaves	0	0	0	0	0	0	0	44	0	0	0	0	44
Total broadleaves	**0**	**0**	**7**	**95**	**188**	**6**	**0**	**154**	**0**	**0**	**29**	**0**	**480**
Total - all species	**66**	**73**	**156**	**317**	**2,205**	**307**	**0**	**402**	**0**	**0**	**29**	**0**	**3,555**

*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
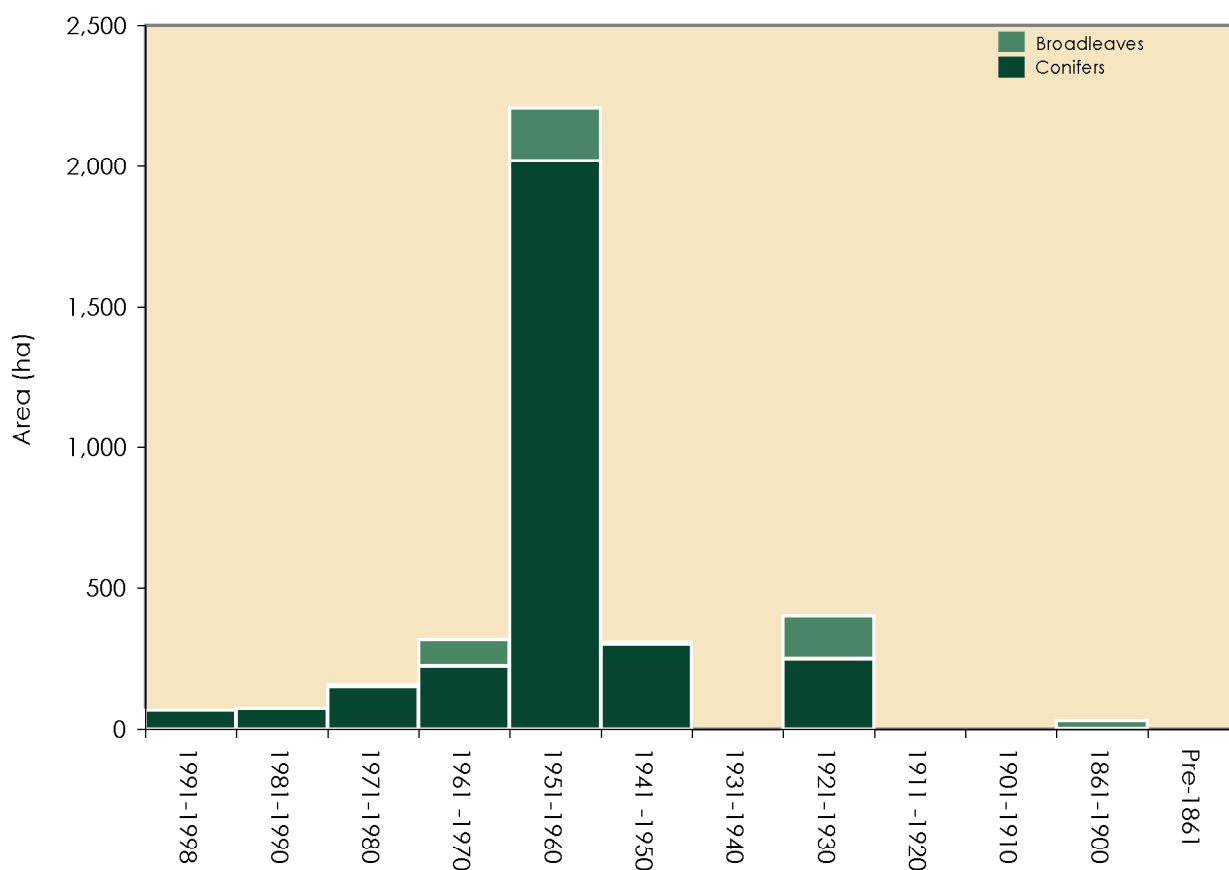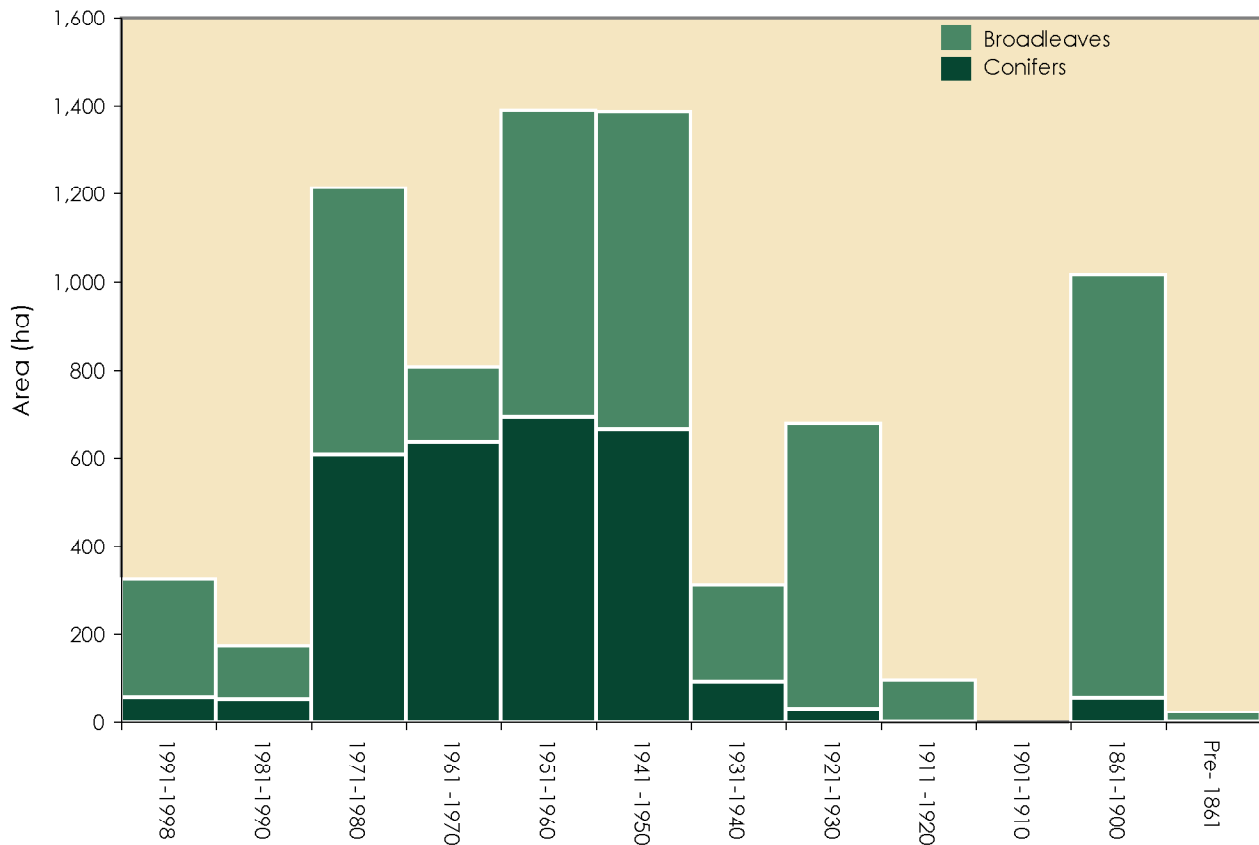

1. Most of the planting year classes cover 10 years, 1991-1998 is 8 years, and the classes prior to 1901 are 40 years or more.

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	18	0	186	228	248	185	63	0	0	0	0	0	929
Corsican pine	31	52	183	317	44	25	0	14	0	0	5	0	671
Lodgepole pine	0	0	143	0	21	79	0	0	0	0	0	0	243
Sitka spruce	0	0	18	23	0	45	0	3	0	0	0	0	89
Norway spruce	0	0	28	0	19	22	0	0	0	0	0	0	69
European larch	0	0	0	0	0	19	22	4	0	0	0	0	45
Jap/Hybrid larch	5	0	48	61	328	282	5	9	0	0	49	0	788
Douglas fir	0	0	0	0	0	7	0	0	0	0	0	0	7
Other conifers	0	0	0	0	32	0	0	0	0	0	0	0	32
Mixed conifers	3	0	0	5	0	0	0	0	0	0	0	0	8
Total conifers	**57**	**52**	**607**	**635**	**692**	**665**	**91**	**31**	**0**	**0**	**55**	**0**	**2,883**
Oak	112	4	57	12	48	220	59	138	22	0	393	0	1,064
Beech	0	0	66	0	87	9	0	20	0	0	31	18	232
Sycamore	0	16	0	26	162	216	123	146	38	0	72	0	799
Ash	32	20	0	3	63	54	0	209	0	0	392	0	773
Birch	28	72	256	74	149	166	35	118	19	0	4	0	921
Poplar	46	0	81	0	106	0	0	0	0	0	0	0	234
Sweet chestnut	0	0	0	4	0	0	0	0	0	0	31	0	35
Elm	0	6	0	0	0	0	0	0	0	0	0	0	6
Other broadleaves	0	0	132	45	50	41	0	0	17	0	19	0	304
Mixed broadleaves	52	5	16	7	29	15	5	16	0	0	21	5	172
Total broadleaves	**269**	**123**	**607**	**172**	**697**	**721**	**222**	**647**	**96**	**0**	**961**	**23**	**4,539**
Total - all species	**326**	**175**	**1,215**	**806**	**1,388**	**1,386**	**313**	**678**	**96**	**0**	**1,016**	**23**	**7,422**

*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	Oak	27	Corsican pine	24	Mixed broadleaves	13
1981-90	Corsican pine	32	Birch	30	Other broadleaves	19
1971-80	Birch	21	Corsican pine	19	Other broadleaves	14
1961-70	Corsican pine	26	Birch	21	Scots pine	18
1951-60	Scots pine	32	Corsican pine	14	Birch	14
1941-50	Birch	16	Oak	15	Jap/Hybrid larch	14
1931-40	Birch	36	Sycamore	18	Other broadleaves	14
1921-30	Oak	25	Ash	16	Birch	15
1911-20	Birch	39	Oak	23	Other broadleaves	20
1901-10	-		-		-	
1861-1900	Oak	47	Ash	24	Other broadleaves	7
Pre 1861	Beech	44	Oak	38	Other broadleaves	14
All years	**Birch**	**17**	**Scots pine**	**15**	**Oak**	**14**

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	5,906	32.3
Business	3,355	18.4
Forestry or timber business	780	4.3
Charity	1,943	10.6
Local Authority	1,305	7.1
Other public (not FC)	400	2.2
Forestry Commission	4,317	23.6
Community ownership or common land	193	1.1
Unidentified	62	0.3
Total	**18,261**	**100.0**

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

Ownership type by area

- Personal
- Businesss
- Forestry or timber business
- Charity
- Local Authority
- Other public
- Forestry Commission
- Community ownership
- Unidentified
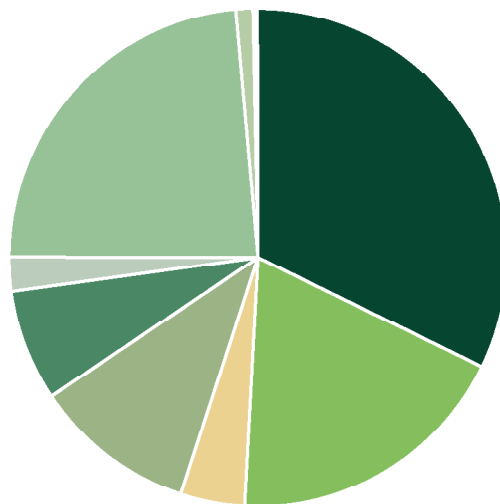
Table 13 Summary of information from the Survey of Small Woodlands and Trees

Feature type	Number of features	Total	Unit
Small Woods	5,671	2,177	Area (ha)
Wide Linear Features	2,257	737	Area (ha)
Wide Linear Features	2,257	261	Length (Km)
Narrow Linear Features	73,700	5,172	Length (Km)
Narrow Linear Features	73,700	3,157,000	Number of live trees
Groups	193,800	1,206	Number of live trees
Individual Trees	295,800	295,800	Number of live trees

1.   See Glossary for definitions of feature types.

Table 14 Woodland area by feature type and woodland size

Feature type	Woodland size (ha)		Total area	Number of	Mean size
	0.1 - <0.25	0.25 - <2.0	(ha)	features	(ha)
Small Woods	381	1,797	2,177	5,671	0.38
Wide Linear Features	143	594	737	2,257	0.33
Total	524	2,391	2,914	7,928	0.37

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	4.1	56.8	78.2	139.1	81.7	3.0
Spruce	0.0	0.0	0.0	3.0	3.0	1.8	0.1
Larch	0.8	0.0	5.0	0.8	6.6	3.9	0.1
Cypress	0.0	0.8	0.0	12.0	12.8	7.5	0.3
Other conifers	0.0	2.5	1.7	4.5	8.7	5.1	0.2
Total conifers	**0.8**	**7.4**	**63.5**	**98.5**	**170.2**	**100.0**	**3.7**
Oak	30.1	11.7	64.3	115.1	221.2	4.9	4.7
Beech	19.2	4.2	12.5	7.5	43.4	1.0	0.9
Sycamore	9.0	1.0	25.1	120.4	155.5	3.5	3.3
Ash	21.5	6.0	54.3	123.4	205.2	4.6	4.4
Birch	0.8	3.3	79.4	185.8	269.3	6.0	5.8
Poplar	0.0	0.0	0.8	0.0	0.8	0.0	0.0
Sweet chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.8	2.5	3.3	11.3	17.9	0.4	0.4
Alder	7.1	2.1	16.7	124.1	150.0	3.3	3.2
Lime	0.8	1.7	3.3	3.0	8.8	0.2	0.2
Elm	0.8	0.0	4.2	60.9	65.9	1.5	1.4
Willow	5.8	0.0	63.5	115.1	184.4	4.1	4.0
Other broadleaves	84.9	73.8	814.6	2,191.9	3,165.2	70.5	67.9
Total broadleaves	**180.9**	**106.2**	**1,142.2**	**3,058.5**	**4,487.6**	**100.0**	**96.3**
Total - all species	**181.7**	**113.6**	**1,205.7**	**3,157.0**	**4,658.5**		**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   23%
        Groups   20%
        Narrow Linear Features   18%

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	0.8	0.0	0.8	100.0	3.2
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
Mixed Conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total conifers	**0.0**	**0.0**	**0.8**	**0.0**	**0.8**	**100.0**	**3.2**
Oak	0.0	0.8	0.0	0.0	0.8	3.4	3.2
Beech	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sycamore	0.0	0.0	0.0	0.8	0.8	3.4	3.2
Ash	0.8	0.0	0.0	0.8	1.6	6.7	6.4
Birch	0.4	0.4	2.5	0.0	3.3	13.9	13.3
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	0.8	1.5	2.3	9.7	9.2
Lime	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.0	0.0	0.8	0.8	3.4	3.2
Willow	0.0	0.0	0.0	1.5	1.5	6.3	6.0
Other broadleaves	1.0	3.9	3.3	4.5	12.7	53.4	51.0
Total broadleaves	**2.2**	**5.1**	**6.7**	**9.8**	**23.8**	**100.0**	**95.6**
Total - all species	**2.2**	**5.1**	**7.5**	**9.8**	**24.9**		**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	14.5	123.9	0.8	0.0	139.2
Spruce	1.5	1.5	0.0	0.0	3.0
Larch	0.0	5.8	0.8	0.0	6.6
Cypress	0.0	12.9	0.0	0.0	12.9
Other conifers	0.8	7.0	0.0	0.8	8.6
Total conifers	**16.8**	**151.1**	**1.6**	**0.8**	**170.3**
Oak	40.1	152.8	27.4	0.8	221.1
Beech	23.7	3.9	15.8	0.0	43.4
Sycamore	33.9	113.9	7.6	0.0	155.4
Ash	46.9	139.9	14.3	4.2	205.3
Birch	101.0	167.6	0.8	0.0	269.4
Poplar	0.0	0.0	0.8	0.0	0.8
Sweet chestnut	0.0	0.0	0.0	0.0	0.0
Horse chestnut	1.6	15.6	0.8	0.0	18.0
Alder	20.0	124.0	6.0	0.0	150.0
Lime	0.8	3.3	3.9	0.8	8.8
Elm	11.3	54.7	0.0	0.0	66.0
Willow	94.4	90.0	0.0	0.0	184.4
Other broadleaves	2,255.5	875.2	22.7	11.9	3,165.3
Total broadleaves	**2,629.2**	**1,740.9**	**100.1**	**17.7**	**4,487.9**
Total - all species	**2,646.0**	**1,892.0**	**101.8**	**18.6**	**4,658.5**

Table 18 Number of Groups by group size

Number of trees per Group*	Number of Groups (000's)
2	43
3-5	68
6-10	47
11-20	22
21-50	10
51-100	3
>100	2
Total	**194**

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

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	15,228	89.9	18,261	88.4	20
0.25 - <2.0	1,708	10.1	2,391	11.6	40
Total	16,936		20,652		22
% Woodland land cover	6.2		7.6		

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), 271,545 ha, was based on the 1991 Census of Population digital boundaries.

4. Land area used to calculate woodland cover percent (1980), 271,616ha, (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	2,441	2,526	3
Corsican pine	1,829	1,901	4
Lodgepole pine	488	268	-45
Sitka spruce	45	104	131
Norway spuce	269	124	-54
European larch	294	189	-36
Jap/Hybrid larch	800	1,057	32
Douglas fir	8	22	161
Other conifers	83	46	-45
Mixed conifers	336	8	-98
Total conifers	**6,593**	**6,245**	**-5**
Oak	1,658	2,630	59
Beech	383	373	-3
Sycamore	795	1,283	61
Ash	565	1,582	180
Birch	3,306	2,819	-15
Poplar	162	437	169
Sweet chestnut	83	180	118
Elm	17	94	457
Other broadleaves	544	2,911	435
Mixed broadleaves	1,036	934	-10
Total broadleaves	**8,550**	**13,243**	**55**
Total all species	**15,143**	**19,488**	**29**
Felled	**317**	**368**	**16**
Total High Forest	**15,460**	**19,856**	**28**

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 6.2% (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 6.2%.

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

–

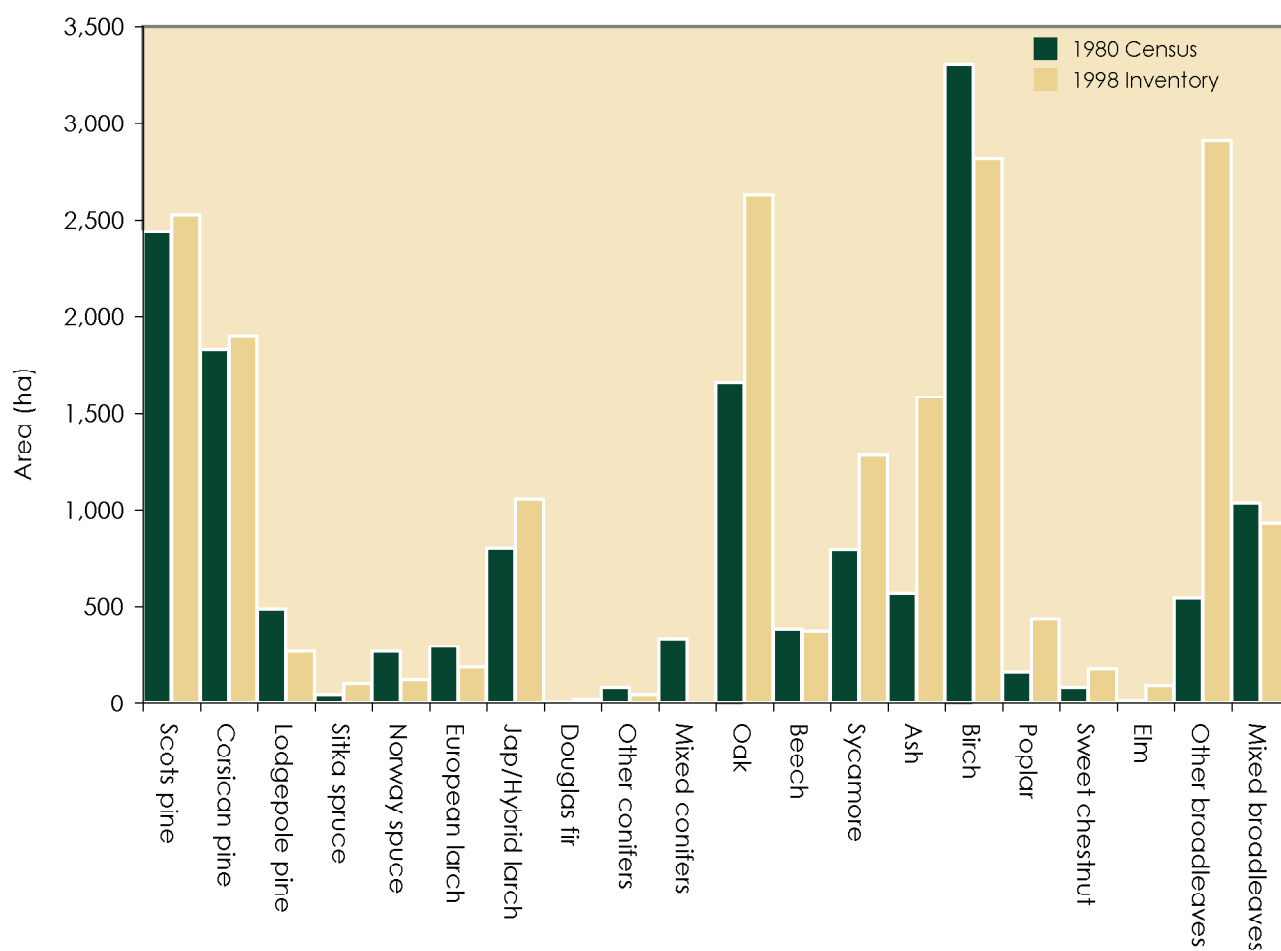**Comparison of High Forest area by species between 1980 Census and 1998 Inventory**

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	817	see note
1981-1990	0	319	see note
1971-1980	699	1,416	103
1961-1970	2,050	1,123	-45
1951-1960	2,664	3,877	46
1941-1950	1,717	1,693	-1
1931-1940	1,578	376	-76
1921-1930	2,065	1,080	-48
1911-1920	698	108	-85
1901-1910	113	0	-100
1861-1900	1,673	1,217	-27
Pre 1861	923	23	-98
Total all years	**14,180**	**12,049**	**-15**

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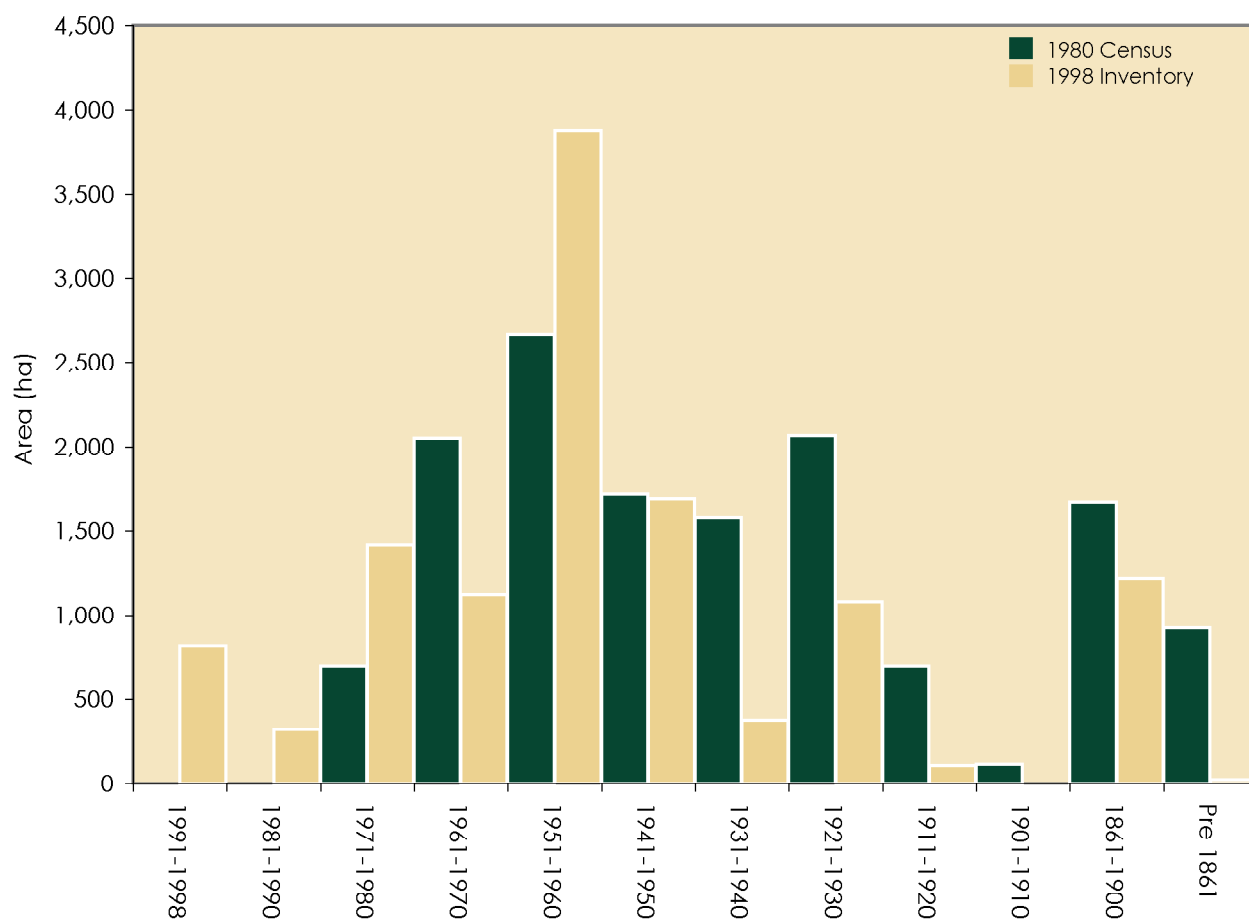
Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1998 Inventory

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	99	156	58
Middle Tree	235	75	-68
Total Individual Trees	334	231	-31
Groups	235	451	92
Linear Features	736	1,295	76
Total	1,304	1,977	52

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)	122.9	84.9	-31
Groups (per sq km)	27.0	32.3	20
Linear Features (m per sq km)	1,093.4	1,574.0	44

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 22 Comparison of numbers of live trees outside woodland

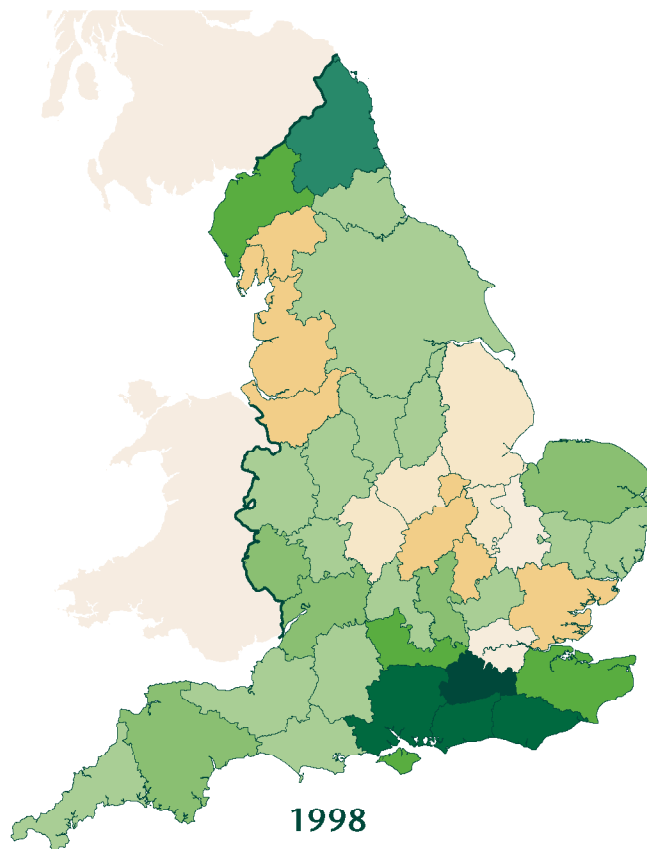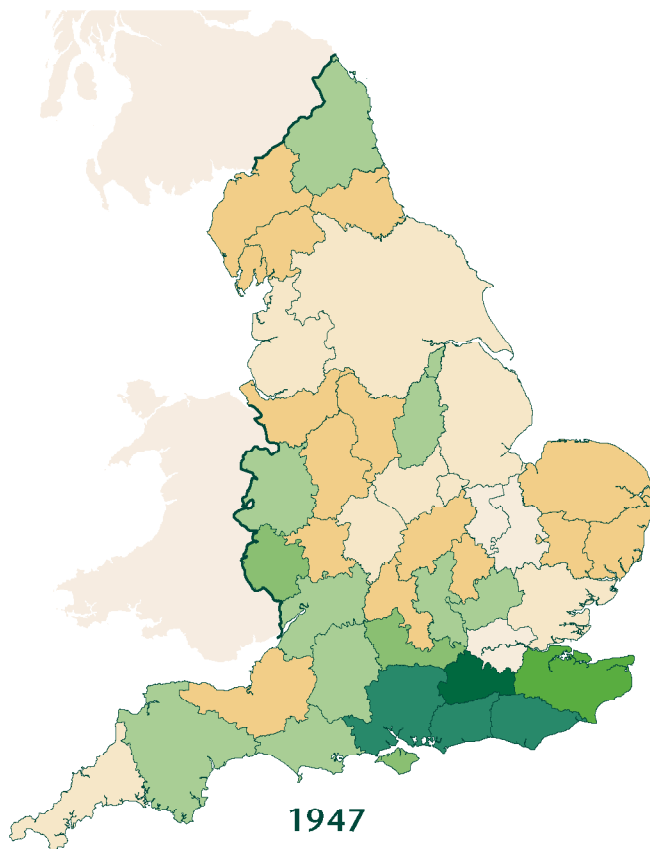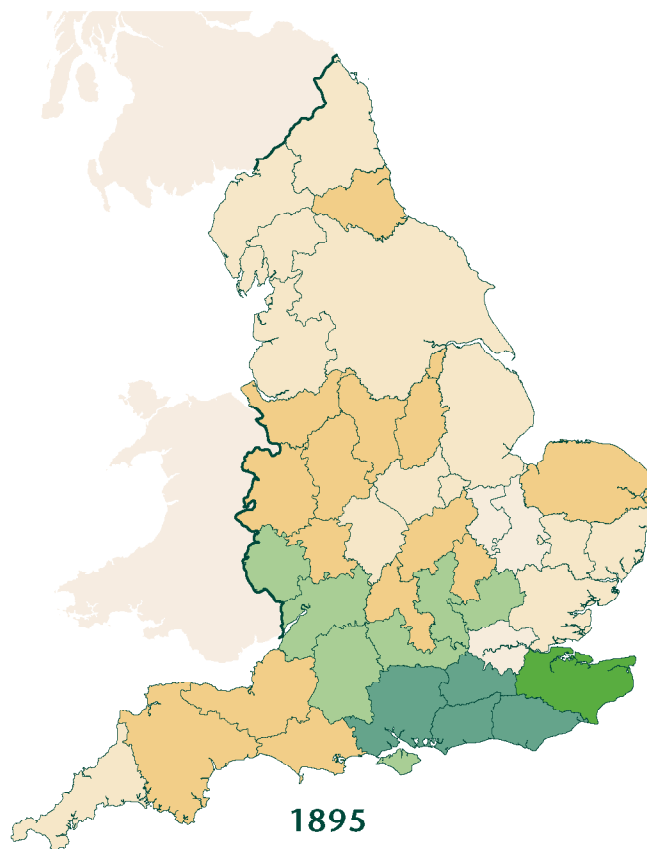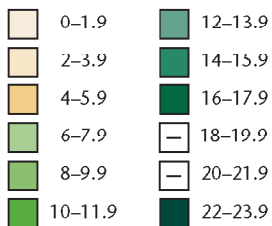between 1980 Census and 1997 Inventory   (000's)

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. West Midlands included a substantial proportion of developed land making comparison inappropriate.

Table 23 Comparison of density of non-woodland features between 1980

Census and 1997 Inventory

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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

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