National Inventory of Woodland and Trees

of Woodland and Trees

Wales

County Report for

Glamorgan

Forestry Commission

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ACKNOWLEDGEMENTS

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INTRODUCTION

This report presents the results for Glamorgan 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 With the statistics becoming increasingly out of date the Forestry Commission decided to undertake a new survey: the *National Inventory of Woodland and Trees.*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 km^2 plots were then selected, representing around 1% of the land area. 1:25 000 scale aerial photos were then used to identify features in each sample square. Each 1 km^2 was then divided into 16 parts, and two of these were selected at random for field data collection. Data was collected on Small Woodlands (0.10 - <2.00 ha), Linear Features, Groups and Individual Trees. The survey did not collect information from areas of developed land of 2 hectares or more.

MAIN POINTS FROM THE SURVEY RESULTS

- The total area of woodland of 0.1 hectares and over in Glamorgan is 41,963 hectares. This represents 18.6% of the land area. (Table 1)

- Conifer woodland is the dominant forest type representing 45.4 % of all woodland. Broadleaved woodland represents 37.3 %, Mixed woodland 8.1 % and Open Space within woodlands 4.4 %. (Table 2)

- The main conifer species is Sitka spruce covering 12,966 hectares or 61.6 % of all conifer species. The main broadleaved species is oak covering 5,204 hectares or 30.5 % of all broadleaved species. (Table 3)

- 24,474 hectares or 62 % of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 15,140 hectares or 38 % of woodland is in Other ownership. (Table 6)

- There are a total of 1,002 woods over 2 ha within Glamorgan with a mean wood area of 39.8 hectares. (Table 7a) There are a total of 5,066 woods from 0.1 - <2.0 hectares with a mean wood area of 0.46 hectares. (Table 14)

- There are 1.6 million live trees outside woodland in Glamorgan. (Table 15)

- Woodland land cover increased by over 7,300 hectares from 15.3 % to 18.6 % of the land area between 1980 and 1997. (Table 19)

- The area of broadleaves increased by 115 % between 1980 and 1997, with the relative proportion of broadleaves to conifers increasing from 25 % to 44 %. (Table 20)

INVENTORY REPORTS

As well as this report for Glamorgan, 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

Clwyd

Gwynedd

Powys

Dyfed

Gwent

Glamorgan

5   10   15   20   Kilometres

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Map 2 Distribution of woodland over 2 hectares

Powys

Dyfed

Gwent

5   10   15   20
Kilometres

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Reference Date 31 March 1997

Map 3 Distribution of woodland over 2 hectares by ownership

■ Forestry Commission woodland
■ Other woodland

Powys

Dyfed

Gwent

5   10   15   20
Kilometres

Reference Date 31 March 1997
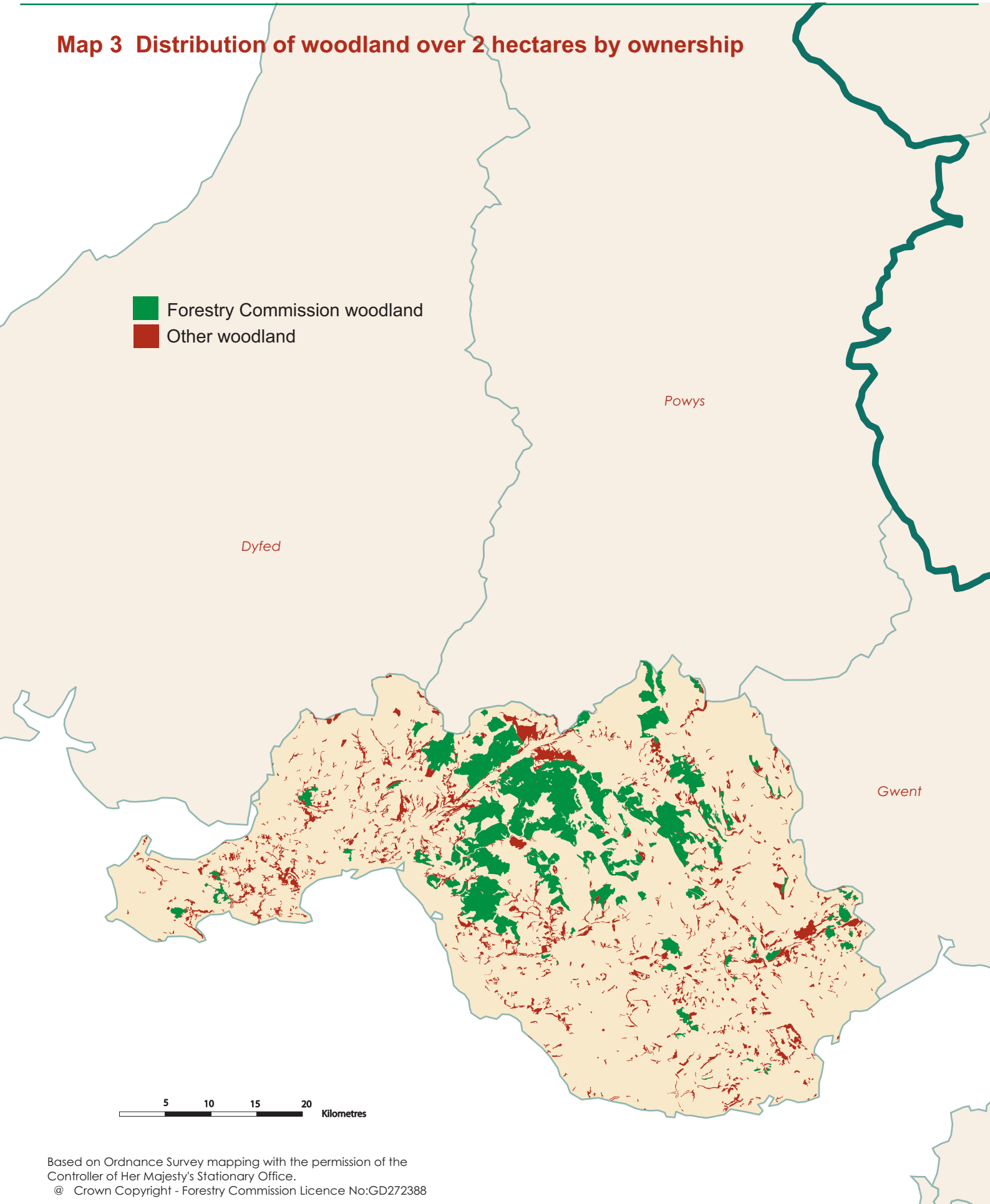
Map 4 Distribution of woodland over 2 hectares by Interpreted Forest Type

Broadleaves
Conifer
Mixed
Felled
Young trees & shrubs
Ground prepared for planting
Coppice (none present)

Powys

Dyfed

Gwent

5   10   15   20
Kilometres

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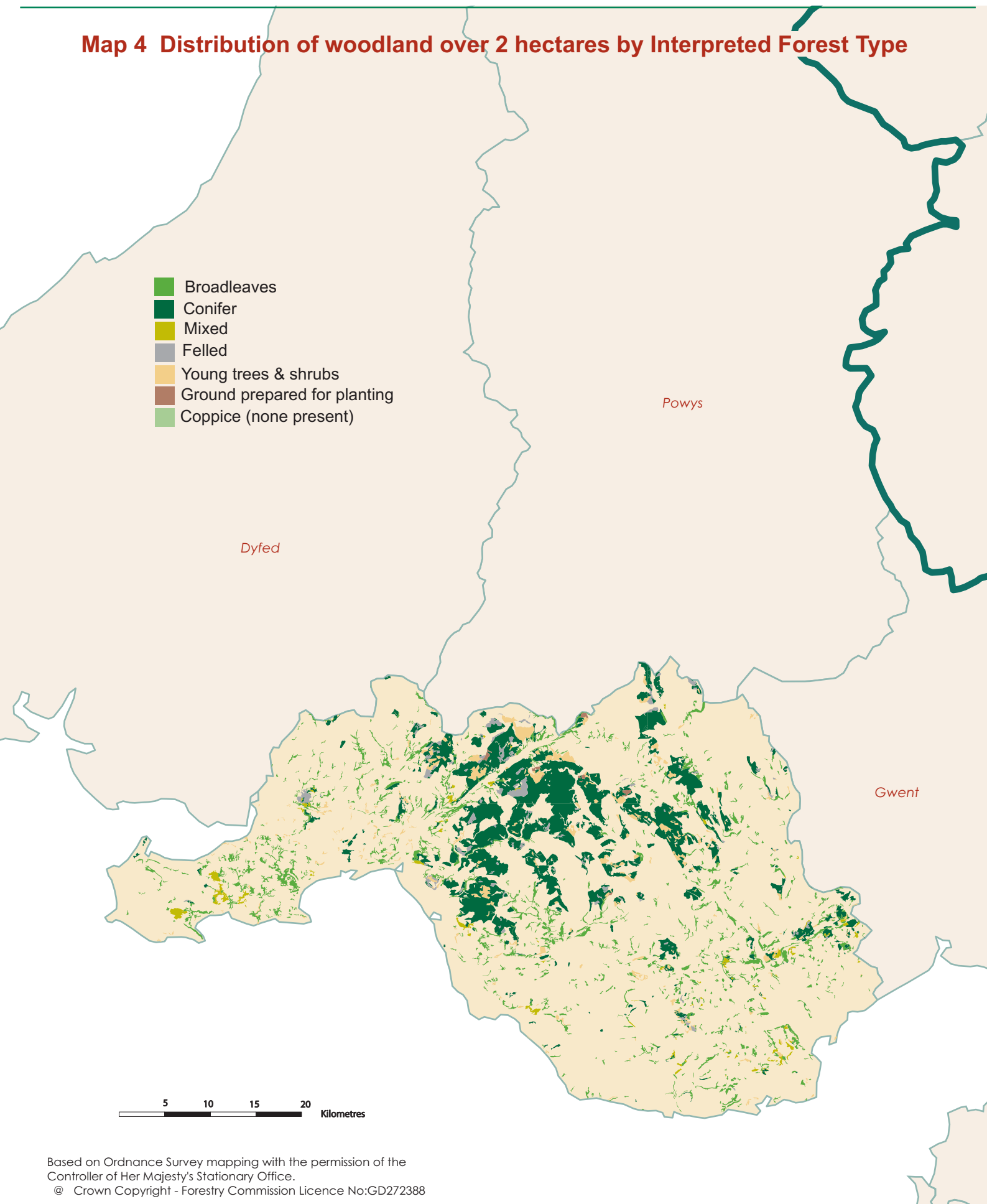
SUMMARY RESULTS FROM THE NATIONAL INVENTORY OF WOODLAND AND TREES (NIWT)

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

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	39,614	94.4
0.25 - < 2.00	2,211	5.3
0.10 - < 0.25	138	0.3
Total area of woodland	**41,963**	**100.0**
% Woodland land cover	**18.6**	

1.   Area of Glamorgan, including inland water, 225,331 ha based on digital boundaries used in the
      1991 Census of Population

Table 2 Woodland area by forest type and woodland size

Forest type	Woodland size (ha)		Total area	Percentage of
	2.0 and over	0.1 - <2.0	(ha)	total area
Conifer	18,699	368	19,067	45.4
Broadleaved	13,677	1,980	15,657	37.3
Mixed	3,388	0	3,388	8.1
Coppiced	253	0	253	0.6
Copp-w-standards	0	0	0	0.0
Windblow	0	0	0	0.0
Felled	1,733	0	1,733	4.1
Open Space	1,864	0	1,864	4.4
Total	**39,614**	**2,349**	**41,963**	**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	2,653	0	2,653	12.6	7.0
Sitka spruce	12,828	138	12,966	61.6	34.0
Larch	3,778	0	3,778	17.9	9.9
Other conifers	1,360	230	1,590	7.6	4.2
Mixed conifers	62	0	62	0.3	0.2
Total conifers	**20,681**	**368**	**21,050**	**100.0**	**55.2**
Oak	4,582	622	5,204	30.5	13.7
Beech	1,316	0	1,316	7.7	3.5
Sycamore	634	0	634	3.7	1.7
Ash	1,484	299	1,783	10.5	4.7
Birch	2,194	368	2,562	15.0	6.7
Elm	30	0	30	0.2	0.1
Other broadleaves	2,480	645	3,125	18.3	8.2
Mixed broadleaves	2,362	46	2,408	14.1	6.3
Total broadleaves	**15,082**	**1,980**	**17,062**	**100.0**	**44.8**
Total all species***	**35,763**	**2,348**	**38,111**		**100.0**

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

***Excludes the 3,850ha 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   3%
        Broadleaves   4%
        Sitka spruce   5%
        Larch   12%
        Oak   10%

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

Table 4 Numbers of live trees outside woodland by feature type

Feature type	Total number of features	Total number of live trees	Mean number of trees per feature	Tree density (per sq km)
Groups	110,900	839,600	8	373
Narrow Linear Features	21,900	625,800	29	278
Individual Trees	88,700	88,700	1	39
Total		1,554,100		690

1. Land area used to calculate tree density 225,331ha 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	24%
Narrow Linear Features	32%
Individual Trees	44%

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	21,900	1,317	585
Total		1,317	585

1. Land area used to calculate tree density 225,331ha 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	32%

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

4. See Glossary for definitions of feature type .

RESULTS FROM THE MAIN WOODLAND SURVEY (MWS)

Survey Method

Woods were selected from the digital map of woodland of 2 hectares and over, then sampled using a random grid of 1 hectare sample plots. The density of sample plots was reduced as the sampled woodland increase in size, the general aim being to sample 1% of the woodland area. The ground sampling evaluated a wide range of data such as species, age and stocking.

Table 6:	Summary of woodland area by ownership
Chart:	Woodland area by ownership
Table 7a:	Size class distribution of woodland
Table 7b:	Size class distribution of woodland by ownership units
Table 8:	Area of woodland by forest type and ownership
Chart:	Area of woodland by forest type
Table 9a:	Area of High Forest by principal species and ownership
Graph:	Area of High Forest by principal species and ownership
Table 9b:	Area of High Forest by principal species, ownership and category
Graph:	High Forest Category 1 Area by principal species and ownership
Graph:	High Forest Category 2 Area by principal species and ownership
Table 10a:	High Forest Category 1 Area by principal species and planting year class
Graph:	High Forest Category 1 Area by planting year class
Table 10b:	High Forest Category 1 Forestry Commission: area by principal species and planting year class
Graph:	High Forest Category 1 Forestry Commission - area by planting year class
Table 10c:	High Forest Category 1 Other ownership: area by principal species and planting year class
Graph:	High Forest Category 1 Other ownership: area by planting year class
Table 11:	High Forest: principal species by planting year class
Table 12:	Ownership type by area and percentage
Chart:	Ownership type by area

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

Table 6 Summary of woodland area by ownership

Ownership	ha	% woodland
Forestry Commission	24,474	62
Other	15,140	38
Total area of woodland	**39,614**	**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
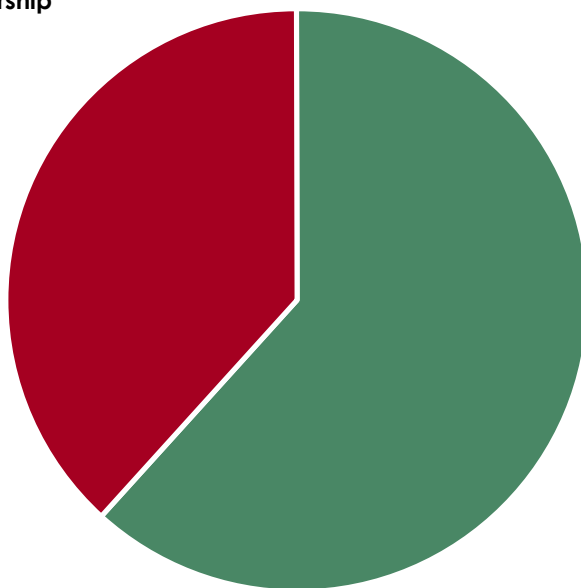
Table 7a Size class distribution of woodland

Size class (ha)	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	653	2,947	7	4.5
10 - <20	159	2,179	5	13.7
20 - <50	98	3,012	8	30.7
50 - <100	40	2,752	7	68.8
<100	**950**	**10,890**	**27**	**11.5**
100 - <500	**42**	**8,577**	**22**	**204.2**
500 and >	**10**	**20,397**	**51**	**2,039.7**
All woods	**1,002**	**39,864**	**100**	**39.8**

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	25	121	0	4.8
	O	928	3,680	9	4.0
10 - <20	FC	10	149	0	14.9
	O	174	2,400	6	13.8
20 - <50	FC	27	857	2	31.7
	O	106	3,378	8	31.9
50 - <100	FC	15	1,130	3	75.3
	O	37	2,575	6	69.6
<100	FC	77	2,256	6	29.3
	O	1,245	12,033	30	9.7
100 - <500	FC	28	5,258	13	187.8
	O	16	3,337	8	208.5
500 and >	FC	10	16,980	43	1,698.0
	O	0	0	0	0.0
Total	**FC**	**115**	**24,494**	**61**	**213.0**
	O	**1,261**	**15,370**	**39**	**12.2**

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 250 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.

Reference Date: 31 March 1997

Table 8   Area of woodland by forest type and ownership

Forest type	Forestry Commission		Other		All ownerships	
	ha	%	ha	%	ha	%
Conifer	17,463	71.4	1,236	8.2	18,699	47.2
Broadleaved	1,804	7.4	11,873	78.4	13,677	34.5
Mixed	2,047	8.4	1,341	8.9	3,388	8.6
Coppice	0	0.0	253	1.7	253	0.6
Copp-w-Stds	0	0.0	0	0.0	0	0.0
Windblow	0	0.0	0	0.0	0	0.0
Felled	1,568	6.4	165	1.1	1,733	4.4
Open Space	1,591	6.5	273	1.8	1,864	4.7
Total	24,474	100.0	15,140	100.0	39,614	100.0

Area of woodland by forest type

- Conifer
- Broadleaves
- Mixed
- Coppice
- Coppice-w-standards
- Felled
- Open Space

Reference Date: 31 March 1997
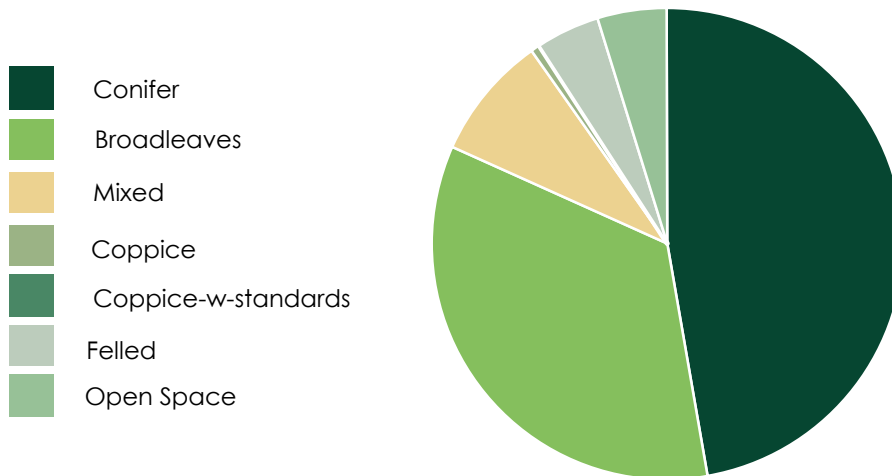
Table 9a Area of High Forest by principal species and ownership

Species	Forestry Commission			Other			All ownerships		
	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %	area (ha)	cat* %	spp** %
Scots pine	770	4	4	373	19	3	1,143	6	3
Corsican pine	110	1	1	120	6	1	230	1	1
Lodgepole pine	1,163	6	5	117	6	1	1,280	6	4
Sitka spruce	12,750	68	60	77	4	1	12,828	62	36
Norway spruce	828	4	4	317	17	2	1,145	6	3
European larch	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	2,927	16	14	851	44	6	3,778	18	10
Douglas fir	32	0	0	0	0	0	32	0	0
Other conifers	131	1	1	53	3	0	183	1	1
Mixed conifers	49	0	0	13	1	0	62	0	0
Total conifers	**18,761**	**100**	**88**	**1,921**	**100**	**13**	**20,682**	**100**	**58**
Oak	643	25	3	3,939	31	27	4,582	30	13
Beech	510	20	2	806	6	6	1,316	9	4
Sycamore	38	1	0	596	5	4	634	4	2
Ash	164	6	1	1,321	11	9	1,484	10	4
Birch	342	13	2	1,852	15	13	2,194	15	6
Poplar	0	0	0	0	0	0	0	0	0
Sweet chestnut	6	0	0	151	1	1	157	1	0
Elm	0	0	0	30	0	0	30	0	0
Other broadleaves	207	8	1	2,116	17	15	2,323	15	6
Mixed broadleaves	646	25	3	1,717	14	12	2,362	16	7
Total broadleaves	**2,554**	**100**	**12**	**12,528**	**100**	**87**	**15,082**	**100**	**42**
Total - all species	**21,315**		**100**	**14,449**		**100**	**35,764**		**100**
Felled	**1,568**			**165**			**1,733**		
Total High Forest	**22,883**			**14,614**			**37,497**		

*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 1,864 ha of other areas integral to
       the woodland not stocked with tree species.

2.   The standard errors of the all ownerships area estimates for the most common species or species groups are as follows;

Conifers	3%
Broadleaves	4%
Sitka spruce	5%
Jap/Hybrid larch	12%
Oak	10%

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

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

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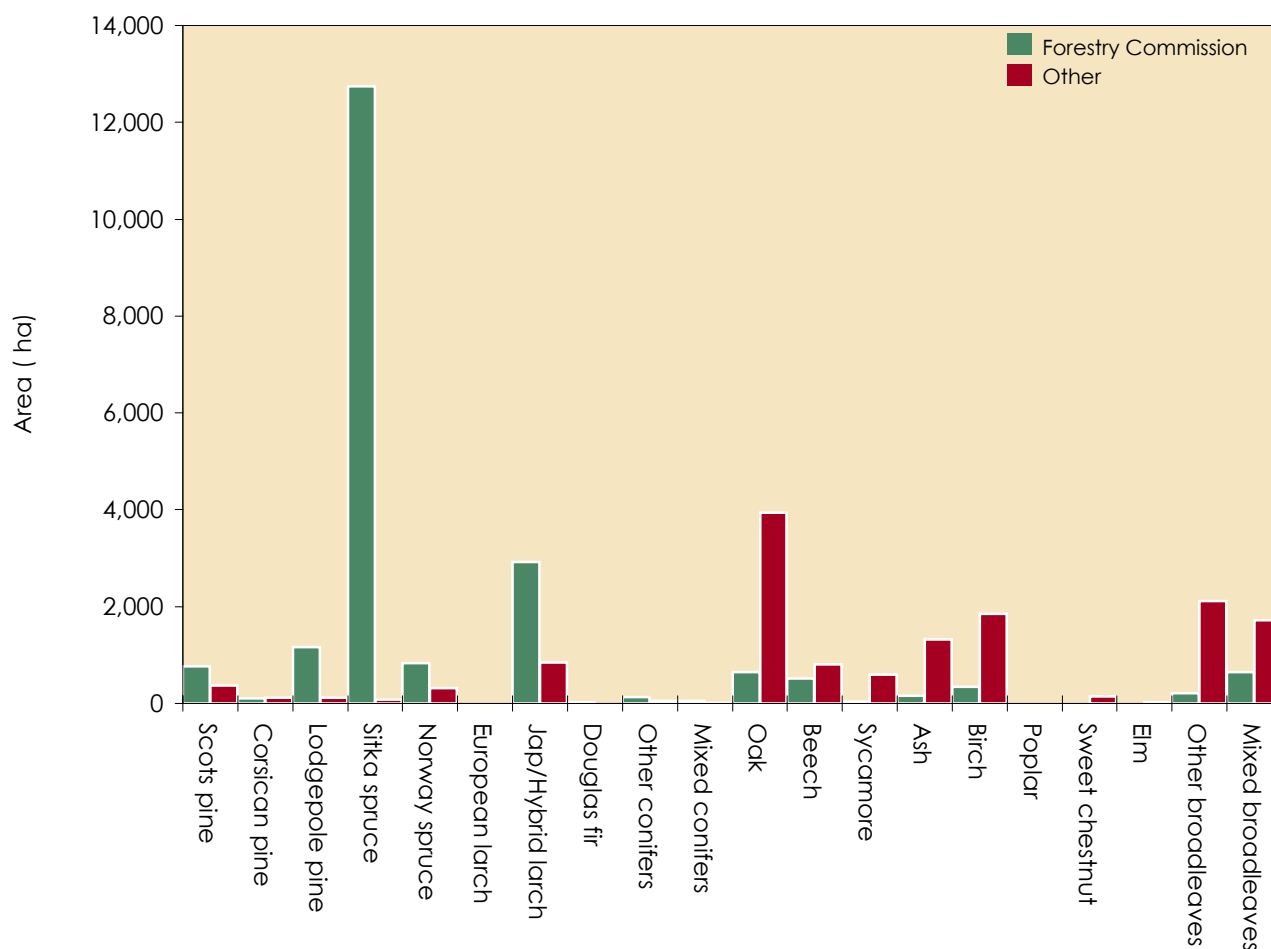
Table 9b Area of High Forest by principal species, ownership and category

Species	Forestry Commission			Other			All ownerships		
	cat. 1	cat. 2	Total (ha)	cat. 1	cat. 2	Total (ha)	cat. 1	cat. 2	Total (ha)
Scots pine	696	74	770	373	0	373	1,069	74	1,143
Corsican pine	110	0	110	120	0	120	230	0	230
Lodgepole pine	1,070	94	1,163	117	0	117	1,186	94	1,280
Sitka spruce	11,074	1,676	12,750	77	0	77	11,152	1,676	12,828
Norway spruce	684	144	828	317	0	317	1,001	144	1,145
European larch	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	2,816	111	2,927	851	0	851	3,667	111	3,778
Douglas fir	32	0	32	0	0	0	32	0	32
Other conifers	131	0	131	35	18	53	165	18	183
Mixed conifers	49	0	49	13	0	13	62	0	62
Total conifers	**16,662**	**2,099**	**18,761**	**1,903**	**18**	**1,921**	**18,565**	**2,117**	**20,682**
Oak	304	339	643	2,053	1,886	3,939	2,357	2,225	4,582
Beech	469	41	510	714	92	806	1,183	133	1,316
Sycamore	38	0	38	533	63	596	570	63	634
Ash	118	46	164	1,120	200	1,321	1,238	246	1,484
Birch	78	264	342	876	976	1,852	954	1,240	2,194
Poplar	0	0	0	0	0	0	0	0	0
Sweet chestnut	6	0	6	67	85	151	73	85	157
Elm	0	0	0	0	30	30	0	30	30
Other broadleaves	102	105	207	704	1,412	2,116	805	1,518	2,323
Mixed broadleaves	423	223	646	821	896	1,717	1,244	1,118	2,362
Total broadleaves	**1,538**	**1,018**	**2,554**	**6,888**	**5,640**	**12,528**	**8,425**	**6,657**	**15,082**
Total - all species	**18,198**	**3,117**	**21,315**	**8,791**	**5,658**	**14,449**	**26,989**	**8,774**	**35,764**

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

	Category 1*	Category 2*	Total High Forest	
Conifers	3%	14%	3%	
Broadleaves	6%	6%	4%	
Sitka spruce	6%	18%	5%	
Jap/Hybrid larch	12%	42%	12%	*See Glossary for Category 1
Oak	14%	14%	10%	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 1997

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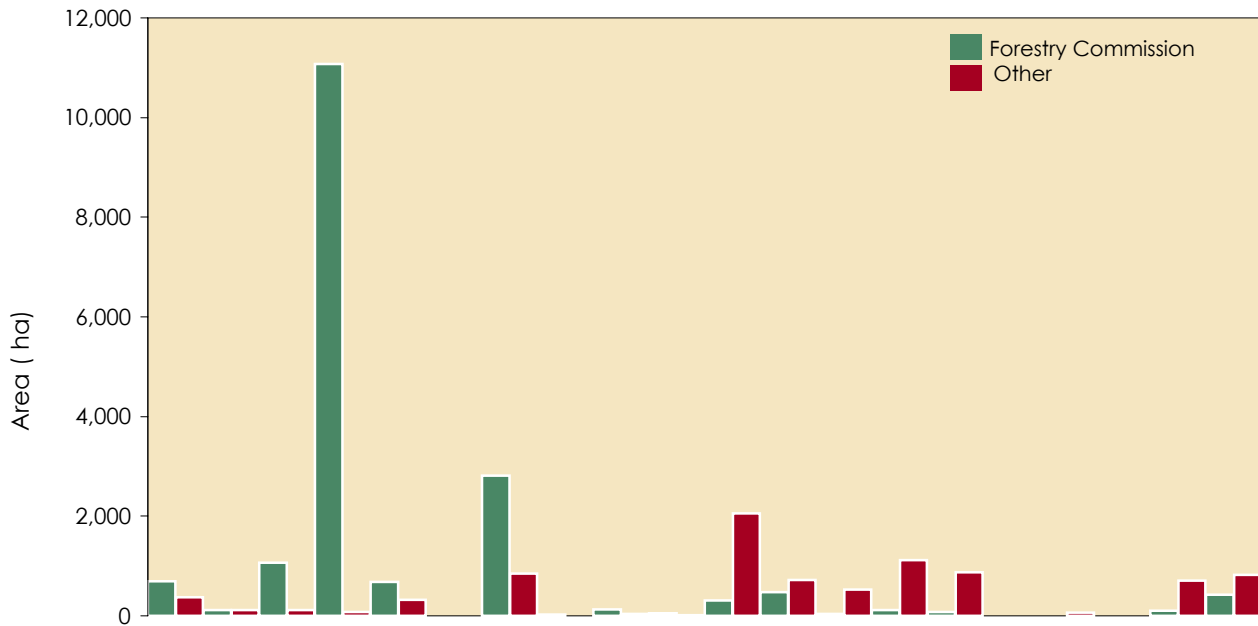
High Forest Category 2 - Area by principal species and ownership
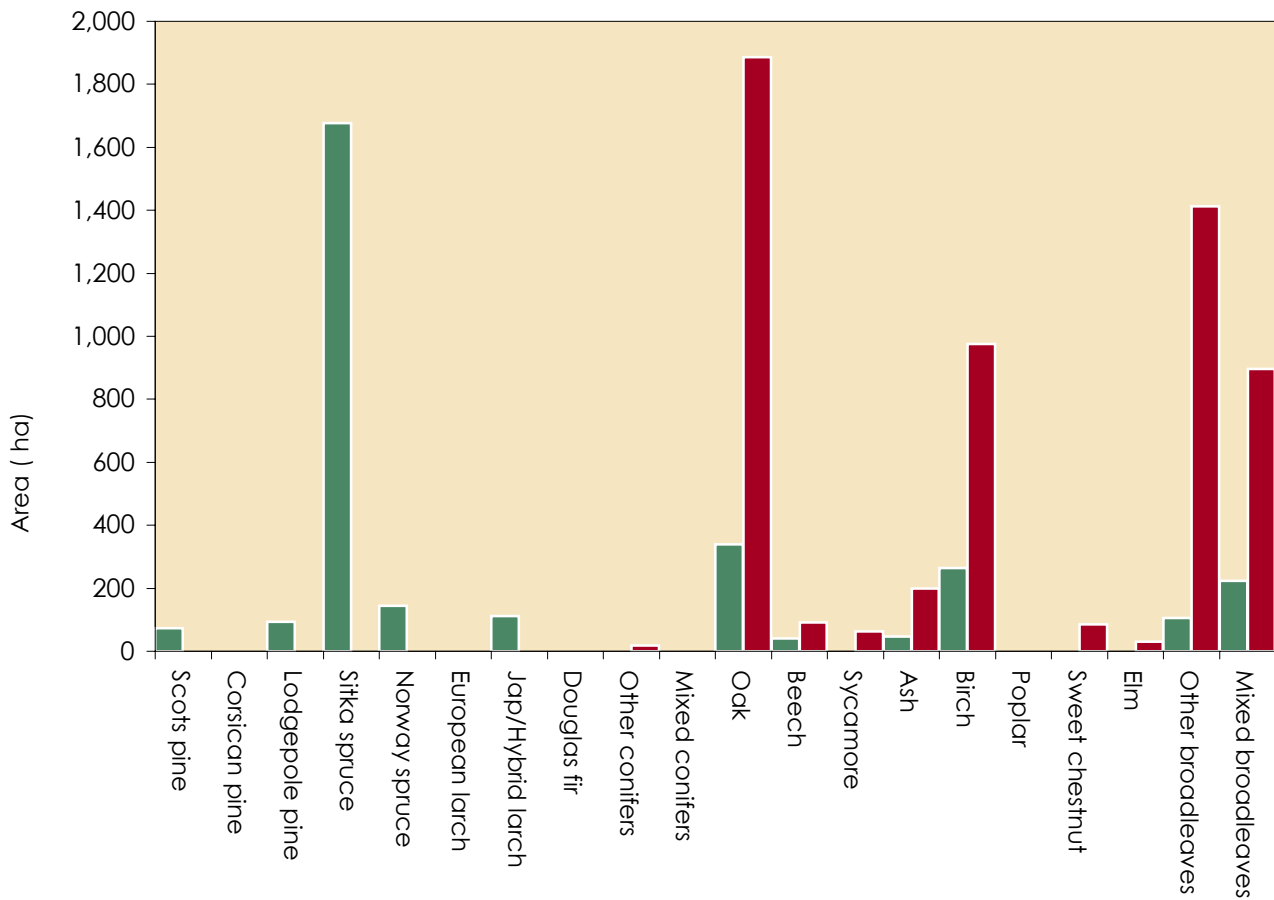
Table 10a High Forest Category 1 - Area by principal species and planting year class

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	15	0	20	337	294	358	45	0	0	0	0	0	1,069
Corsican pine	0	0	0	72	131	26	0	0	0	0	0	0	230
Lodgepole pine	20	117	113	717	220	0	0	0	0	0	0	0	1,186
Sitka spruce	1,428	1,769	2,038	2,885	2,338	377	318	0	0	0	0	0	11,152
Norway spruce	163	60	76	320	184	154	45	0	0	0	0	0	1,001
European larch	0	0	0	0	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	154	443	598	633	1,152	532	144	9	0	0	0	0	3,667
Douglas fir	0	0	25	0	6	2	0	0	0	0	0	0	32
Other conifers	0	10	0	119	35	2	0	0	0	0	0	0	165
Mixed conifers	38	0	11	0	0	0	0	0	7	0	6	0	62
Total conifers	**1,818**	**2,398**	**2,881**	**5,084**	**4,360**	**1,450**	**551**	**9**	**7**	**0**	**6**	**0**	**18,565**
Oak	28	0	0	152	104	123	673	430	577	18	252	0	2,357
Beech	0	0	0	79	276	156	170	86	75	53	283	7	1,183
Sycamore	0	0	24	99	121	48	99	94	10	0	75	0	570
Ash	0	7	35	174	162	252	286	45	92	6	179	0	1,238
Birch	11	77	85	119	358	134	121	30	7	0	14	0	954
Poplar	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweet chestnut	0	0	0	0	0	0	0	54	0	0	19	0	73
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	17	54	0	85	142	35	381	69	10	0	13	0	805
Mixed broadleaves	88	154	39	99	66	190	331	171	59	0	47	0	1,244
Total broadleaves	**144**	**292**	**183**	**808**	**1,229**	**938**	**2,060**	**977**	**829**	**76**	**881**	**7**	**8,425**
Total - all species	**1,963**	**2,689**	**3,064**	**5,892**	**5,589**	**2,388**	**2,611**	**987**	**836**	**76**	**887**	**7**	**26,989**

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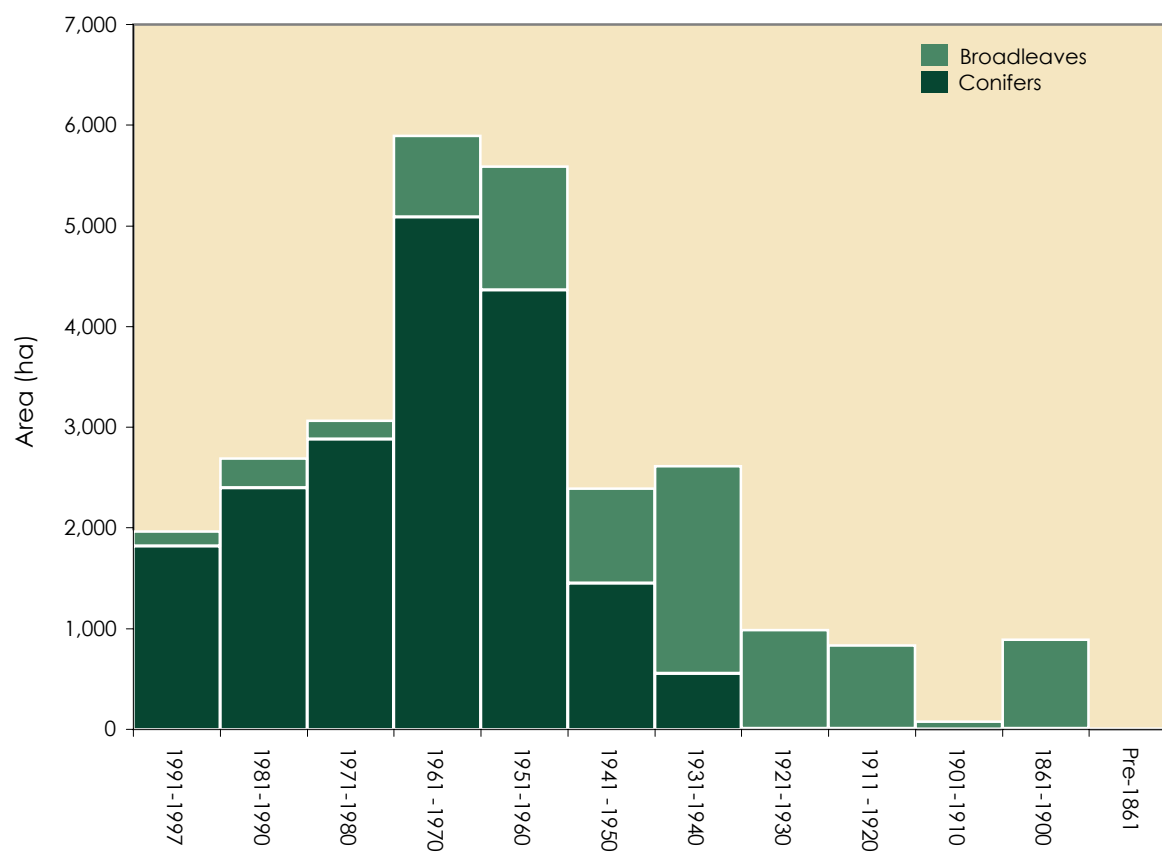
1. Most of the planting year classes cover 10 years, 1991-1997 is 7 years, and the classes prior to 1901 are 40 years or more.

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	15	0	0	119	266	251	45	0	0	0	0	0	696
Corsican pine	0	0	0	0	110	0	0	0	0	0	0	0	110
Lodgepole pine	20	0	113	717	220	0	0	0	0	0	0	0	1,070
Sitka spruce	1,428	1,769	2,038	2,872	2,288	362	318	0	0	0	0	0	11,074
Norway spruce	149	60	0	101	177	154	45	0	0	0	0	0	684
European larch	0	0	0	0	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	154	239	441	484	887	457	144	9	0	0	0	0	2,816
Douglas fir	0	0	25	0	6	2	0	0	0	0	0	0	32
Other conifers	0	10	0	119	0	2	0	0	0	0	0	0	131
Mixed conifers	38	0	11	0	0	0	0	0	0	0	0	0	49
Total conifers	**1,804**	**2,077**	**2,628**	**4,411**	**3,954**	**1,227**	**551**	**9**	**0**	**0**	**0**	**0**	**16,662**
Oak	28	0	0	0	28	0	156	91	2	0	0	0	304
Beech	0	0	0	79	247	19	94	17	8	0	6	0	469
Sycamore	0	0	6	0	23	0	4	0	0	0	6	0	38
Ash	0	0	23	30	13	0	40	0	2	0	11	0	118
Birch	11	20	23	6	0	0	19	0	0	0	0	0	78
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	6	0	6
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	17	0	0	0	0	0	85	0	0	0	0	0	102
Mixed broadleaves	80	149	0	84	9	85	12	0	4	0	0	0	423
Total broadleaves	**136**	**168**	**51**	**199**	**319**	**104**	**408**	**108**	**15**	**0**	**28**	**0**	**1,536**
Total - all species	**1,940**	**2,245**	**2,679**	**4,610**	**4,273**	**1,331**	**960**	**117**	**15**	**0**	**28**	**0**	**18,198**

*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
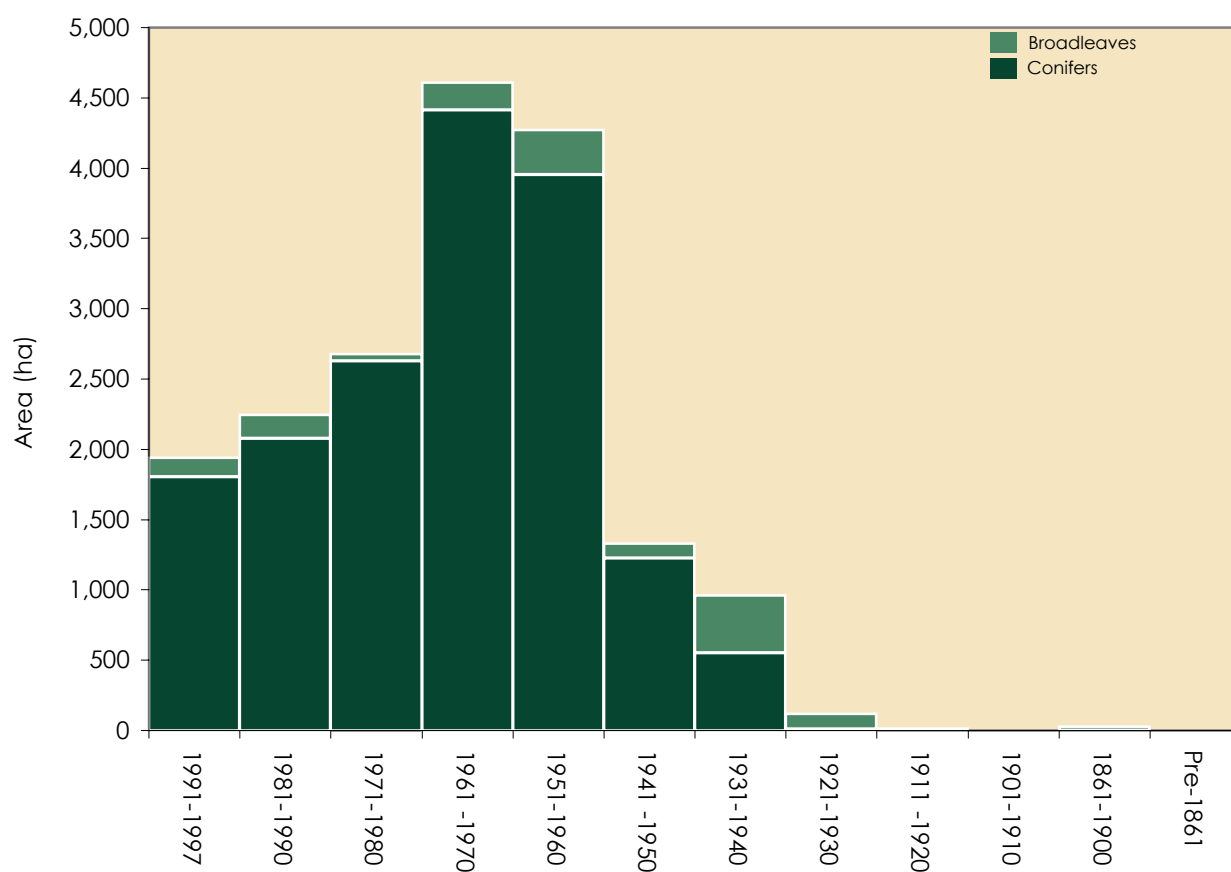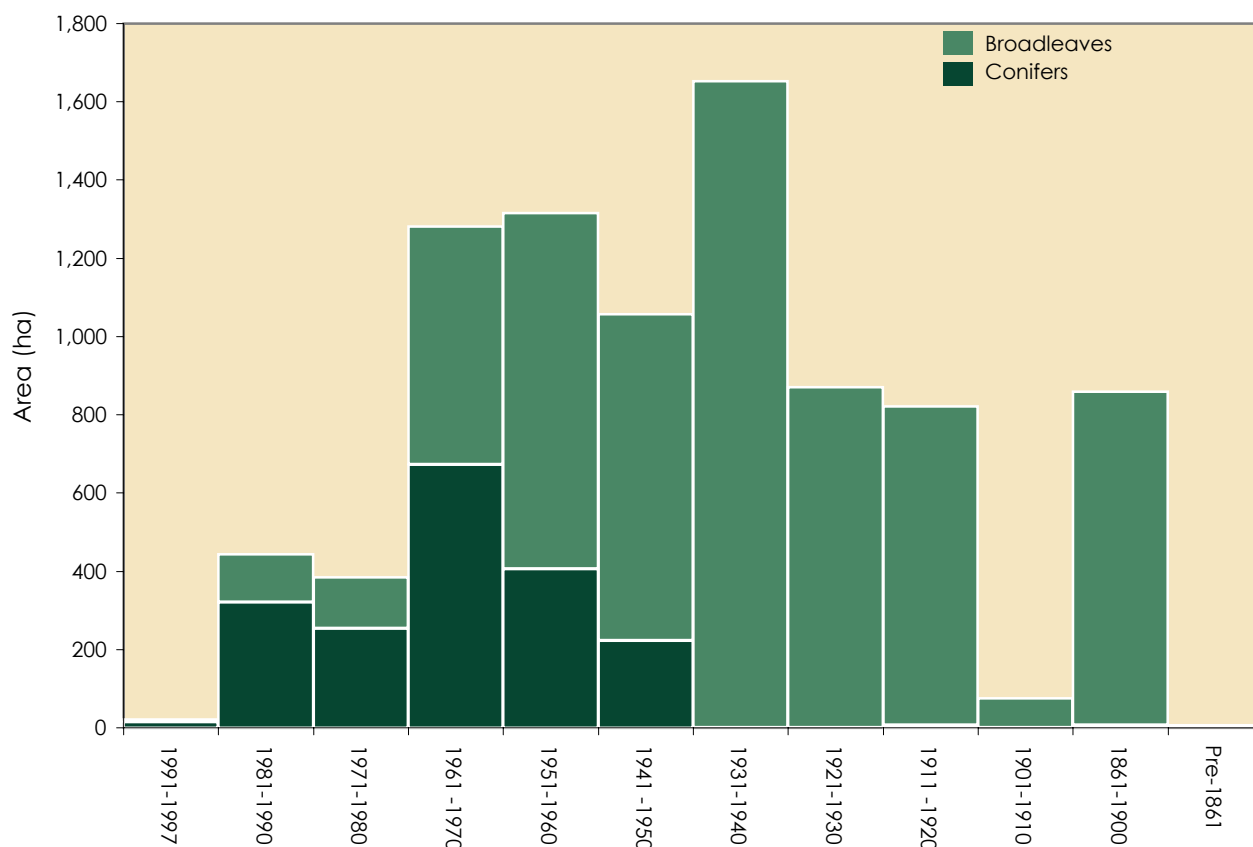

1. Most of the planting year classes cover 10 years, 1991-1997 is 7 years, and the classes prior to 1901 are 40 years or more.

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	0	0	20	218	29	107	0	0	0	0	0	0	373
Corsican pine	0	0	0	72	21	26	0	0	0	0	0	0	120
Lodgepole pine	0	117	0	0	0	0	0	0	0	0	0	0	117
Sitka spruce	0	0	0	13	50	14	0	0	0	0	0	0	77
Norway spruce	14	0	76	219	7	0	0	0	0	0	0	0	317
European larch	0	0	0	0	0	0	0	0	0	0	0	0	0
Jap/Hybrid larch	0	204	157	150	265	76	0	0	0	0	0	0	851
Douglas fir	0	0	0	0	0	0	0	0	0	0	0	0	0
Other conifers	0	0	0	0	35	0	0	0	0	0	0	0	35
Mixed conifers	0	0	0	0	0	0	0	0	7	0	6	0	13
Total conifers	**14**	**321**	**253**	**672**	**406**	**223**	**0**	**0**	**7**	**0**	**6**	**0**	**1,903**
Oak	0	0	0	152	77	123	517	339	575	18	252	0	2,053
Beech	0	0	0	0	29	137	76	69	67	53	278	7	714
Sycamore	0	0	18	99	98	48	96	94	10	0	69	0	533
Ash	0	7	12	145	150	252	246	45	90	6	167	0	1,120
Birch	0	57	63	113	358	134	101	30	7	0	14	0	876
Poplar	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweet chestnut	0	0	0	0	0	0	0	54	0	0	13	0	67
Elm	0	0	0	0	0	0	0	0	0	0	0	0	0
Other broadleaves	0	54	0	85	142	35	296	69	10	0	13	0	704
Mixed broadleaves	8	5	39	15	57	105	319	171	55	0	47	0	821
Total broadleaves	**8**	**123**	**132**	**609**	**910**	**834**	**1,652**	**870**	**814**	**76**	**853**	**7**	**6,888**
Total - all species	**23**	**444**	**385**	**1,281**	**1,316**	**1,057**	**1,652**	**870**	**822**	**76**	**859**	**7**	**8,791**

*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.

Reference Date: 31 March 1997

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	Sitka spruce	72	Norway spruce	8	Jap/Hybrid larch	8
1981-90	Sitka spruce	55	Jap/Hybrid larch	14	Mixed broadleaves	10
1971-80	Sitka spruce	56	Jap/Hybrid larch	16	Other broadleaves	8
1961-70	Sitka spruce	49	Lodgepole pine	10	Jap/Hybrid larch	8
1951-60	Sitka spruce	37	Jap/Hybrid larch	17	Birch	9
1941-50	Sitka spruce	16	Oak	16	Jap/Hybrid larch	15
1931-40	Oak	34	Mixed broadleaves	17	Other broadleaves	12
1921-30	Oak	54	Mixed broadleaves	13	Sycamore	8
1911-20	Oak	68	Ash	11	Mixed broadleaves	7
1901-10	Beech	70	Oak	24	Ash	8
1861-1900	Beech	29	Oak	27	Ash	18
Pre 1861	Beech	100	-		-	
All years	**Sitka spruce**	**36**	**Oak**	**13**	**Jap/Hybrid larch**	**10**

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	6,503	16.4
Business	1,201	3.0
Forestry or timber business	0	0.0
Charity	684	1.7
Local Authority	5,652	14.3
Other public (not FC)	525	1.3
Forestry Commission	24,474	61.8
Community ownership or common land	323	0.8
Unidentified	253	0.6
Total	**39,615**	**100.0**

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

Ownership type by area

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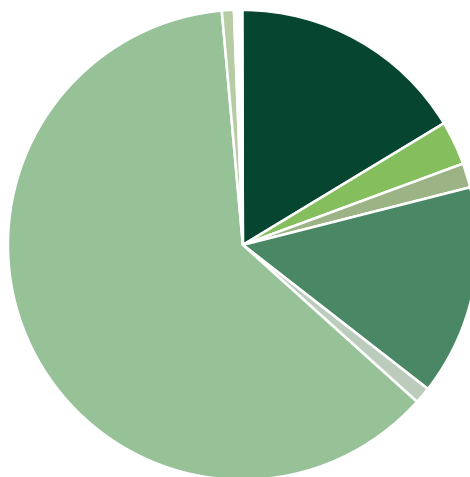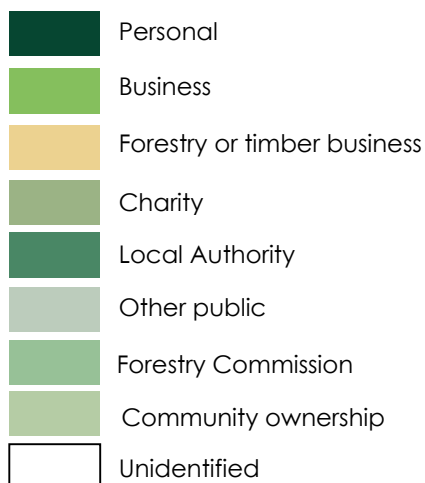
RESULTS FROM THE SURVEY OF SMALL WOODLAND AND TREES (SSWT)

Survey Method

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

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	5,066	2,349	Area (ha)
Wide Linear Features	0	0	Area (ha)
Wide Linear Features	0	0	Length (Km)
Narrow Linear Features	21,900	1,317	Length (Km)
Narrow Linear Features	21,900	625,800	Number of live trees
Groups	110,900	839,600	Number of live trees
Individual Trees	88,700	88,700	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	138	2,211	2,349	5,066	0.46
Wide Linear Features	0	0	0	0	0.00
Total	138	2,211	2,349	5,066	0.46

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	1.5	0.0	7.6	9.5	18.6	25.7	1.2
Spruce	0.0	0.0	0.0	12.4	12.4	17.2	0.8
Larch	0.8	0.0	1.5	0.0	2.3	3.2	0.1
Cypress	0.0	0.0	39.0	0.0	39.0	53.9	2.5
Other conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total conifers	**2.3**	**0.0**	**48.2**	**21.9**	**72.3**	**100.0**	**4.7**
Oak	10.7	17.6	106.3	235.9	370.5	25.0	23.8
Beech	0.0	0.0	1.5	19.0	20.5	1.4	1.3
Sycamore	0.0	0.0	59.6	32.3	91.9	6.2	5.9
Ash	16.0	1.6	170.5	42.8	230.9	15.6	14.9
Birch	0.8	0.8	52.0	19.0	72.6	4.9	4.7
Poplar	0.0	0.0	4.6	8.6	13.2	0.9	0.8
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	39.0	15.2	54.2	3.7	3.5
Lime	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.0	0.0	1.9	1.9	0.1	0.1
Willow	3.8	10.7	85.6	42.8	142.9	9.6	9.2
Other broadleaves	7.6	16.8	272.2	186.4	483.0	32.6	31.1
Total broadleaves	**38.9**	**47.5**	**791.4**	**603.9**	**1481.6**	**100.0**	**95.3**
Total - all species	**41.2**	**47.5**	**839.6**	**625.8**	**1,554.1**		**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   44%
        Groups   24%
        Narrow Linear Features   32%

3.   See Glossary for definitions of feature types.

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

Species	Feature type				Total dead trees	Percent of total trees	
	Boundary Trees	Middle Trees	Groups	Narrow Linear Features		Category	Species
Pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Larch	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cypress	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other conifers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total conifers	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Oak	0.0	0.8	0.0	3.8	4.6	42.2	42.2
Beech	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sycamore	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ash	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Birch	0.0	0.0	0.8	1.0	1.8	16.5	16.5
Poplar	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweet chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alder	0.0	0.0	0.0	1.0	1.0	9.2	9.2
Lime	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Willow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other broadleaves	0.0	0.0	0.8	2.9	3.7	33.9	33.9
Total broadleaves	**0.0**	**0.8**	**1.6**	**8.6**	**10.9**	**100.0**	**100.0**
Total - all species	**0.0**	**0.8**	**1.6**	**8.6**	**10.9**		**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	0.0	18.7	0.0	0.0	18.7
Spruce	0.0	12.4	0.0	0.0	12.4
Larch	2.3	0.0	0.0	0.0	2.3
Cypress	32.9	6.1	0.0	0.0	39.0
Other conifers	0.0	0.0	0.0	0.0	0.0
Total conifers	**35.2**	**37.2**	**0.0**	**0.0**	**72.4**
Oak	30.8	320.8	18.9	0.0	370.5
Beech	3.8	16.7	0.0	0.0	20.5
Sycamore	7.1	76.5	8.4	0.0	92.0
Ash	35.9	179.9	15.1	0.0	230.9
Birch	18.9	49.9	3.8	0.0	72.6
Poplar	5.1	8.0	0.0	0.0	13.1
Sweet chestnut	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.0	0.0	0.0	0.0	0.0
Alder	7.2	47.0	0.0	0.0	54.2
Lime	0.0	0.0	0.0	0.0	0.0
Elm	0.0	1.9	0.0	0.0	1.9
Willow	85.0	54.9	3.1	0.0	143.0
Other broadleaves	443.0	40.0	0.0	0.0	483.0
Total broadleaves	**636.8**	**795.6**	**49.2**	**0.0**	**1,481.7**
Total - all species	**672.0**	**832.8**	**49.2**	**0.0**	**1,554.1**

Table 18 Number of Groups by group size

Number of trees per Group*	Number of Groups (000's)
2	18
3-5	31
6-10	21
11-20	25
21-50	13
51-100	3
>100	0
Total	**111**

*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	32,680	94.8	39,614	94.7	21
0.25 - <2.0	1,790	5.2	2,211	5.3	24
Total	**34,470**		**41,825**		**21**
% Woodland land cover	**15.3**		**18.6**		

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), 225,331 ha,
    was based on the 1991 Census of Population digital boundaries.

4. Land area used to calculate woodland cover percent (1980), 225,154 ha,
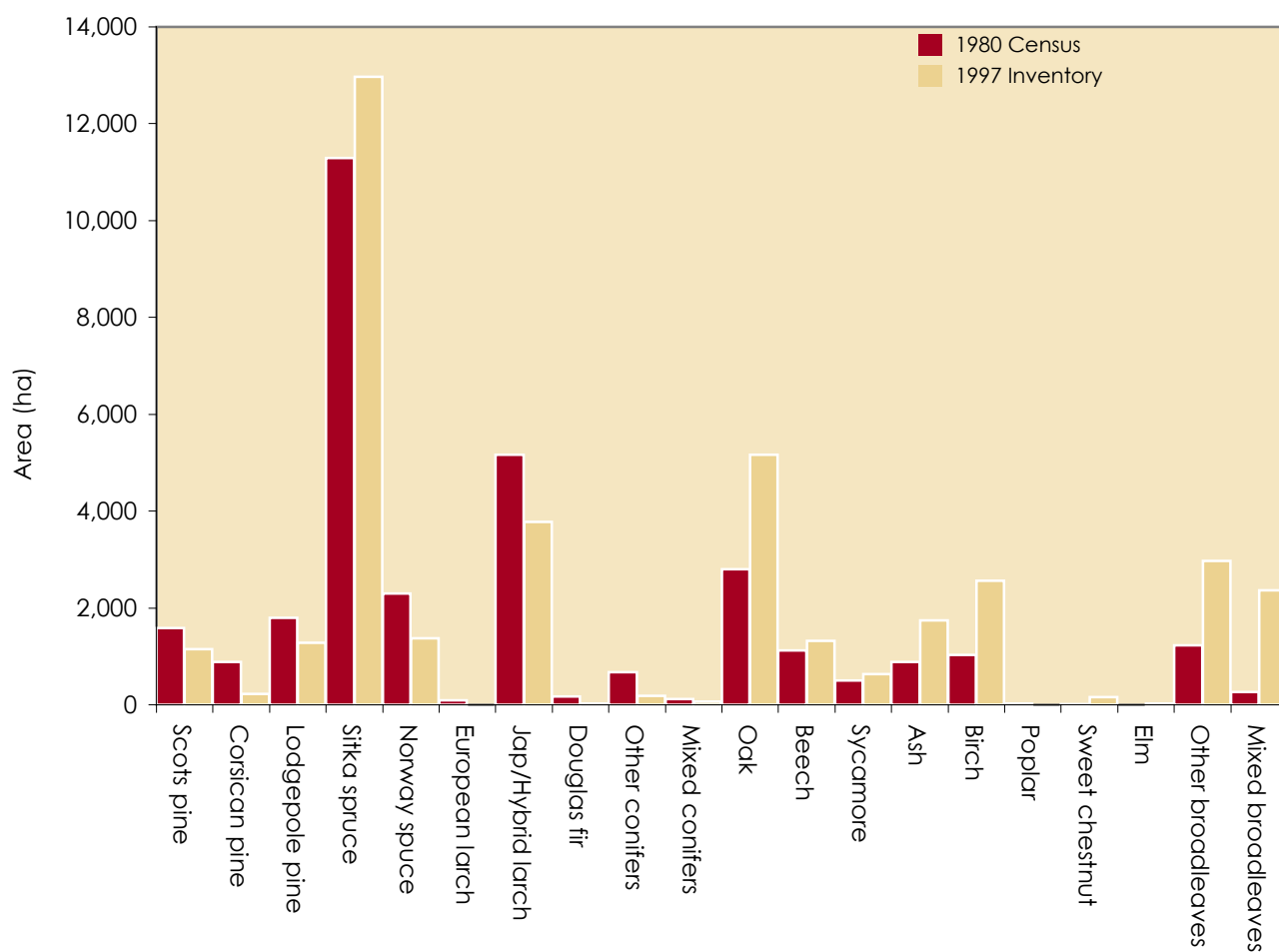   (Ordnance Survey data)

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	1,584	1,143	-28
Corsican pine	890	230	-74
Lodgepole pine	1,799	1,280	-29
Sitka spruce	11,296	12,966	15
Norway spuce	2,299	1,375	-40
European larch	90	0	-100
Jap/Hybrid larch	5,162	3,778	-27
Douglas fir	165	32	-81
Other conifers	669	183	-73
Mixed conifers	121	62	-49
Total conifers	**24,076**	**21,049**	**-13**
Oak	2,796	5,158	84
Beech	1,124	1,316	17
Sycamore	506	634	25
Ash	886	1,737	96
Birch	1,033	2,562	148
Poplar	23	0	-100
Sweet chestnut	9	157	1,726
Elm	0	30	0
Other broadleaves	1,235	2,968	140
Mixed broadleaves	264	2,362	796
Total broadleaves	**7,875**	**16,924**	**115**
Total all species	**31,951**	**37,973**	**19**
Felled	**762**	**1,733**	**128**
Total High Forest	**32,712**	**39,706**	**21**

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 overc proportion is 4.4% (Table 2). To obtain meaningful comparisons between the two datase the 1980 Census data have therefore been reduced by 4.4%.

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	1,962	see note
1981-1990	0	2,690	see note
1971-1980	4,806	3,202	-36
1961-1970	6,894	5,892	-15
1951-1960	7,589	5,589	-26
1941-1950	4,926	2,388	-52
1931-1940	2,249	2,611	16
1921-1930	665	986	48
1911-1920	1,506	836	-44
1901-1910	1,145	76	-93
1861-1900	445	887	99
Pre 1861	891	7	-99
Total all years	**31,116**	**27,427**	**-13**

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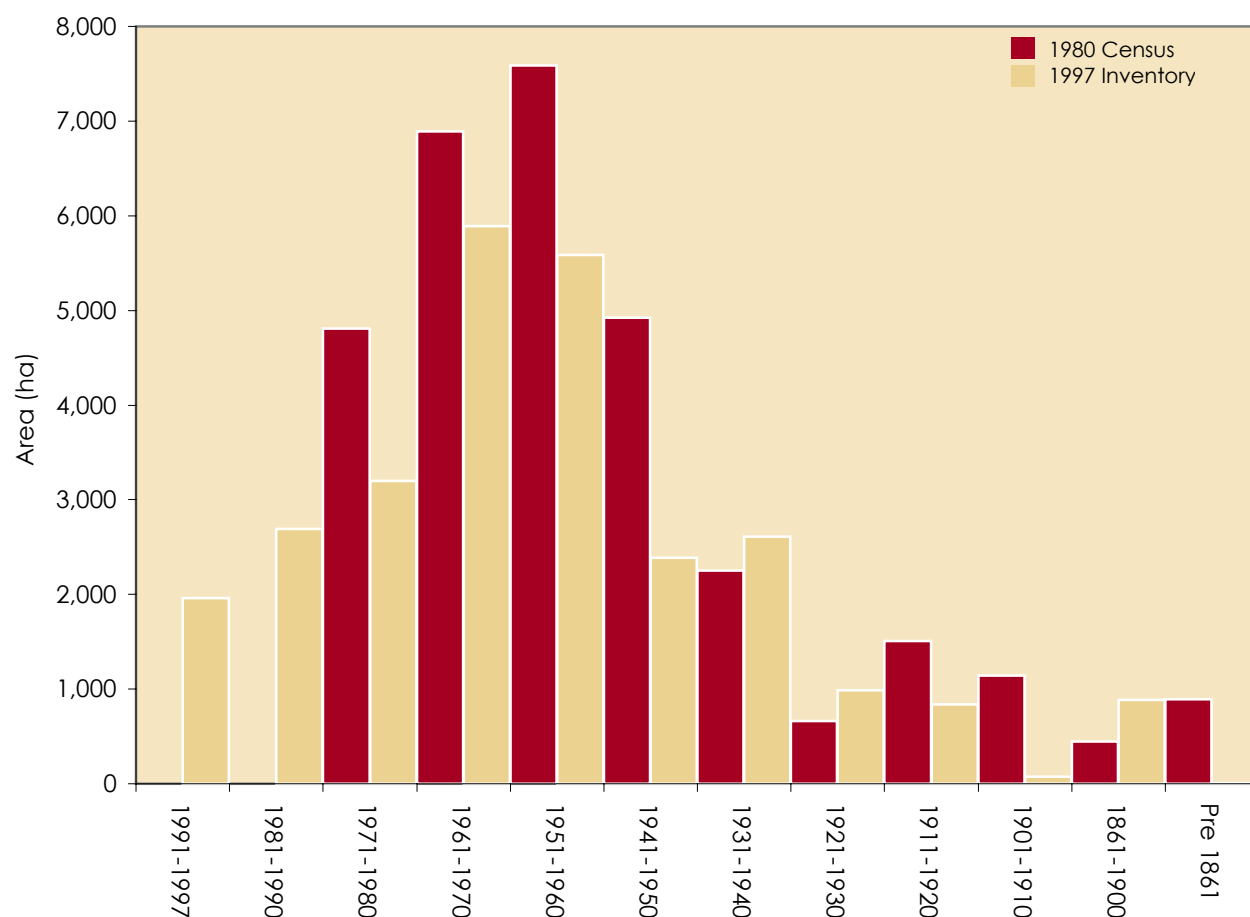
1. Most of the planting year classes cover 10 years, 1991-1997 is 7 years, and the classes prior to 1901 are 40 years or more.

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	145	33	-77
Middle Tree	165	39	-76
Total Individual Trees	311	73	-77
Groups	380	541	42
Linear Features	666	477	-28
Total	1,357	1,091	-20

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

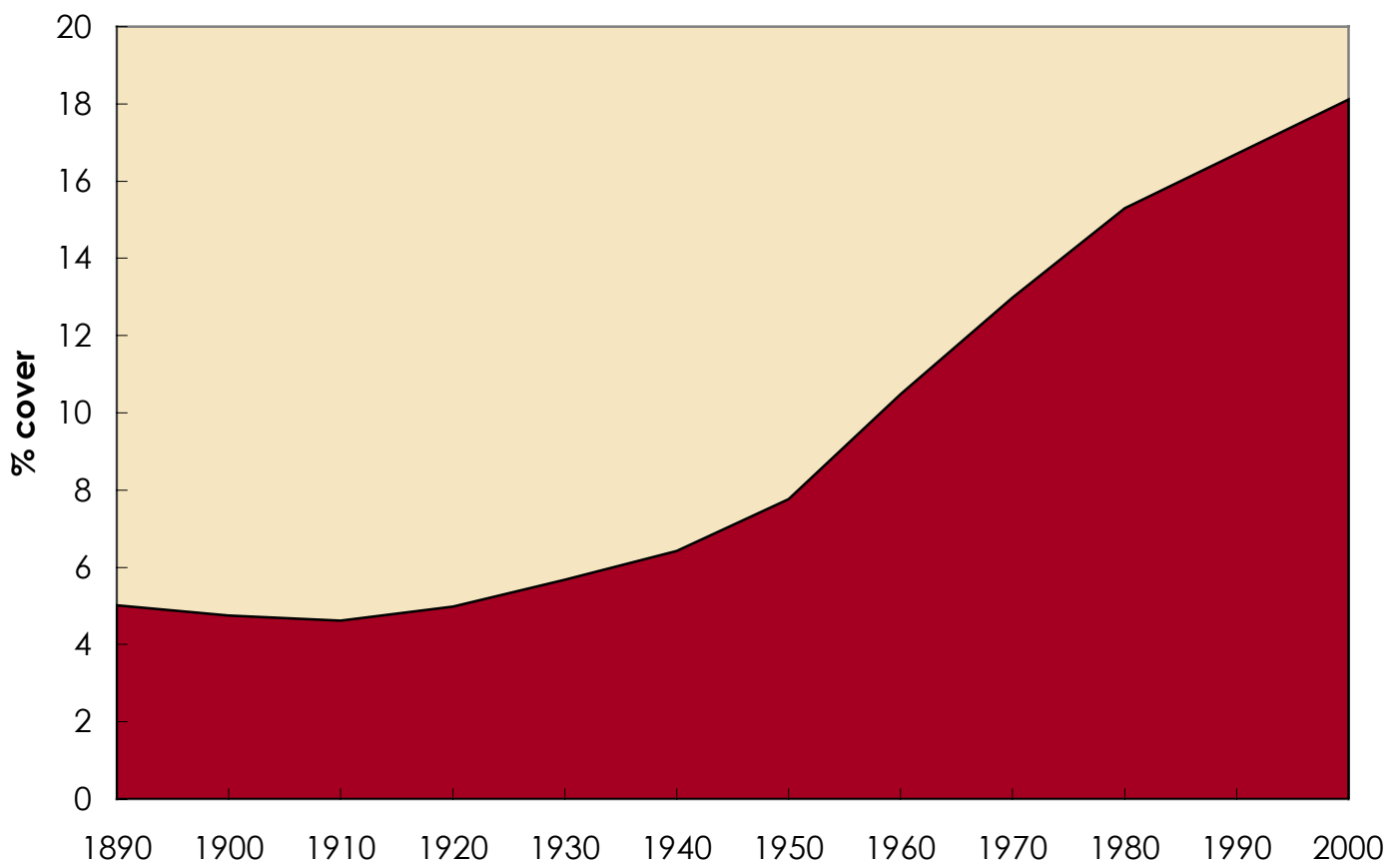| Feature type	1980 Census	1997 Inventory	Change (%)
Individual Trees (per sq km)	138.1	32.2	-77
Groups (per sq km)	18.1	40.7	125
Linear Features (m per sq km)	666.2	584.6	-12

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.

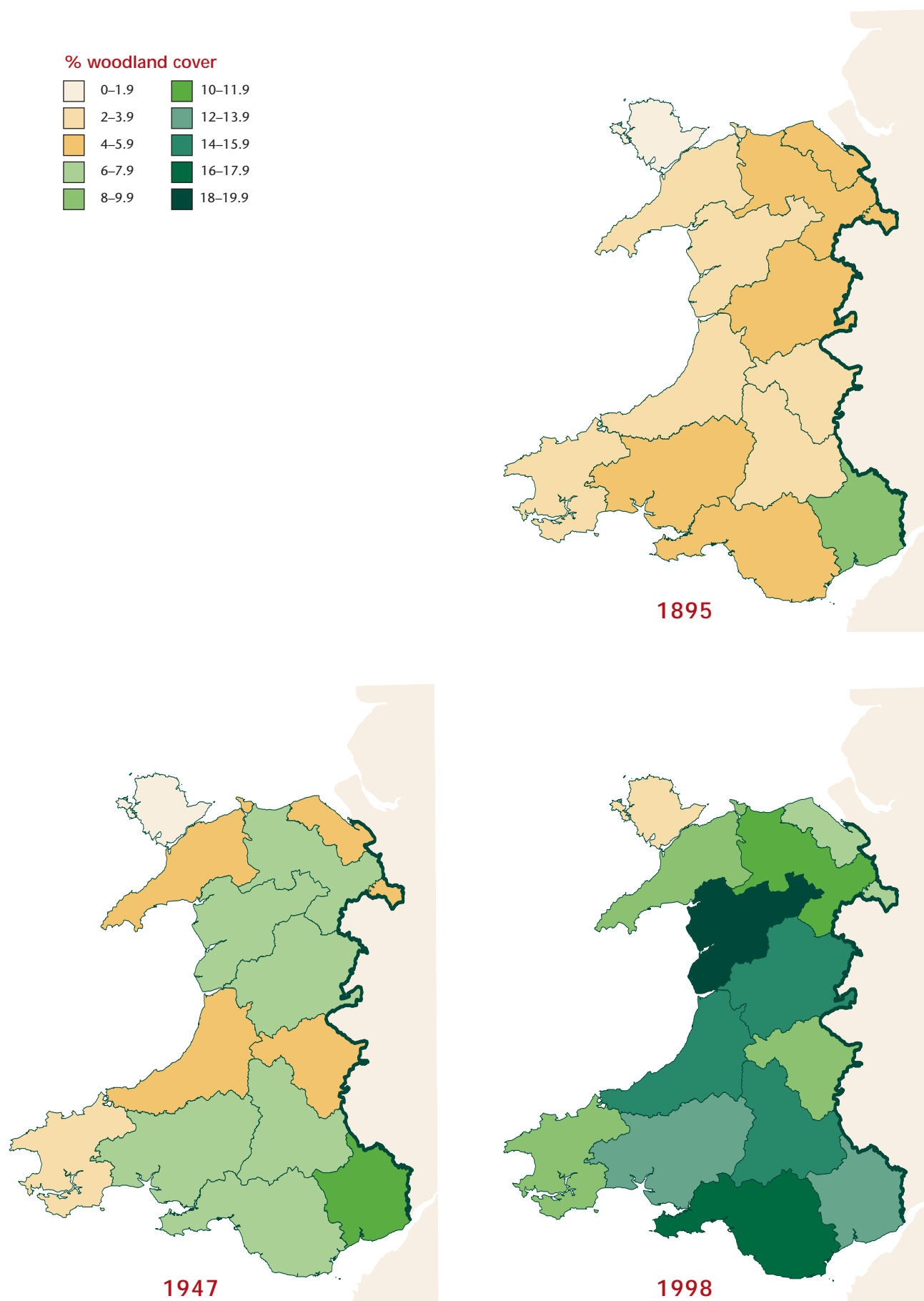4.   See Glossary for definitions of feature type.

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)

% woodland cover

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

1895

1947

1998

GLOSSARY

Woodland

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

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

Interpreted Forest Types

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

High Forest

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

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

- **High Forest Category 2**
  Stands of lower quality than High Forest Category 1.

Mixtures

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

Forest Types

- **Conifer**

  Woodland containing more than 80% by area of coniferous species.

- **Broadleaved**

  Woodland containing more than 80% by area of broadleaved species.

- **Mixed**

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

- **Coppice**

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

- **Coppice with Standards**

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

- **Felled**

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

- **Windblow**

  Areas of blown woodland which remain uncleared and not regenerated.

- **Open Space**

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

Ownership types

- **Other Ownership**

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

  - Personal

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

  - Private forestry or timber business

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

  - Other private business

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

  - Local Authority

  Region, County, District or other Council

  - Other public bodies (not FC)

  Government department/agency, nationalised industry, etc.

- Charitable organisations

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

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- 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