

NATIONAL INVENTORY OF WOODLAND AND TREES



WALES

County Report for

GWENT



Forestry Commission

Crown Copyright 2002
First Published 2002

Printed in the United Kingdom

Enquiries regarding this report should be directed to:

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

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

CONTENTS

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

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

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

Tables 13 – 18

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

Comparison of results with the 1980 Census and previous surveys 39

Tables 19 - 23

Table 19:	Comparison of woodland area between 1980 Census and 1997 Inventory	41
Table 20:	Comparison of High Forest area by species between 1980 Census and 1997 Inventory	42
Chart:	Comparison of High Forest area by species between 1980 Census and 1997 Inventory	43
Table 21:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1997 Inventory	44
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1997 Inventory	45
Table 22:	Comparison of numbers of live trees outside woodland between 1980 Census and 1997 Inventory	46
Table 23:	Comparison of density of non-woodland features between 1980 Census and 1997 Inventory	46

Woodland cover

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

Glossary 49

ACKNOWLEDGEMENTS

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

Woodland Surveys Branch of Forest Research was responsible for carrying out the survey and analysing the data. A large number of Forestry Commission and contract staff were involved in the survey from its inception.

Preparation of the digital cartography for Gwent was carried out by Graham Bull, Woodland Survey Officer, and Woodland GIS Officers Chris Brown, Robert Beck and Esther Whitton. Data processing and analysis was carried out by Woodland Data Officers Justin Gilbert and Shona Cameron.

The authors of this Report are Steve Smith (Head of Woodland Surveys) and Justin Gilbert (Woodland Data Officer) of Forest Research.

INTRODUCTION

This report presents the results for Gwent 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 Wales, 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 Wales 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 Gwent is 19,021 hectares. This represents 13.8% of the land area. (Table 1)
- Broadleaved woodland is the dominant forest type representing 50.2 % of all woodland. Conifer woodland represents 28.5 %, Mixed woodland 15.4 % and Open Space within woodlands 3.7 %. (Table 2)
- The main conifer species is larch covering 2,377 hectares or 34.7 % of all conifer species. The main broadleaved species is oak covering 3,180 hectares or 28.8 % of all broadleaved species. (Table 3)
- 8,318 hectares or 46 % of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 9,735 hectares or 54 % of woodland is in Other ownership. (Table 6)
- There are a total of 767 woods over 2 ha within Gwent with a mean wood area of 23.6 hectares. (Table 7a) There are a total of 2,483 woods from 0.1 - <2.0 hectares with a mean wood area of 0.39 hectares. (Table 14)
- There are 1.4 million live trees outside woodland in Gwent. (Table 15)
- Woodland land cover increased by over 2,100 hectares from 12.3 % to 13.8 % of the land area between 1980 and 1997. (Table 19)
- The area of broadleaves increased by 49% between 1980 and 1997, with the relative proportion of broadleaves to conifers increasing from 46 % to 62 %. (Table 20)

INVENTORY REPORTS

As well as this report for Gwent, reports are available for the other counties in Wales as shown on the map opposite as well as a report for the country as a whole. England 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 County boundaries

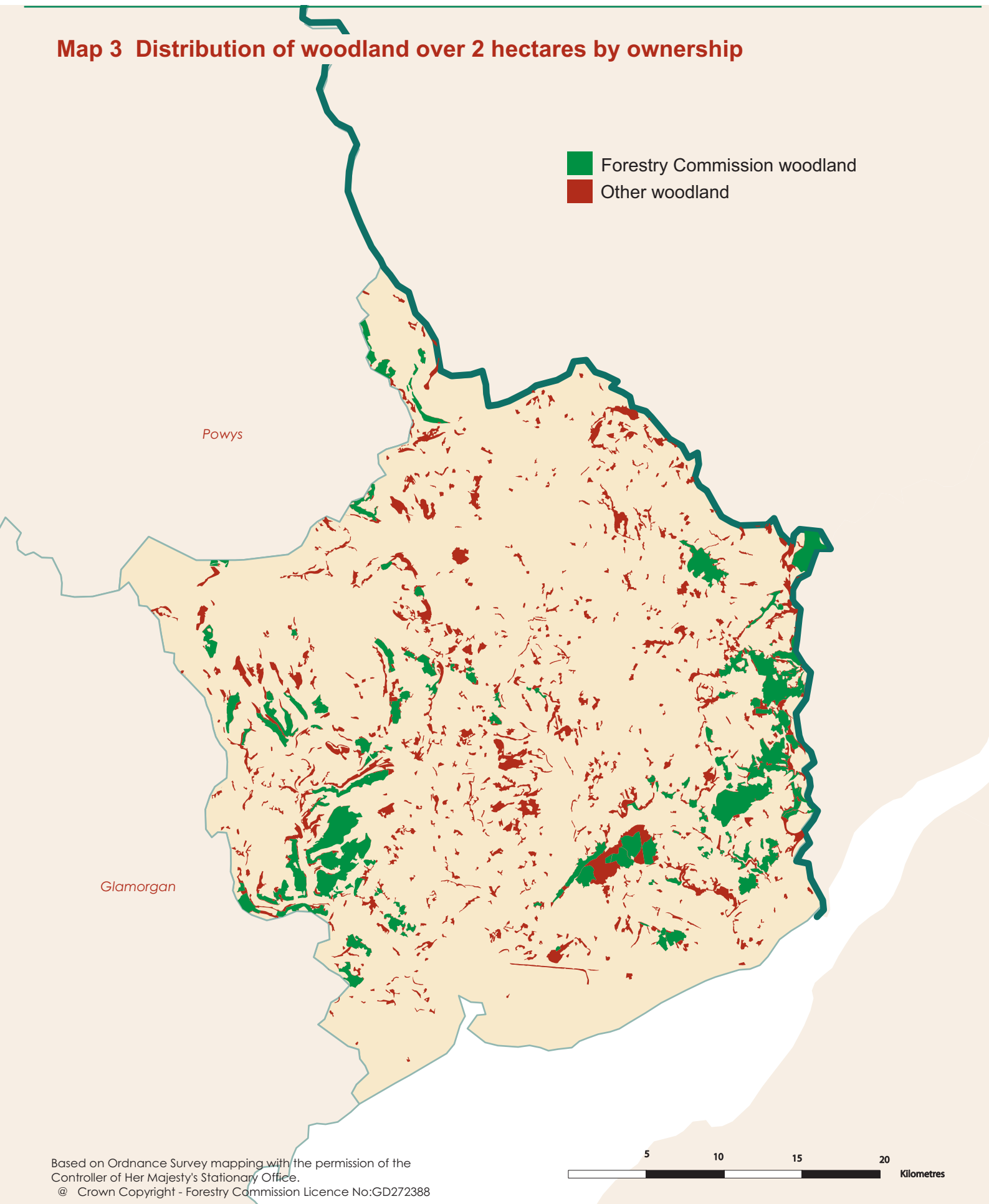


Based on Ordnance Survey mapping with the permission of the
Controller of Her Majesty's Stationary Office.
© Crown Copyright - Forestry Commission Licence No:GD272388

Map 2 Distribution of woodland over 2 hectares



Map 3 Distribution of woodland over 2 hectares by ownership



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



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

SUMMARY RESULTS FROM THE NATIONAL INVENTORY OF WOODLAND AND TREES (NIWT)

Both the Main Woodland Survey and the Survey of Small Woodland and Trees contributed to the estimate of woodland area for Gwent.

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	18,053	94.9
0.25 - < 2.00	968	5.1
0.10 - < 0.25	0	0.0
Total area of woodland	19,021	100.0
% Woodland land cover	13.8	

1. Area of Gwent, including inland water, 137,652 ha based on digital boundaries used in the 1991 Census of Population

Table 2 Woodland area by forest type and woodland size

Forest type	Woodland size (ha)		Total area (ha)	Percentage of total area
	2.0 and over	0.1 - <2.0		
Conifer	5,425	0	5,425	28.5
Broadleaved	8,758	794	9,552	50.2
Mixed	2,754	174	2,928	15.4
Coppiced	229	0	229	1.2
Copp-w-standards	0	0	0	0.0
Windblow	0	0	0	0.0
Felled	184	0	184	1.0
Open Space	704	0	704	3.7
Total	18,054	968	19,021	100

1. See Glossary for definitions of forest types.

Table 3 Woodland area by principal species and woodland size

Species/Groups	Woodland size (ha)		Total area (ha)	Percentage of total area	
	2.0 and over	0.1 -<2.0		Category*	Species**
Pine	860	0	860	12.6	4.8
Sitka spruce	752	0	752	11.0	4.2
Larch	2,377	0	2,377	34.7	13.3
Other conifers	2,826	0	2,826	41.2	15.8
Mixed conifers	37	0	37	0.5	0.2
Total conifers	6,851	0	6,851	100.0	38.3
Oak	2,857	323	3,180	28.8	17.8
Beech	1,429	0	1,429	12.9	8.0
Sycamore	497	0	497	4.5	2.8
Ash	2,012	199	2,211	20.0	12.3
Birch	1,003	99	1,102	10.0	6.2
Elm	0	0	0	0.0	0.0
Other broadleaves	1,403	323	1,726	15.6	9.6
Mixed broadleaves	884	25	909	8.2	5.1
Total broadleaves	10,085	968	11,053	100.0	61.7
Total all species***	16,936	968	17,904		100.0

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

**Species/group percentage of all species

***Excludes the 1,117ha 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	5%
Jap/Hybrid larch	15%
Oak	13%
Ash	13%

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	113,500	1,155,100	10	839
Narrow Linear Features	3,700	196,800	53	143
Individual Trees	60,900	60,900	1	44
Total		1,412,800		1,026

1. Land area used to calculate tree density 137,652ha 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	14%
Narrow Linear Features	42%
Individual Trees	22%
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	3,700	312	226
Total		312	226

1. Land area used to calculate tree density 137,652ha 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	38%
3. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).
4. See Glossary for definitions of feature type.

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 Gwent.

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 6 Summary of woodland area by ownership

Ownership	ha	% woodland
Forestry Commission	8,318	46
Other	9,735	54
Total area of woodland	18,053	100

1. Woodland area from aerial photographic interpretation map updated to 31 March 1997
2. See Glossary for definitions of ownership types

Woodland area by ownership

■ Forestry Commission
■ Other ownership

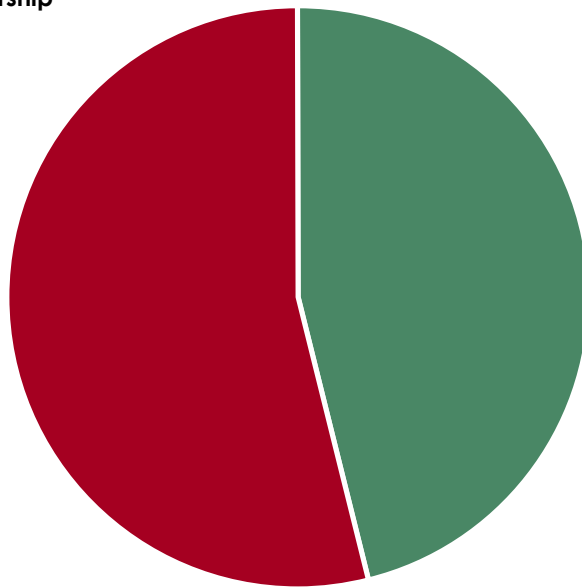


Table 7a Size class distribution of woodland

Size class (ha)	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	534	2,330	13	4.4
10 - <20	112	1,613	9	14.4
20 - <50	57	1,733	10	30.4
50 - <100	32	2,388	13	74.6
<100	735	8,062	44	11.0
100 - <500	28	5,174	29	184.8
500 and >	4	4,887	27	1,221.6
All woods	767	18,123	100	23.6

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	26	146	1	5.6
	O	793	3,007	17	3.8
10 - <20	FC	27	380	2	14.1
	O	120	1,698	9	14.2
20 - <50	FC	26	751	4	28.9
	O	55	1,692	9	30.8
50 - <100	FC	19	1,486	8	78.2
	O	30	2,113	12	70.4
<100	FC	98	2,764	15	28.2
	O	998	8,510	47	8.5
100 - <500	FC	21	3,394	19	161.6
	O	7	1,296	7	185.1
500 and >	FC	3	2,160	12	720.0
	O	0	0	0	0.0
Total	FC	122	8,318	46	68.2
	O	1,005	9,805	54	9.8

- Table 7a and 7b are based solely on the digital woodland map. The other MWS tables are derived from the field sample data.
- The total area in Tables 7a and 7b is 70 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.
- The data available from the digital map enable the identification of woodlands according to their ownerships, Forestry Commission or Other. The entries in table 7b cannot be added to derive table 7a as some woods may consist of both Forestry Commission and Other ownership(s).

For example, the Forestry Commission may own most of a large wood with some parts in Other ownership(s). In Table 7a the whole area would be treated as one wood and the area allocated to one size category. In Table 7b each of the ownership units would be allocated to the size category for that unit. Dividing woods by ownership can occasionally generate part woods of less than 2 hectares.

Table 8 Area of woodland by forest type and ownership

Forest type	Forestry Commission		Other		All ownerships	
	ha	%	ha	%	ha	%
Conifer	3,929	47.2	1,496	15.4	5,425	30.1
Broadleaved	2,474	29.7	6,283	64.5	8,758	48.5
Mixed	1,333	16.0	1,421	14.6	2,754	15.3
Coppice	0	0.0	229	2.4	229	1.3
Copp-w-Stds	0	0.0	0	0.0	0	0.0
Windblow	0	0.0	0	0.0	0	0.0
Felled	177	2.1	6	0.1	184	1.0
Open Space	405	4.9	299	3.1	704	3.9
Total	8,318	100.0	9,735	100.0	18,053	100.0

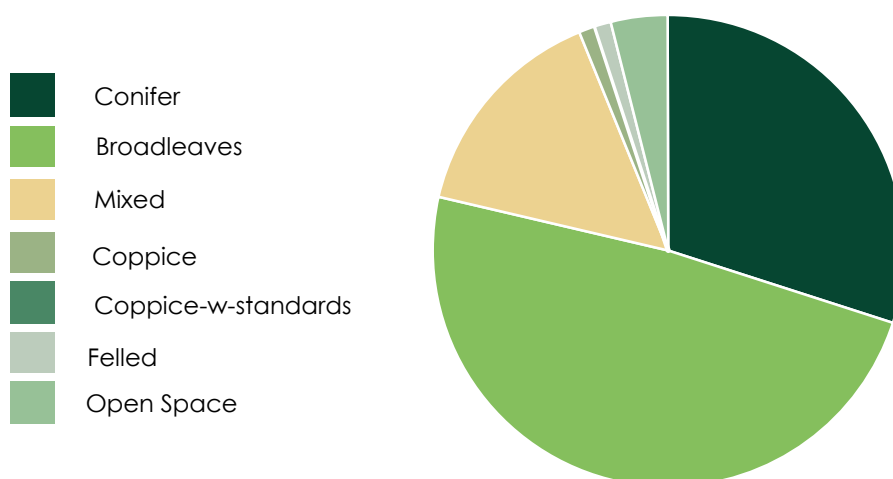
Area of woodland by forest type

Table 9a Area of High Forest by principal species and ownership

Species	Forestry Commission			Other			All ownerships		
	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %
Scots pine	399	8	5	56	3	1	455	7	3
Corsican pine	127	3	2	0	0	0	127	2	1
Lodgepole pine	219	5	3	59	3	1	278	4	2
Sitka spruce	570	12	7	183	9	2	752	11	4
Norway spruce	312	6	4	807	40	9	1,119	16	7
European larch	31	1	0	0	0	0	31	0	0
Jap/Hybrid larch	1,782	37	23	564	28	6	2,346	34	14
Douglas fir	649	13	8	345	17	4	994	15	6
Other conifers	694	14	9	19	1	0	713	10	4
Mixed conifers	37	1	0	0	0	0	37	1	0
Total conifers	4,818	100	62	2,033	100	22	6,851	100	40
Oak	981	34	13	1,876	26	20	2,857	28	17
Beech	753	26	10	676	9	7	1,429	14	8
Sycamore	20	1	0	477	7	5	497	5	3
Ash	373	13	5	1,639	23	18	2,012	20	12
Birch	303	10	4	699	10	8	1,003	10	6
Poplar	10	0	0	98	1	1	109	1	1
Sweet chestnut	0	0	0	104	1	1	104	1	1
Elm	0	0	0	0	0	0	0	0	0
Other broadleaves	71	2	1	1,119	16	12	1,190	12	7
Mixed broadleaves	406	14	5	478	7	5	884	9	5
Total broadleaves	2,918	100	38	7,167	100	78	10,085	100	60
Total - all species	7,736		100	9,200		100	16,936		100
Felled	177			6			184		
Total High Forest	7,913			9,206			17,120		

*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 704ha 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	5%
Jap/Hybrid larch	15%
Oak	13%
Ash	13%
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

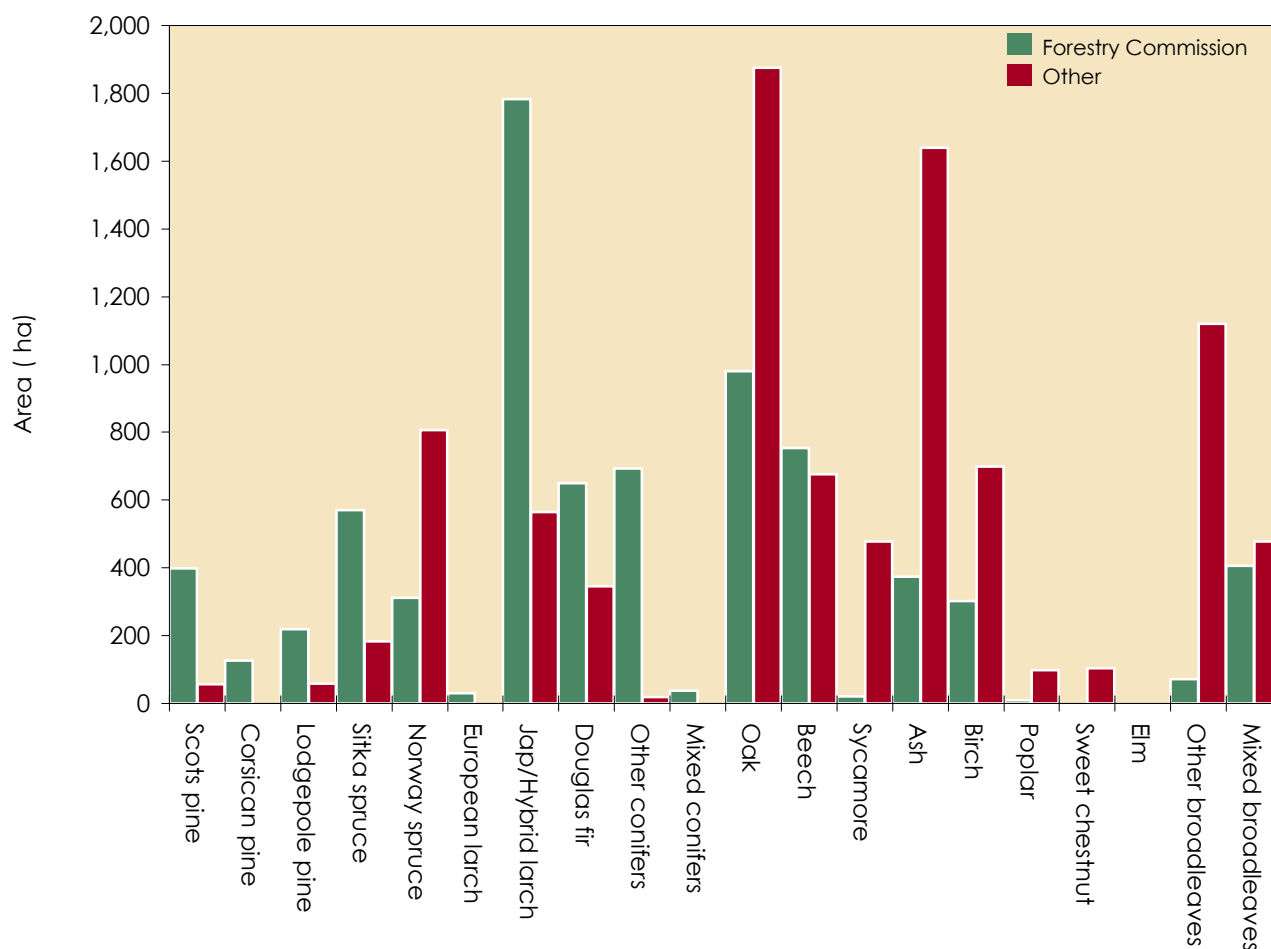


Table 9b Area of High Forest by principal species,ownership and category

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	399	0	399	56	0	56	455	0	455
Corsican pine	127	0	127	0	0	0	127	0	127
Lodgepole pine	183	36	219	59	0	59	242	36	278
Sitka spruce	570	0	570	183	0	183	752	0	752
Norway spruce	312	0	312	807	0	807	1,119	0	1,119
European larch	31	0	31	0	0	0	31	0	31
Jap/Hybrid larch	1,782	0	1,782	564	0	564	2,346	0	2,346
Douglas fir	643	5	649	345	0	345	989	5	994
Other conifers	683	10	694	14	5	19	697	15	713
Mixed conifers	37	0	37	0	0	0	37	0	37
Total conifers	4,767	51	4,818	2,028	5	2,033	6,795	56	6,851
Oak	909	73	981	1,490	386	1,876	2,398	459	2,857
Beech	726	27	753	543	133	676	1,270	160	1,429
Sycamore	20	0	20	338	139	477	358	139	497
Ash	269	103	373	1,554	86	1,639	1,823	189	2,012
Birch	153	151	303	338	362	699	490	512	1,003
Poplar	10	0	10	98	0	98	109	0	109
Sweet chestnut	0	0	0	90	14	104	90	14	104
Elm	0	0	0	0	0	0	0	0	0
Other broadleaves	27	44	71	611	508	1,119	638	552	1,190
Mixed broadleaves	203	203	406	354	124	478	557	327	884
Total broadleaves	2,317	600	2,918	5,415	1,752	7,167	7,733	2,352	10,085
Total - all species	7,084	652	7,736	7,443	1,757	9,200	14,528	2,409	16,936

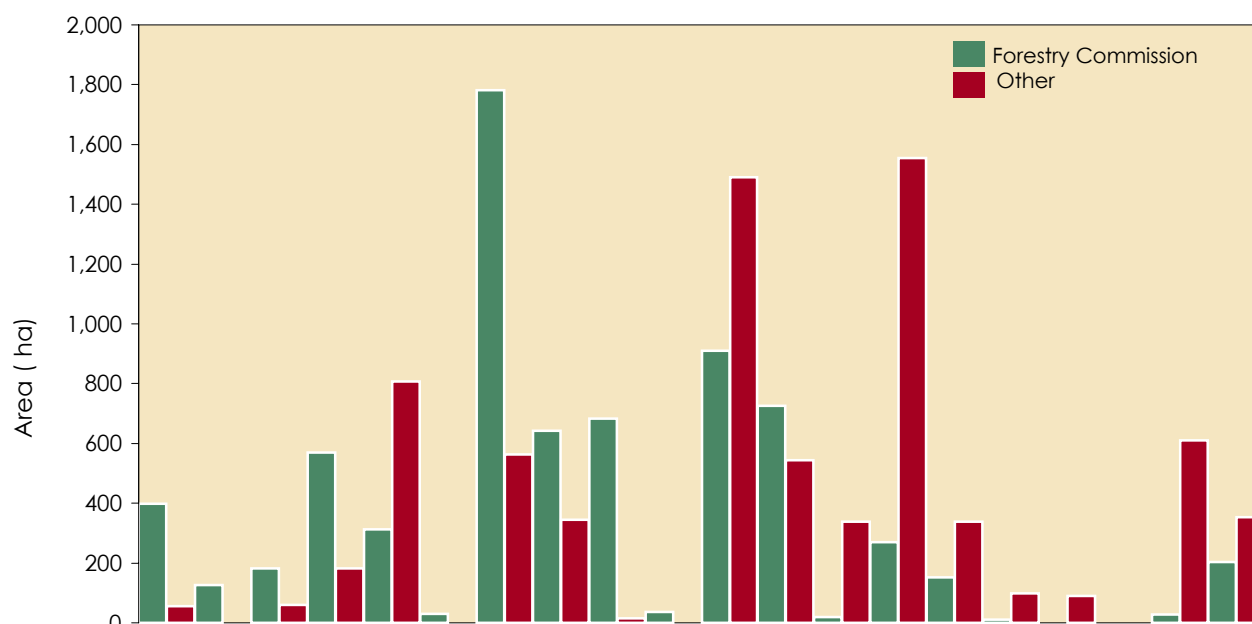
1. The standard errors of the all ownerships area estimates for the most common species or species groups (in all woodland types) are as follows

	Category 1*	Category 2*	Total High Forest	
Conifers	7%	67%	7%	
Broadleaves	6%	10%	5%	
Jap/Hybrid larch	15%	-	15%	
Oak	14%	32%	13%	*See Glossary for Category 1 and Category 2 descriptions
Ash	14%	30%	13%	

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

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

High Forest Category 1 - Area by principal species and ownership



High Forest Category 2 - Area by principal species and ownership

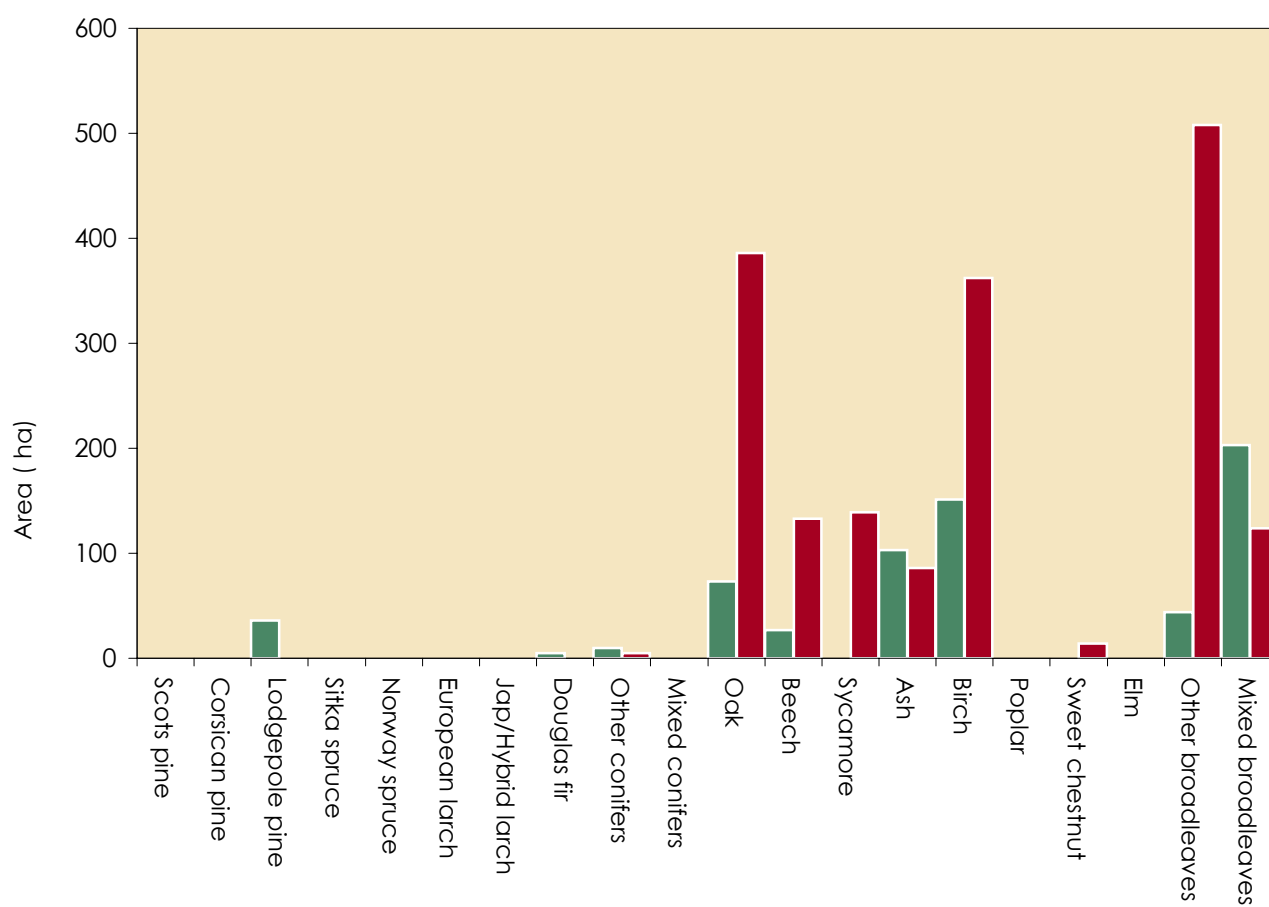
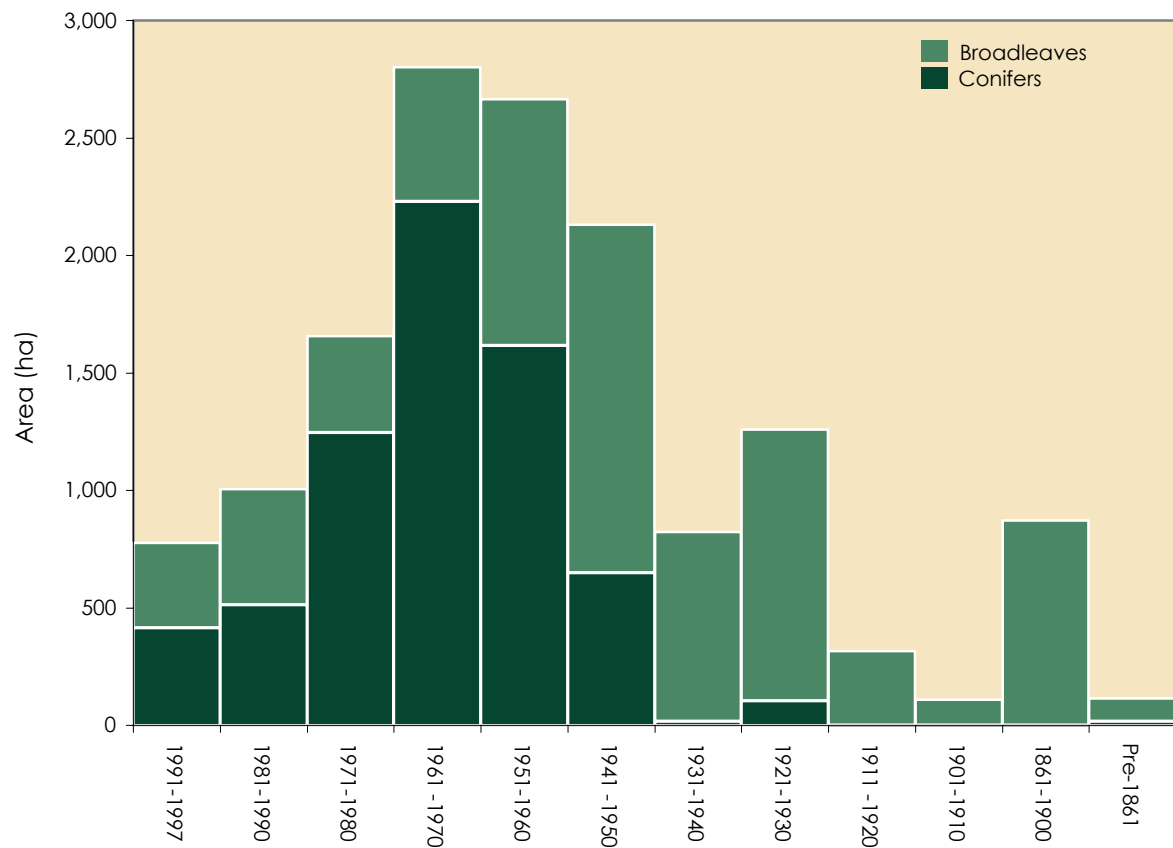


Table 10a High Forest Category 1 - Area by principal species and planting year class

Species	Planting year class*												Total (ha)
	1991-1997	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	26	0	12	286	102	0	10	19	0	0	0	0	455
Corsican pine	0	0	0	0	72	0	0	55	0	0	0	0	127
Lodgepole pine	0	28	101	61	51	0	0	0	0	0	0	0	242
Sitka spruce	97	133	176	138	208	0	0	0	0	0	0	0	752
Norway spruce	138	87	10	232	469	170	0	13	0	0	0	0	1,119
European larch	0	0	0	10	0	0	5	0	0	0	0	15	31
Jap/Hybrid larch	96	152	176	1,129	452	340	0	0	0	0	0	0	2,346
Douglas fir	56	110	451	104	134	124	0	10	0	0	0	0	989
Other conifers	0	0	298	253	127	14	0	5	0	0	0	0	697
Mixed conifers	0	0	23	14	0	0	0	0	0	0	0	0	37
Total conifers	414	511	1,246	2,228	1,615	648	15	103	0	0	0	15	6,795
Oak	65	168	20	49	120	696	370	293	28	102	408	79	2,398
Beech	65	10	0	90	180	90	252	187	101	5	269	20	1,270
Sycamore	0	0	58	4	103	24	38	61	37	0	32	0	358
Ash	106	0	36	306	404	330	73	372	95	0	101	0	1,823
Birch	41	142	102	25	88	19	3	37	0	0	33	0	490
Poplar	0	0	0	0	92	0	0	16	0	0	0	0	109
Sweet chestnut	6	0	63	0	9	0	0	12	0	0	0	0	90
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	46	69	96	91	32	229	23	48	0	0	4	0	638
Mixed broadleaves	35	105	36	10	22	95	49	128	53	0	25	0	557
Total broadleaves	363	494	411	574	1,051	1,483	808	1,155	315	108	872	99	7,733
Total - all species	777	1,004	1,657	2,802	2,665	2,132	824	1,258	315	108	872	115	14,528

*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

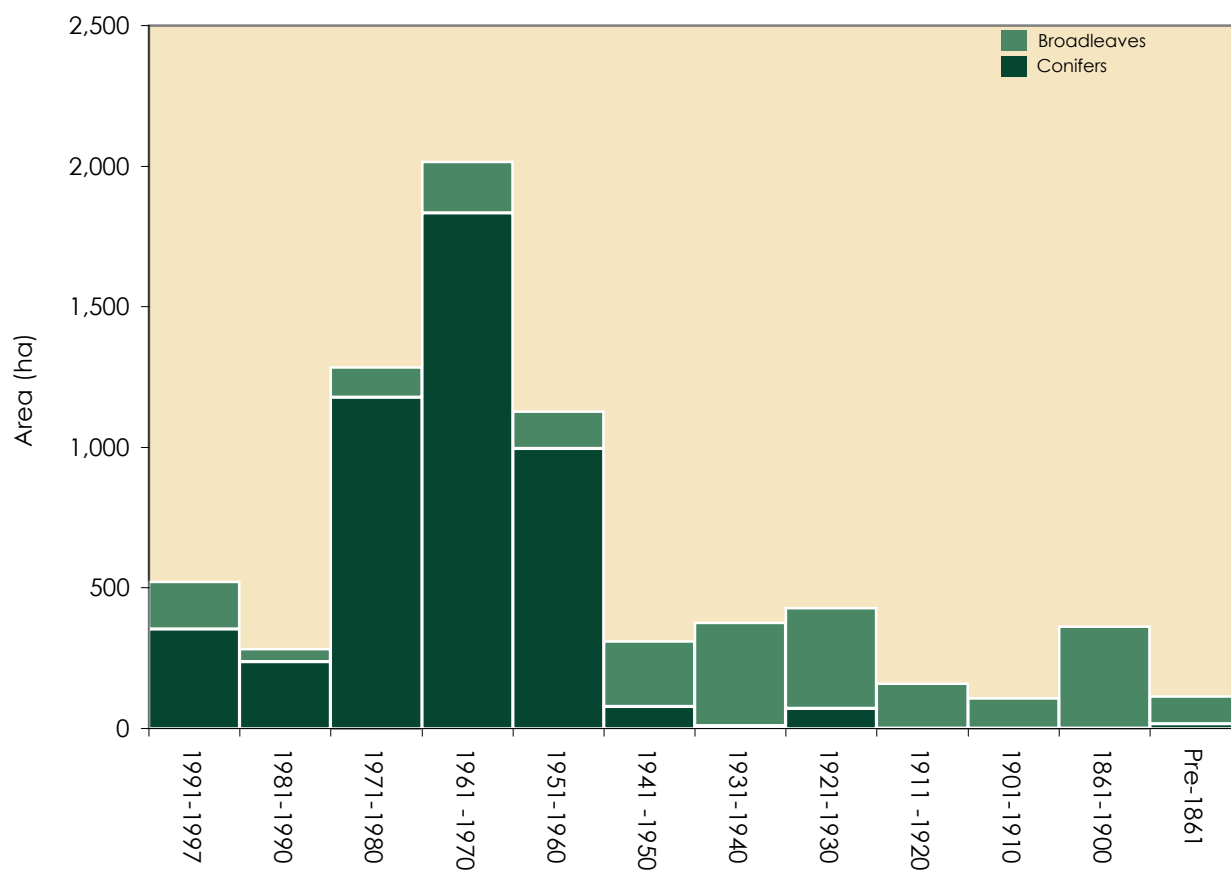


1. Most of the planting year classes cover 10 years, 1991-1997 is 7 years, and the classes prior to 1901 are 40 years or more.

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

Species	Planting year class*												Total (ha)
	1991-1997	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	5	286	102	0	5	0	0	0	0	0	399
Corsican pine	0	0	0	0	72	0	0	55	0	0	0	0	127
Lodgepole pine	0	5	101	61	15	0	0	0	0	0	0	0	183
Sitka spruce	97	133	176	0	163	0	0	0	0	0	0	0	570
Norway spruce	138	0	10	19	78	67	0	0	0	0	0	0	312
European larch	0	0	0	10	0	0	5	0	0	0	0	15	31
Jap/Hybrid larch	96	97	113	1,097	368	10	0	0	0	0	0	0	1,782
Douglas fir	20	0	451	92	70	0	0	10	0	0	0	0	643
Other conifers	0	0	298	253	127	0	0	5	0	0	0	0	683
Mixed conifers	0	0	23	14	0	0	0	0	0	0	0	0	37
Total conifers	352	236	1,177	1,834	995	77	10	71	0	0	0	15	4,767
Oak	53	5	10	0	5	154	193	149	10	102	149	79	909
Beech	65	10	0	90	54	18	134	45	96	5	187	20	726
Sycamore	0	0	0	4	16	0	0	0	0	0	0	0	20
Ash	0	0	0	60	51	0	25	133	0	0	0	0	269
Birch	41	10	97	4	0	0	0	0	0	0	0	0	153
Poplar	0	0	0	0	0	0	0	10	0	0	0	0	10
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	10	0	0	11	0	0	0	5	0	0	0	0	27
Mixed broadleaves	0	20	0	10	4	60	14	15	53	0	25	0	203
Total broadleaves	169	46	108	180	131	233	366	358	160	108	361	99	2,317
Total - all species	521	282	1,285	2,014	1,126	309	376	428	160	108	361	115	7,084

*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

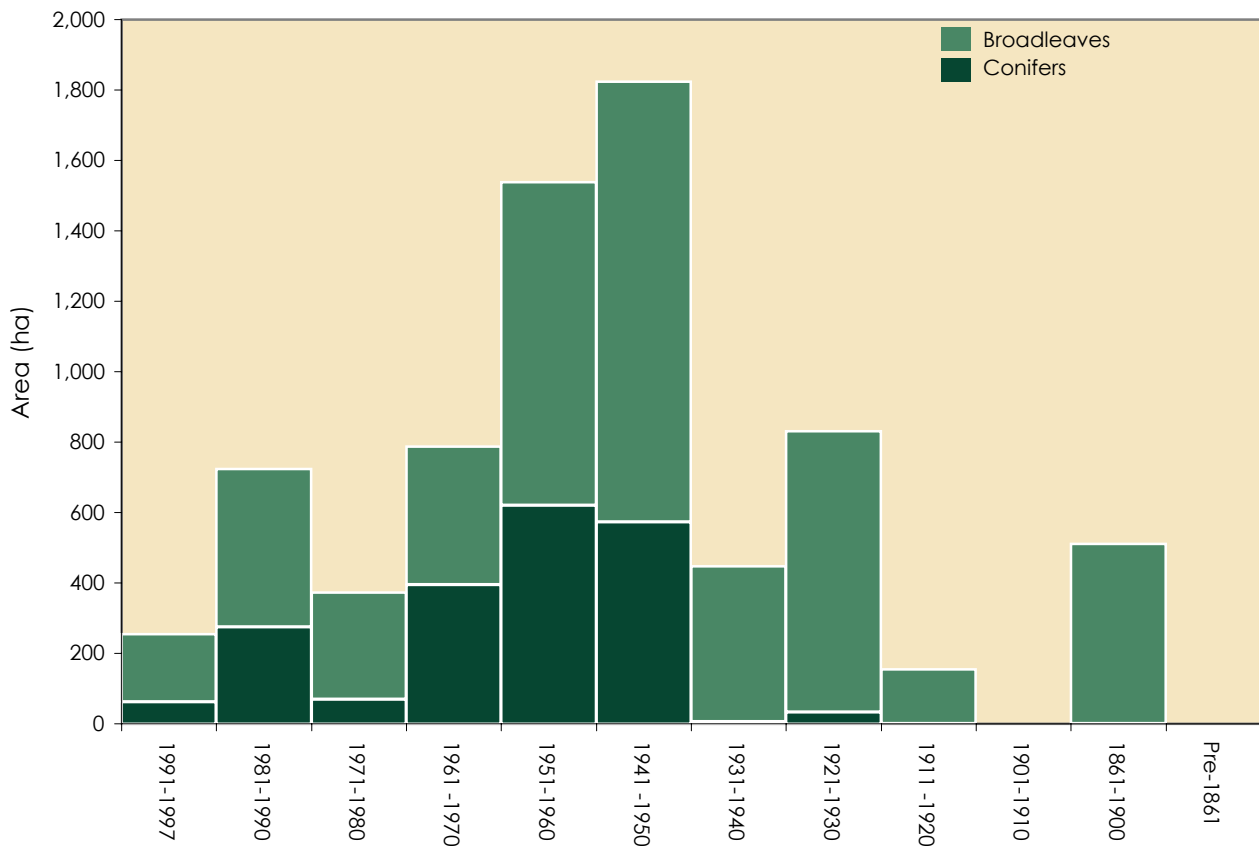
1. Most of the planting year classes cover 10 years, 1991-1997 is 7 years, and the classes prior to 1901 are 40 years or more.

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

Species	Planting year class*												Total (ha)
	1991-1997	1981-1990	1971-1980	1961-1970	1951-1960	1941-1950	1931-1940	1921-1930	1911-1920	1901-1910	1861-1900	Pre-1861	
Scots pine	26	0	6	0	0	0	5	19	0	0	0	0	56
Corsican pine	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodgepole pine	0	23	0	0	36	0	0	0	0	0	0	0	59
Sitka spruce	0	0	0	138	45	0	0	0	0	0	0	0	183
Norway spruce	0	87	0	212	391	104	0	13	0	0	0	0	807
European larch	0	0	0	0	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	0	55	63	32	85	330	0	0	0	0	0	0	564
Douglas fir	36	110	0	12	64	124	0	0	0	0	0	0	345
Other conifers	0	0	0	0	0	14	0	0	0	0	0	0	14
Mixed conifers	0	0	0	0	0	0	0	0	0	0	0	0	0
Total conifers	61	275	69	394	620	572	5	32	0	0	0	0	2,028
Oak	12	162	10	49	115	542	178	144	18	0	260	0	1,490
Beech	0	0	0	0	125	72	118	142	5	0	82	0	543
Sycamore	0	0	58	0	87	24	38	61	37	0	32	0	338
Ash	106	0	36	246	353	330	49	239	95	0	101	0	1,554
Birch	0	132	5	20	88	19	3	37	0	0	33	0	338
Poplar	0	0	0	0	92	0	0	6	0	0	0	0	98
Sweet chestnut	6	0	63	0	9	0	0	12	0	0	0	0	90
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	36	69	96	80	32	229	23	43	0	0	4	0	611
Mixed broadleaves	35	84	36	0	18	35	35	113	0	0	0	0	354
Total broadleaves	194	448	303	394	919	1,251	442	798	155	0	511	0	5,415
Total - all species	256	722	372	788	1,540	1,822	448	830	155	0	511	0	7,443

*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, 1991-1997 is 7 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	%
1991-97	Norway spruce	17	Ash	13	Sitka spruce	12
1981-90	Other broadleaves	16	Oak	14	Birch	13
1971-80	Douglas fir	23	Other conifers	15	Other broadleaves	11
1961-70	Jap/Hybrid larch	34	Ash	10	Scots pine	9
1951-60	Norway spruce	14	Jap/Hybrid larch	13	Ash	13
1941-50	Oak	32	Ash	16	Jap/Hybrid larch	15
1931-40	Oak	47	Beech	25	Ash	8
1921-30	Ash	31	Oak	23	Mixed broadleaves	10
1911-20	Beech	49	Ash	22	Mixed broadleaves	12
1901-10	Oak	94	Beech	5	-	
1861-1900	Oak	49	Beech	29	Ash	11
Pre 1861	Oak	69	Beech	17	European larch	13
All years	Oak	17	Jap/Hybrid larch	14	Ash	12

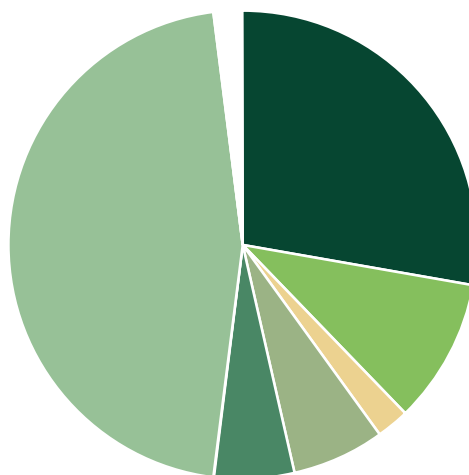
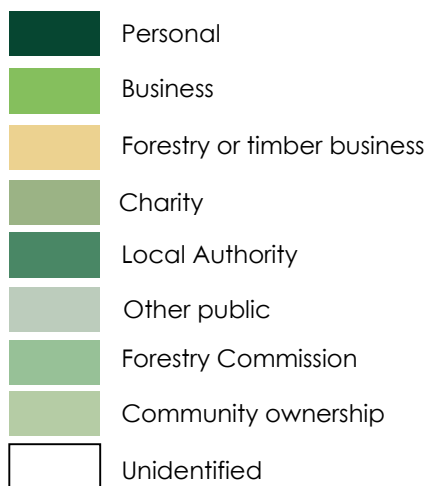
1. Principal species as a percentage of area in the planting year class.

Table 12 Ownership type* by area and percentage

Ownership type	Area (ha)	%
Personal	5,023	27.8
Business	1,804	10.0
Forestry or timber business	403	2.2
Charity	1,152	6.4
Local Authority	974	5.4
Other public (not FC)	46	0.3
Forestry Commission	8,318	46.1
Community ownership or common land	0	0.0
Unidentified	332	1.8
Total	18,053	100.0

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

Ownership type by area



RESULTS FROM THE SURVEY OF SMALL WOODLAND AND TREES (SSWT)

Survey Method

The land area of Wales was stratified into coastal and inland 1 km x 1 km squares and a random sample of 1 km² plots were then selected, representing around 1% of the land area. 1:25 000 scale aerial photos were then used to identify features in each sample square. Each 1 km² was then divided into 16 parts, and two of these were selected at random for field data collection. Data was collected on Small Woodlands (0.10 - <2.00 ha), Linear Features, Groups and Individual Trees. The survey did not collect information from areas of developed land of 2 hectares or more.

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

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

Table 13 Summary of information from the Survey of Small Woodlands and Trees

Feature type	Number of features	Total	Unit
Small Woods	2,483	968	Area (ha)
Wide Linear Features	0	0	Area (ha)
Wide Linear Features	0	0	Length (Km)
Narrow Linear Features	3,700	312	Length (Km)
Narrow Linear Features	3,700	196,800	Number of live trees
Groups	113,500	1,155,100	Number of live trees
Individual Trees	60,900	60,900	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 (ha)	Number of features	Mean size (ha)
	0.1 - <0.25	0.25 - <2.0			
Small Woods	0	968	968	2,483	0.39
Wide Linear Features	0	0	0	0	0.00
Total	0	968	968	2,483	0.39

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	0.8	0.0	2.3	0.0	3.1	7.5	0.2
Spruce	0.0	0.0	20.3	0.0	20.3	49.2	1.4
Larch	0.0	0.8	0.8	5.0	6.6	16.0	0.5
Cypress	0.0	0.0	11.3	0.0	11.3	27.4	0.8
Other conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total conifers	0.8	0.8	34.6	5.0	41.3	100.0	2.9
Oak	19.5	8.3	110.5	18.6	156.9	11.4	11.1
Beech	0.8	1.5	51.9	0.0	54.2	4.0	3.8
Sycamore	0.0	0.8	89.4	4.3	94.5	6.9	6.7
Ash	1.5	1.5	97.7	11.8	112.5	8.2	8.0
Birch	0.0	0.0	100.7	14.9	115.6	8.4	8.2
Poplar	0.0	0.0	1.5	23.6	25.1	1.8	1.8
Sweet chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.8	0.8	3.8	0.0	5.4	0.4	0.4
Alder	0.8	0.0	82.7	37.2	120.7	8.8	8.5
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	2.3	0.8	103.7	3.7	110.5	8.1	7.8
Other broadleaves	12.8	7.5	478.7	77.6	576.6	42.0	40.8
Total broadleaves	38.3	21.0	1,120.5	191.8	1,372.0	100.0	97.1
Total - all species	39.1	21.8	1,155.1	196.8	1,412.8		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	22%
Groups	14%
Narrow Linear Features	42%

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	1.5	0.0	0.0	0.0	1.5	50.0	50.0
Beech	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sycamore	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ash	0.0	0.0	1.5	0.0	1.5	50.0	50.0
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	1.5	0.0	1.5	0.0	3.0	100.0	100.0
Total - all species	1.5	0.0	1.5	0.0	3.0		100.0

1. See Glossary for definitions of feature types.

Table 17 Numbers of live trees outside woodland by species and height band (000's trees)

Species	Height band (m)				Total live trees
	2-5	5-15	15-20	>20	
Pine	0.0	3.0	0.0	0.0	3.0
Spruce	17.3	3.0	0.0	0.0	20.3
Larch	2.5	3.2	0.8	0.0	6.5
Cypress	9.8	1.5	0.0	0.0	11.3
Other conifers	0.0	0.0	0.0	0.0	0.0
Total conifers	29.6	10.7	0.8	0.0	41.1
Oak	4.5	114.9	37.5	0.0	156.9
Beech	14.3	19.5	20.3	0.0	54.1
Sycamore	1.5	56.4	36.7	0.0	94.6
Ash	8.3	83.7	20.5	0.0	112.5
Birch	50.5	61.4	3.8	0.0	115.7
Poplar	16.1	9.0	0.0	0.0	25.1
Sweet chestnut	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.0	4.5	0.8	0.0	5.3
Alder	1.5	106.4	12.8	0.0	120.7
Lime	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.0	0.0	0.0	0.0
Willow	48.6	42.3	19.5	0.0	110.4
Other broadleaves	551.1	25.6	0.0	0.0	576.7
Total broadleaves	696.4	523.7	151.9	0.0	1,372.0
Total - all species	725.8	534.4	152.6	0.0	1,412.8

Table 18 Number of Groups by group size

Number of trees per Group*	Number of Groups (000's)
2	6
3-5	30
6-10	20
11-20	27
21-50	24
51-100	7
>100	0
Total	114

*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 1997 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 1997 Inventory
Table 20:	Comparison of High Forest area by species between 1980 Census and 1997 Inventory
Chart:	Comparison of High Forest area by species between 1980 Census and 1997 Inventory
Table 21:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1997 Inventory
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1997 Inventory
Table 22:	Comparison of numbers of live trees outside woodland between 1980 Census and 1997 Inventory
Table 23:	Comparison of density of non-woodland features between 1980 Census and 1997 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 1997 Inventory

Woodland size (ha)	1980 Census woodland area		1997 Inventory woodland area		Change (%)
	(ha)	(%)	(ha)	(%)	(%)
2.0 or more	15,840	93.7	18,053	94.9	14
0.25 - <2.0	1,060	6.3	968	5.1	-9
Total	16,900		19,021		13
% Woodland land cover	12.3		13.8		

1. Differences in sampling methodology may account for some of the apparent differences.
2. The above figures from the 1997 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1997 figures above will therefore not match those in the previous sections of the report.
3. Land area used to calculate woodland cover percent (1997), 137,652 ha, was based on the 1991 Census of Population digital boundaries.
4. Land area used to calculate woodland cover percent (1980), 137,600 ha, (Ordnance Survey data)

Table 20 Comparison of High Forest area by species between 1980 Census and 1997 Inventory

Species	1980 Census woodland area (ha)	1997 Inventory woodland area (ha)	Change (%)
Scots pine	562	455	-19
Corsican pine	229	127	-45
Lodgepole pine	571	278	-51
Sitka spruce	639	752	18
Norway spruce	1,343	1,119	-17
European larch	311	31	-90
Jap/Hybrid larch	3,026	2,346	-22
Douglas fir	1,118	994	-11
Other conifers	749	713	-5
Mixed conifers	103	37	-64
Total conifers	8,652	6,852	-21
Oak	2,007	3,180	58
Beech	1,427	1,429	0
Sycamore	147	497	237
Ash	1,024	2,211	116
Birch	787	1,102	40
Poplar	92	109	18
Sweet chestnut	43	104	140
Elm	1	0	-100
Other broadleaves	898	1,513	68
Mixed broadleaves	998	909	-9
Total broadleaves	7,425	11,054	49
Total all species	16,077	17,906	11
Felled	134	184	37
Total High Forest	16,211	18,090	12

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 3.7 % (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 3.7 %.
3. The above figures from the 1997 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census.
The 1997 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 1997 Inventory

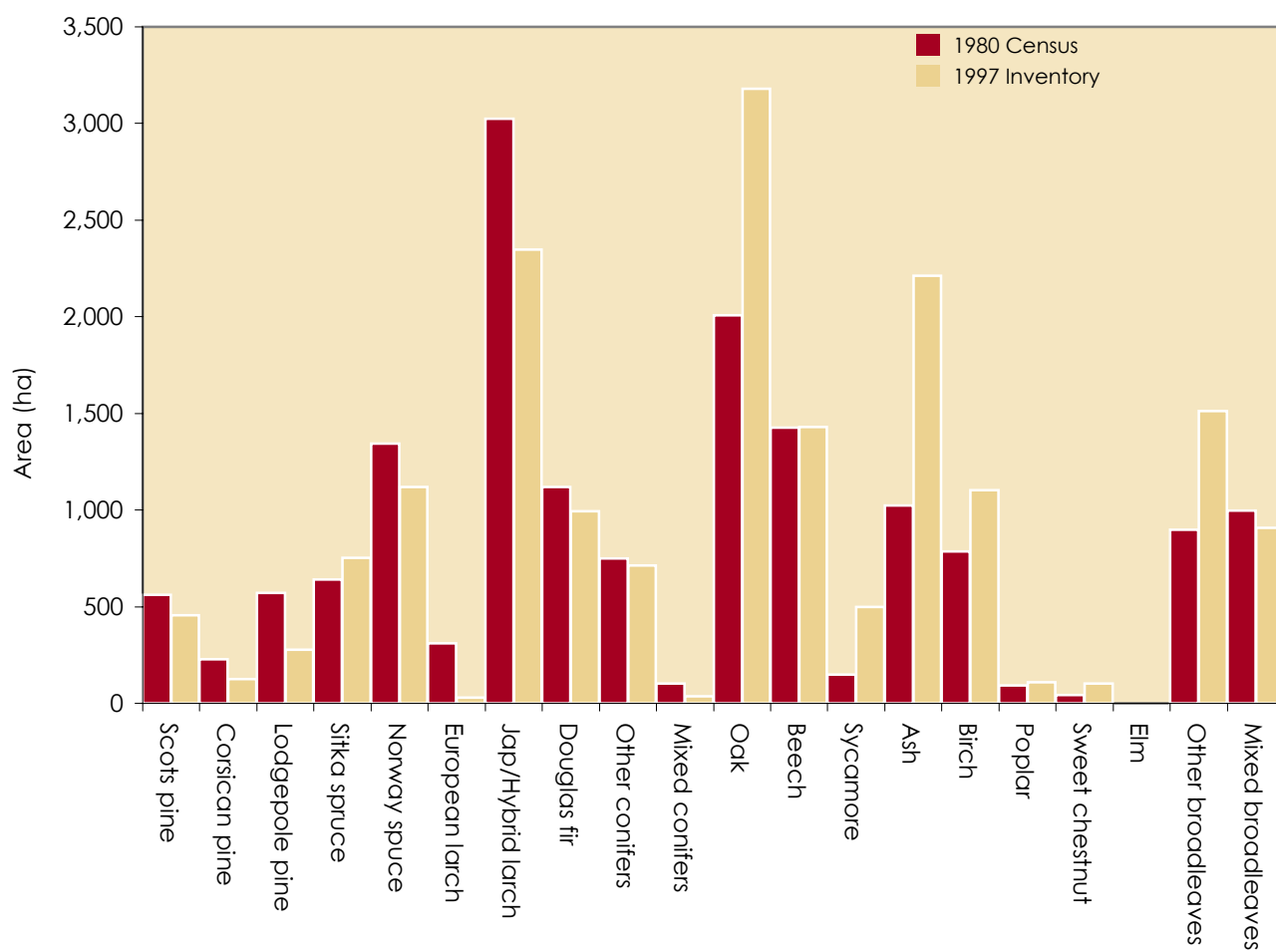
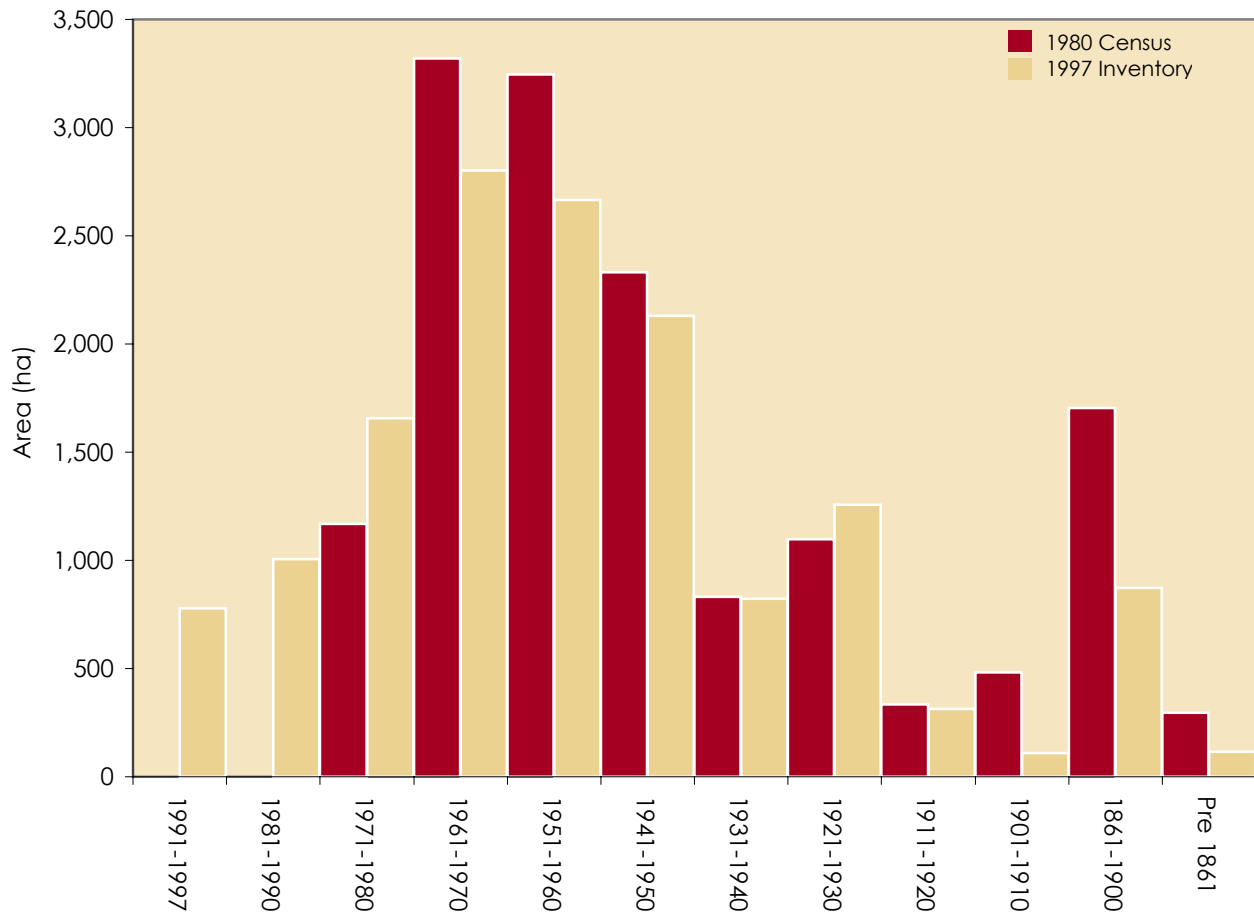


Table 21 Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1997 Inventory

Planting year class	1980 Census woodland area (ha)	1997 Inventory woodland area (ha)	Change (%)
1991-1997	0	777	see note
1981-1990	0	1,005	see note
1971-1980	1,170	1,657	42
1961-1970	3,318	2,802	-16
1951-1960	3,244	2,666	-18
1941-1950	2,330	2,131	-9
1931-1940	830	823	-1
1921-1930	1,099	1,258	14
1911-1920	334	315	-6
1901-1910	481	108	-78
1861-1900	1,704	872	-49
Pre 1861	296	114	-61
Total all years	14,808	14,528	-2

1. The first two classes, 1991-1997 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 1997 Inventory



1. Most of the planting year classes cover 10 years, 1991-1997 is 7 years, and the classes prior to 1901 are 40 years or more.

Table 22 Comparison of numbers of live trees outside woodland between 1980 Census and 1997 Inventory (000's)

Feature type	1980 Census	1997 Inventory	Change (%)
Boundary Tree	161	28	-83
Middle Tree	56	17	-70
Total Individual Trees	217	44	-80
Groups	476	700	47
Linear Features	531	122	-77
Total	1,223	866	-29

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 1997 Inventory figures have been adjusted accordingly. The 1997 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 1997 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1997 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 1997 Inventory

Feature type	1980 Census	1997 Inventory	Change (%)
Individual Trees (per sq km)	157.4	32.2	-80
Groups (per sq km)	48.1	67.7	41
Linear Features (m per sq km)	959.3	226.4	-76

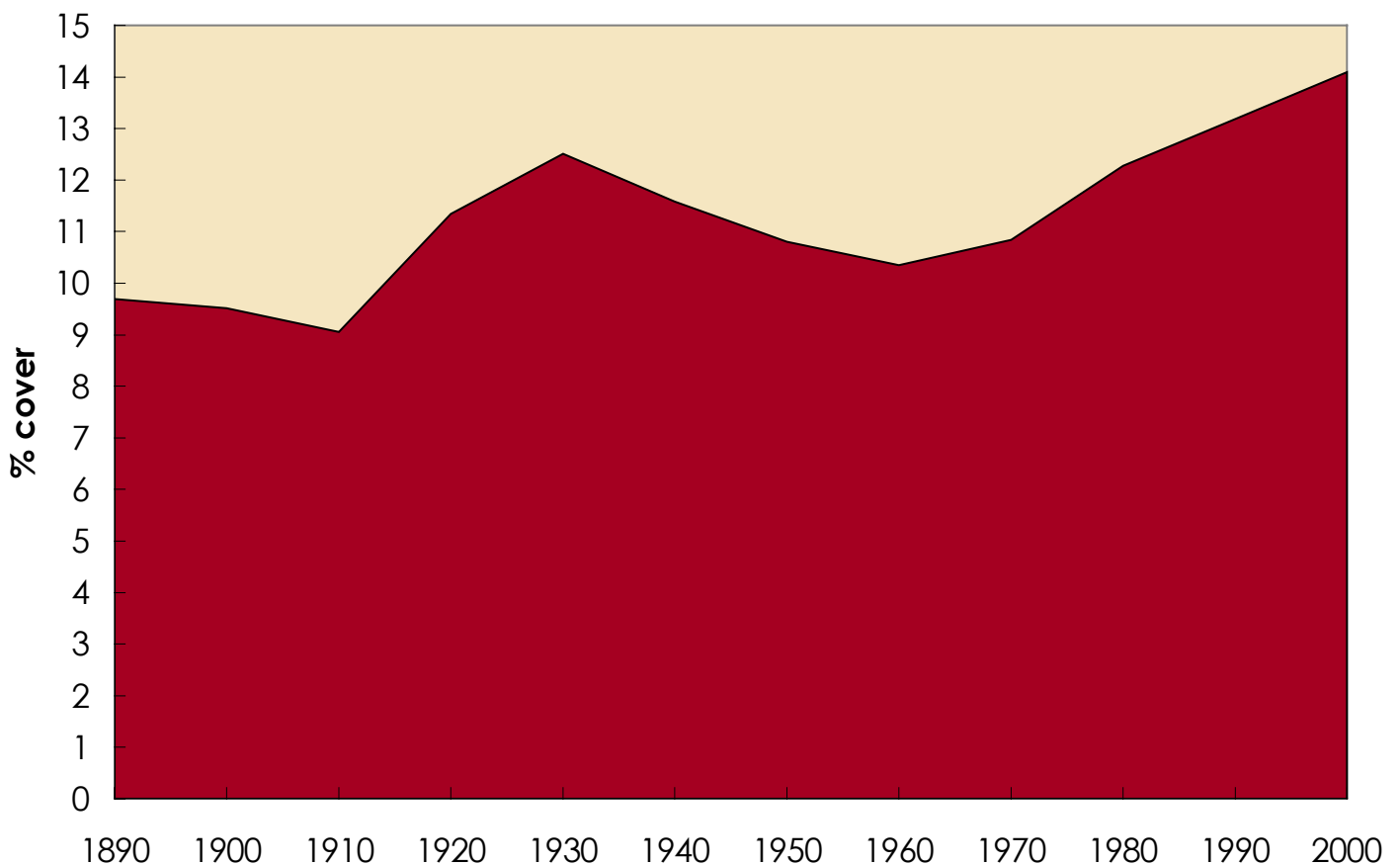
1. The Survey of Small Woodland and Trees did not record information referring to tree features (I.e. Individual trees, Groups and Narrow Linear Features) within developed land.
2. In the 1980 Census hazel, hawthorn, blackthorn and goat willow were excluded, the 1997 Inventory figures have been adjusted accordingly. The 1997 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 1997 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height, and 1997 used 2m height, as minimum criteria for inclusion.
4. See Glossary for definitions of feature type.

WOODLAND COVER

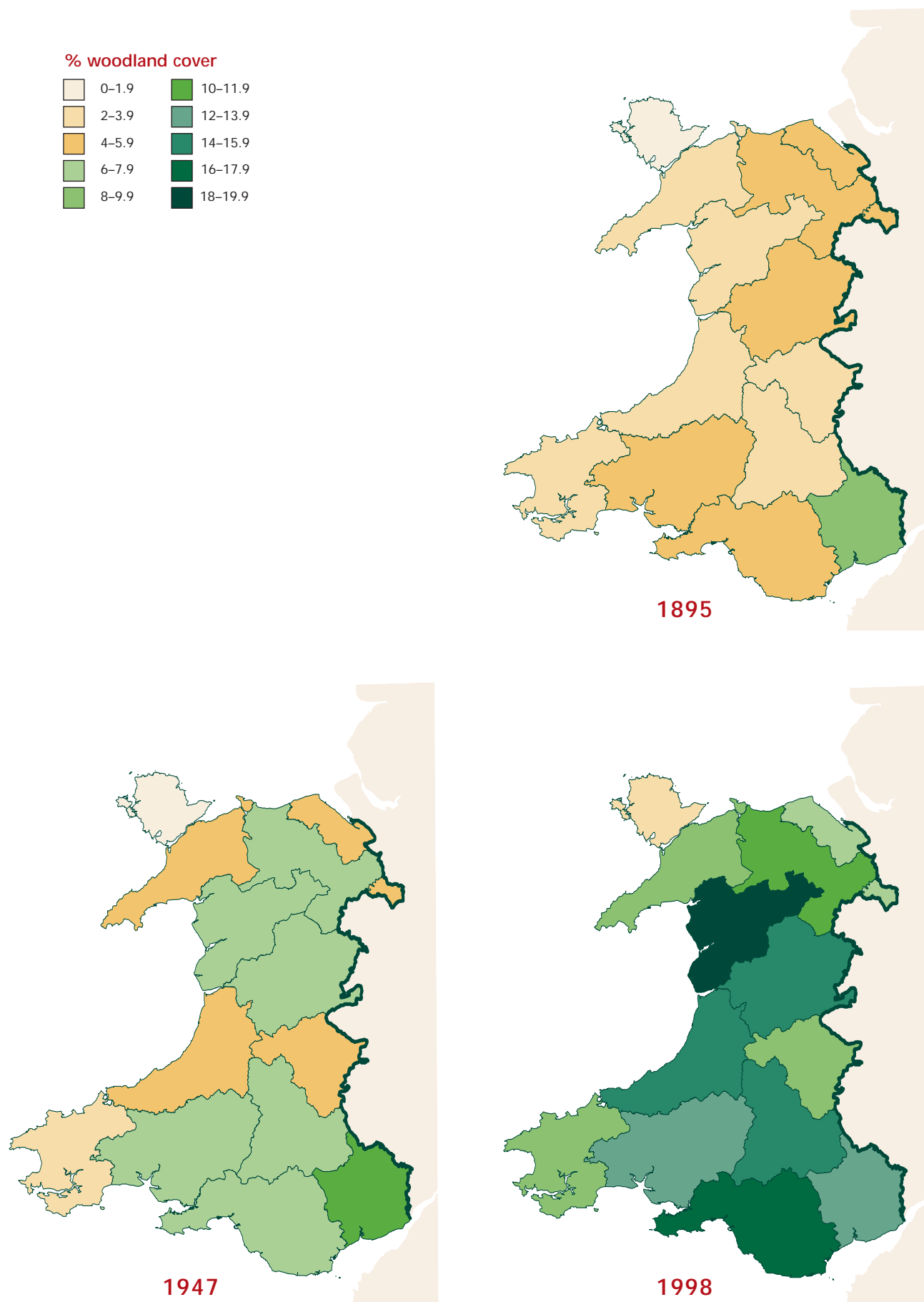
Woodland area data is available from Ministry of Agriculture surveys since 1871, and from Forestry Commission national woodland inventories since 1924. The following chart and maps show the changes in woodland area through time.

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

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



Map 5 Woodland cover by county through time (1895–1998)



GLOSSARY

Woodland

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

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

Interpreted Forest Types

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

High Forest

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

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

Mixtures

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

Forest Types

- **Conifer**
Woodland containing more than 80% by area of coniferous species.
- **Broadleaved**
Woodland containing more than 80% by area of broadleaved species.
- **Mixed**

A combination of broadleaved and coniferous species where each category occupies at least 20% of the canopy (see note on mixtures above.)

- **Coppice**

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

- **Coppice with Standards**

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

- **Felled**

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

- **Windblow**

Areas of blown woodland which remain uncleared and not regenerated.

- **Open Space**

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

Ownership types

- **Other Ownership**

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

- **Personal**

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

- **Private forestry or timber business**

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

- **Other private business**

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

- **Local Authority**

Region, County, District or other Council

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

Government department/agency, nationalised industry, etc.

- Charitable organisations

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

- Community ownership or common land

the common property of all members of the community.

- **Forestry Commission**

Land owned by or land leased to the Forestry Commission

Feature types

- **Small Wood**

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

- **Group**

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

- **Individual Tree**

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

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

- **Linear Feature**

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

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

NOTES