



NATIONAL INVENTORY OF WOODLAND AND TREES



ENGLAND

**Regional Report for
YORKSHIRE AND
THE HUMBER**



Forestry Commission



Forestry Commission

Inventory Report

**NATIONAL INVENTORY OF
WOODLAND AND TREES**



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**Regional Report for
YORKSHIRE AND THE HUMBER**

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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 Yorkshire and the Humber Region was carried out by Graham Bull, Woodland Survey Officer, and Woodland GIS Officers Chris Brown, Robert Beck and Esther Whitton. Data processing and analysis were carried out by Woodland Data Officers Justin Gilbert and Shona Mackintosh.

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 Yorkshire and the Humber Region 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 With the statistics becoming increasingly out of date the Forestry Commission decided to undertake a new survey: the *National Inventory of Woodland and Trees*.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 Yorkshire and the Humber Region, 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 in Yorkshire and the Humber Region 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:

- 2.0 ha – <100 ha : every fifth wood
- 100 ha – <500 ha : two woods in five
- 500 ha 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 had 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 the Yorkshire and the Humber Region was stratified into coastal and inland 1 km x 1 km squares. A random sample of the 1 km² plots was 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 Woods (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 Yorkshire and the Humber Region is 92 082 hectares. This represents 6% of the land area (Table 1).
- Broadleaved woodland is the dominant forest type representing 41.5% of all woodland. Conifer woodland represents 31.6%, Mixed woodland 15.6% and Open Space within woodlands 9.1% (Table 2).
- The main conifer is pine covering 13 979 hectares or 39% of all conifer species. The main broadleaved species is oak covering 10 069 hectares or 22% of all broadleaved species (Table 3).
- 19 847 hectares or 22% of woodland over 2 hectares is owned by or leased to the Forestry Commission, and 70 280 hectares or 78% of woodland is in Other ownerships (Table 6).
- There are 5 509 woods over 2 hectares within Yorkshire and the Humber Region with a mean wood area of 16.5 hectares (Table 7a). There are a total of 5 364 woods from 0.1 – <2.0 hectares with a mean wood area of 0.4 hectares (Table 14).
- There are 2.2 million live trees and 16.6 thousand dead trees outside woodland in Yorkshire and the Humber Region (Tables 17 & 18).
- Woodland land cover increased by over 6 600 hectares from 5.5% to 6.0% of the land area between 1980 and 1999 (Table 23).
- The area of Broadleaves increased by 18% between 1980 and 1999, with the relative proportion of Broadleaves to Conifers increasing from 51% to 56% (Table 24).

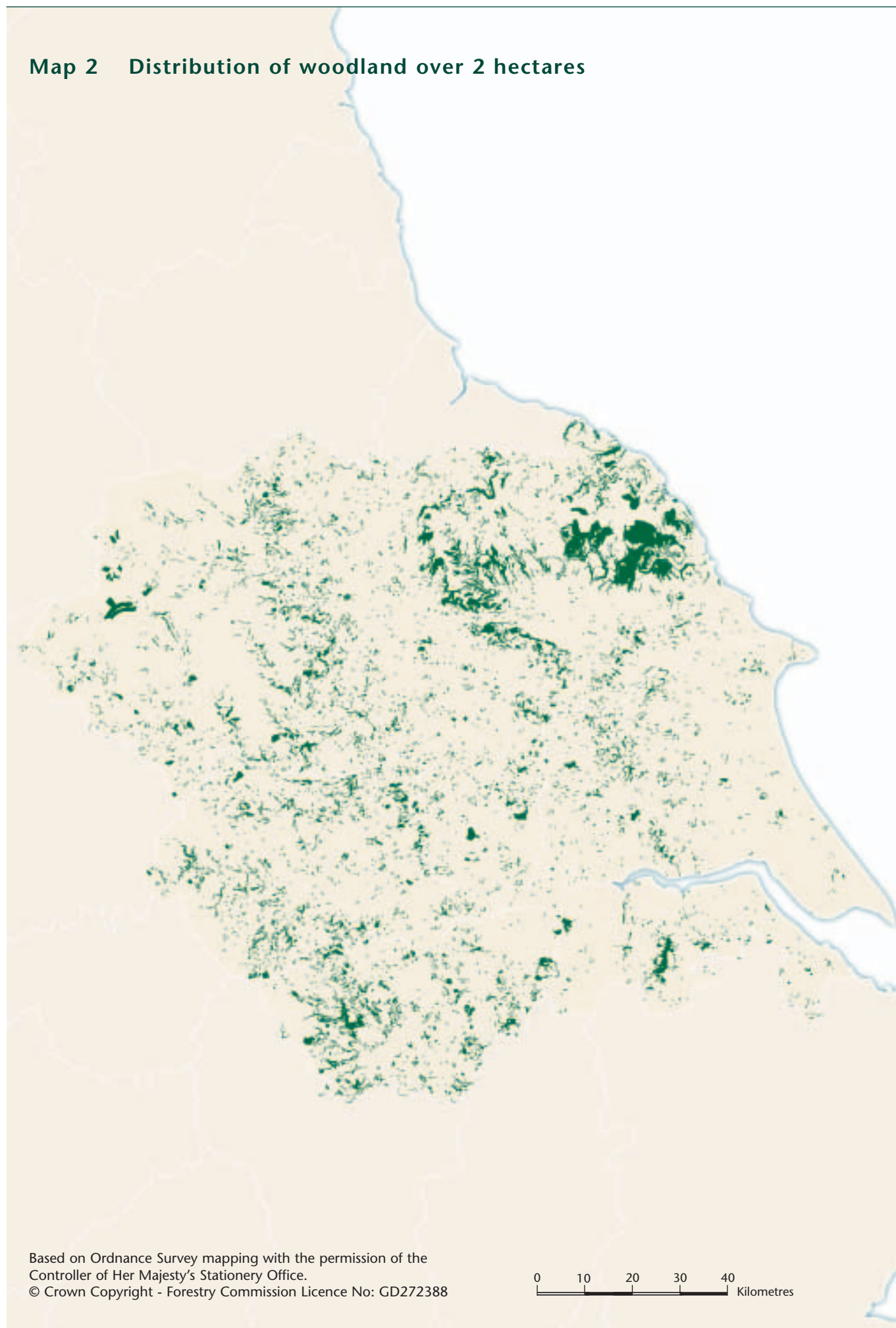
INVENTORY REPORTS

For Yorkshire and the Humber Region, reports are available for the counties as shown on the map opposite. Also available are region and county reports for other parts of England as well as a report for the country as a whole. Wales and Scotland are also covered by reports.

Map 1 Regional and county boundaries

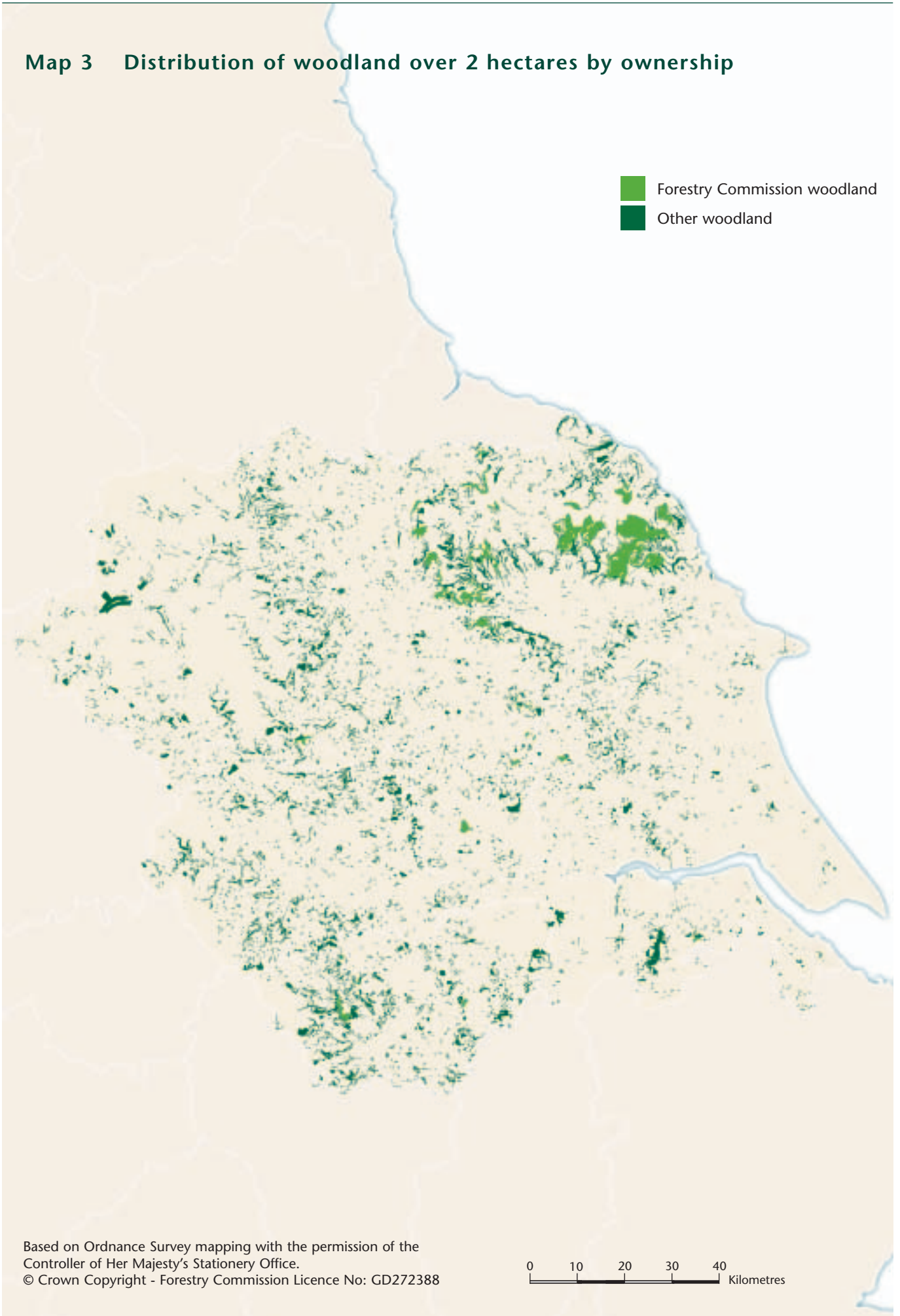


Map 2 Distribution of woodland over 2 hectares



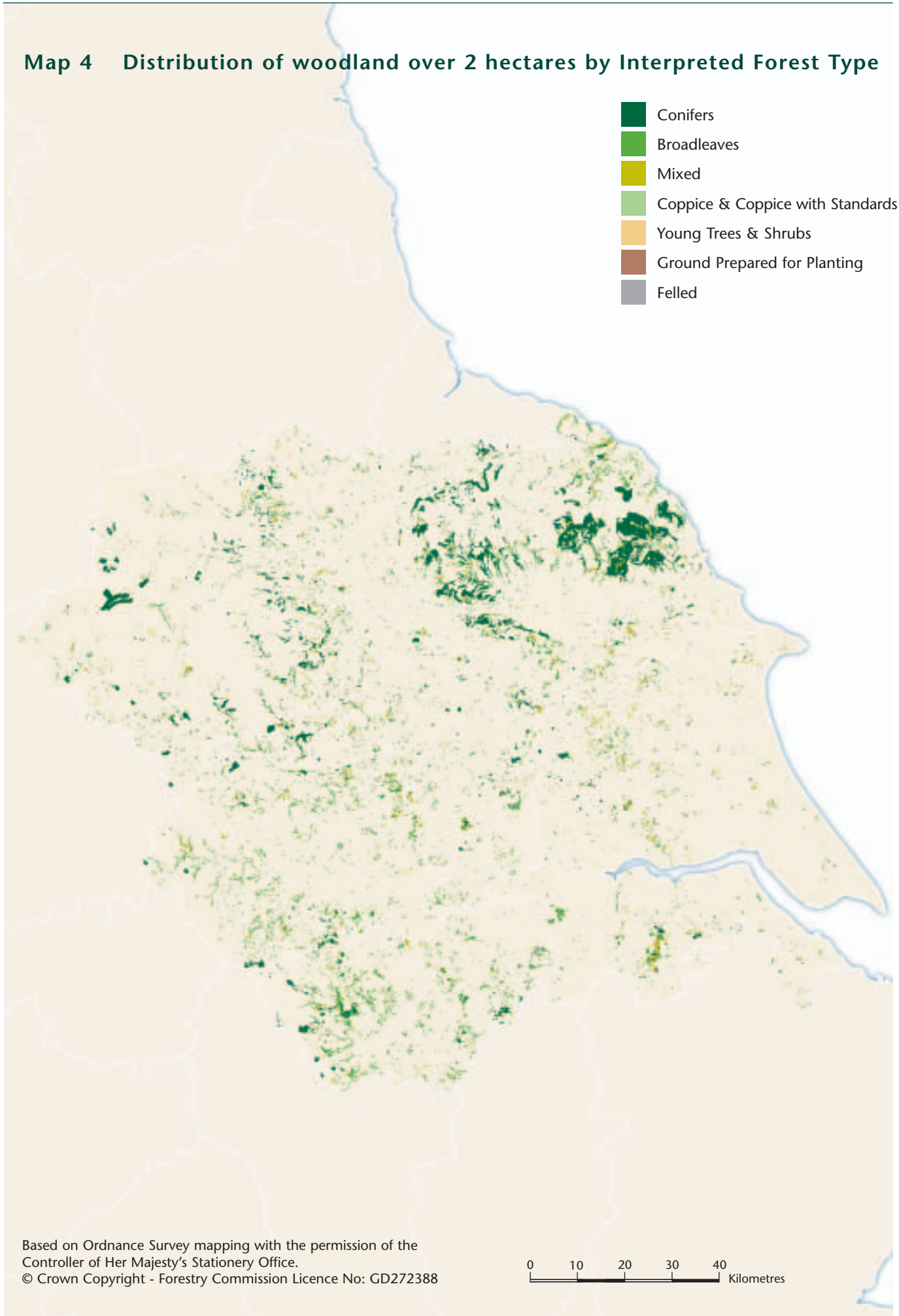
Map 3 Distribution of woodland over 2 hectares by ownership

- Forestry Commission woodland
- Other woodland



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

- Conifers
- Broadleaves
- Mixed
- Coppice & Coppice with Standards
- Young Trees & Shrubs
- Ground Prepared for Planting
- Felled



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0 10 20 30 40
Kilometres

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 Yorkshire and the Humber Region.

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)	% Woodland area
2.00 and over	90 127	97.9
0.25 – < 2.00	1 694	1.8
0.10 – < 0.25	261	0.3
Total area of woodland	92 082	100.0
% Woodland land cover	6.0	

1. Area of Yorkshire and the Humber Region, including inland water, 1 541 112 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	29 138	0	29 138	31.6
Broadleaved	37 260	957	38 217	41.5
Mixed	13 454	949	14 403	15.6
Coppiced	225	0	225	0.2
Copp-w-Standards	268	0	268	0.3
Windblow	56	0	56	0.1
Felled	1 434	0	1 434	1.6
Open Space	8 293	49	8 342	9.1
Total	90 127	1 955	92 082	100.0

1. See Glossary for definitions of forest types.

Table 3 Woodland area by principal species and woodland size

Species/Groups	Woodland size (ha)		Total area (ha)	Percentage of total area	
	2.0 and over	0.1 – < 2.0		Category*	Species**
Pine	13 736	243	13 979	39.3	17.1
Sitka spruce	8 466	42	8 508	23.9	10.4
Larch	9 091	177	9 268	26.0	11.3
Other conifers	3 035	0	3 035	8.5	3.7
Mixed conifers	716	98	814	2.3	1.0
Total conifers	35 044	560	35 604	100.0	43.5
Oak	9 980	89	10 069	21.8	12.3
Beech	5 747	98	5 845	12.6	7.1
Sycamore	8 625	74	8 699	18.8	10.6
Ash	7 537	123	7 660	16.6	9.4
Birch	5 763	294	6 057	13.1	7.4
Elm	121	0	121	0.3	0.1
Other broadleaves	5 197	589	5 786	12.5	7.1
Mixed broadleaves	1 892	79	1 971	4.3	2.4
Total broadleaves	44 864	1 346	46 210	100.0	56.5
Total all species†	79 908	1 905	81 814		100.0

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

** Species - species/group percentage of all species.

† Excludes the 10 296 ha of Coppice, Felled and Open Space areas, which were included in Table 2.

1. The standard errors of the total area estimates for the most common species or species groups are as follows:

Conifers	3%
Broadleaves	2%
Pine	6%
Larch	7%
Oak	5%

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	177 600	833 600	5	54
Narrow Linear Features	21 600	702 600	33	46
Individual Trees	628 700	628 700	1	41
Total		2 164 900		140

1. Land area used to calculate tree density 1 541 112 ha based on digital boundaries used in 1991 Census of Population.
2. The standard errors of the live tree number estimates for these feature types are:

Groups	27%
Narrow Linear Features	35%
Individual Trees	10%
3. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).
4. See Glossary for definitions of feature types.

Table 5 Lengths of Linear Features

Feature type	Total number of features	Total length of features (km)	Density of features (m per sq km)
Wide Linear Features	2 420	185	12
Narrow Linear Features	21 600	1 563	101
Total		1 748	113

1. Land area used to calculate feature density 1 541 112 ha based on digital boundaries used in 1991 Census of Population.
2. The standard errors of the length estimates for these feature types are:

Wide Linear Features	71%
Narrow Linear Features	30%
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.

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 the sample plots was reduced as the sampled woodlands increased in size, the general aim being to sample 1% of 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	19 847	22
Other	70 280	78
Total area of woodland	90 127	100

1. Woodland area from aerial photographic interpretation map updated to 31 March 1999.
2. See Glossary for definitions of ownership types.

Woodland area by ownership

Forestry Commission
Other ownership

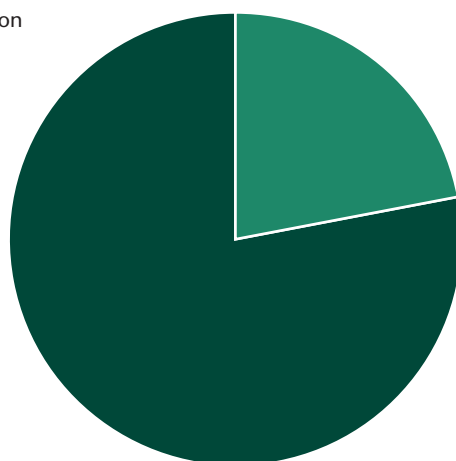


Table 7a Size class distribution of woodland

Size class (ha)	Number of woods	Total area (ha)	Percent of total area	Mean wood area (ha)
<10	4 196	17 795	20	4.2
10 – <20	630	8 761	10	13.9
20 – <50	418	12 991	14	31.1
50 – <100	162	11 196	12	69.1
<100	5 406	50 743	56	9.4
100 – <500	90	15 944	18	177.2
500 and >	13	23 957	26	1 842.8
All woods	5 509	90 644	100	16.5

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	32	132	0	4.1
	O	4 427	18 314	18	4.1
10 – <20	FC	16	239	0	14.9
	O	645	8 950	9	13.9
20 – <50	FC	22	771	1	35.0
	O	437	13 562	13	31.0
50 – <100	FC	12	783	1	65.3
	O	171	11 884	12	69.5
<100	FC	82	1 926	2	23.5
	O	5 680	52 711	52	9.3
100 – <500	FC	19	4 837	5	254.6
	O	87	16 193	16	186.1
500 and >	FC	7	13 083	13	1 869.0
	O	2	1 893	2	946.5
Total	FC	108	19 846	20	183.8
	O	5 769	70 797	70	12.3

1. Tables 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 517 hectares more than that recorded in Tables 1 and 3. This is mainly due to the field samples recording some land in other land uses not differentiated from woodland in the digital map.
3. The data available from the digital map enable the identification of woodlands according to their ownerships; Forestry Commission or Other. The entries in Table 7b cannot be added to derive Table 7a as some woods may consist of both Forestry Commission and Other ownership(s).

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

Table 8 Area of woodland by forest type and ownership

Forest type	Forestry Commission		Other		All ownerships	
	ha	%	ha	%	ha	%
Conifer	13 203	66.5	15 935	22.7	29 138	32.3
Broadleaved	2 773	14.0	34 487	49.1	37 260	41.3
Mixed	1 820	9.2	11 635	16.6	13 454	14.9
Coppice	2	0.0	222	0.3	225	0.2
Copp-w-stds	12	0.1	256	0.4	268	0.3
Windblow	0	0.0	56	0.1	56	0.1
Felled	650	3.3	784	1.1	1 434	1.6
Open Space	1 388	7.0	6 906	9.8	8 293	9.2
Total	19 847	100.0	70 280	100.0	90 127	100.0

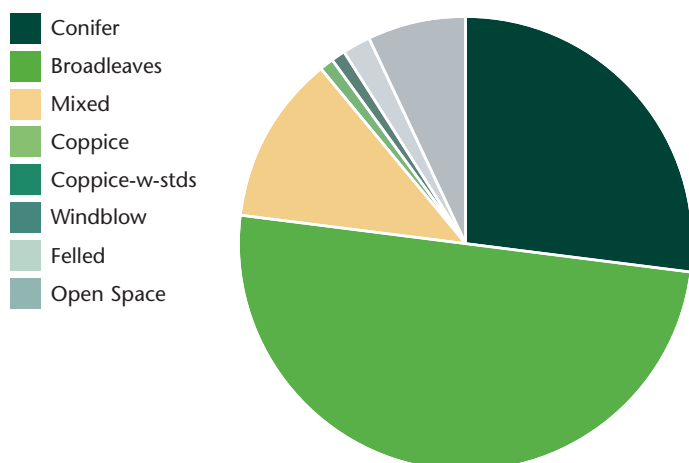
Area of woodland by forest type

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	3 866	28	22	6 273	30	10	10 139	29	13
Corsican pine	539	4	3	1 408	7	2	1 947	6	2
Lodgepole pine	1 393	10	8	257	1	0	1 650	5	2
Sitka spruce	3 801	27	21	4 665	22	8	8 466	24	10
Norway spruce	291	2	2	1 415	7	2	1 706	5	2
European larch	873	6	5	1 742	8	3	2 616	7	3
Japanese/hybrid larch	2 629	19	15	3 845	18	6	6 475	18	8
Douglas fir	306	2	2	285	1	0	590	2	1
Other conifers	158	1	1	581	3	1	739	2	1
Mixed conifers	134	1	1	582	3	1	716	2	1
Total conifers	13 989	100	79	21 053	100	34	35 044	100	44
Oak	758	20	4	9 222	22	15	9 980	22	12
Beech	752	20	4	4 996	12	8	5 747	13	7
Sycamore	366	10	2	8 259	20	13	8 625	19	11
Ash	377	10	2	7 160	17	12	7 537	17	9
Birch	1 069	28	6	4 694	11	8	5 763	13	7
Poplar	74	2	0	264	1	0	338	1	0
Sweet chestnut	0	0	0	233	1	0	233	1	0
Elm	10	0	0	111	0	0	121	0	0
Other broadleaves	240	6	1	4 386	11	7	4 626	10	6
Mixed broadleaves	160	4	1	1 733	4	3	1 892	4	2
Total broadleaves	3 806	100	21	41 058	100	66	44 864	100	56
Total – all species	17 795		100	62 113		100	79 908		100
Felled	650			784			1 434		
Total High Forest	18 445			62 897			81 342		

*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 8 293 hectares 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	2%
Scots pine	6%
Oak	5%
Sycamore	5%
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

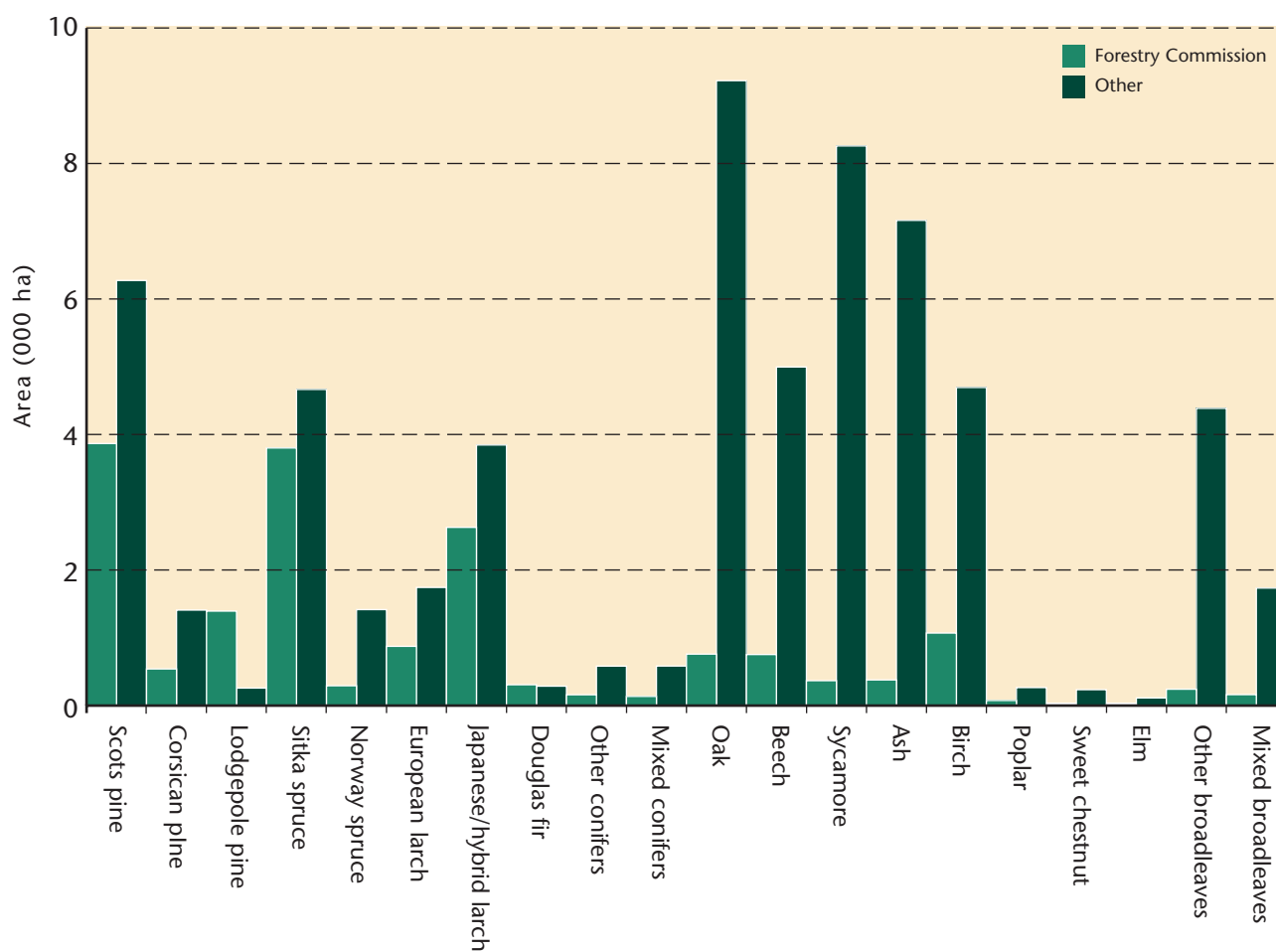


Table 9b Area of High Forest by principal species, ownership and category

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	3 866	0	3 866	6 161	113	6 273	10 026	113	10 139
Corsican pine	539	0	539	1 408	0	1 408	1 947	0	1 947
Lodgepole pine	1 369	24	1 393	189	68	257	1 558	92	1 650
Sitka spruce	3 801	0	3 801	4 656	9	4 665	8 457	9	8 466
Norway spruce	291	0	291	1 415	0	1 415	1 706	0	1 706
European larch	873	0	873	1 714	29	1 742	2 587	29	2 616
Japanese/hybrid larch	2 629	0	2 629	3 827	19	3 845	6 456	19	6 475
Douglas fir	306	0	306	285	0	285	590	0	590
Other conifers	158	0	158	520	62	581	677	62	739
Mixed conifers	134	0	134	559	23	582	693	23	716
Total conifers	13 966	24	13 989	20 733	321	21 053	34 699	345	35 044
Oak	738	20	758	7 951	1 272	9 222	8 688	1 92	9 980
Beech	752	0	752	4 549	447	4 996	5 301	447	5 747
Sycamore	366	0	366	7 449	810	8 259	7 815	810	8 625
Ash	377	0	377	6 372	789	7 160	6 748	789	7 537
Birch	959	110	1 069	3 801	893	4 694	4 759	1 004	5 763
Poplar	74	0	74	259	4	264	334	4	338
Sweet chestnut	0	0	0	208	25	233	208	25	233
Elm	10	0	10	73	38	111	82	38	121
Other broadleaves	202	38	240	2 357	2 029	4 386	2 559	2 067	4 626
Mixed broadleaves	110	49	160	1 294	438	1 733	1 405	488	1 892
Total broadleaves	3 587	218	3 806	34 312	6 746	41 058	37 900	6 964	44 864
Total – all species	17 553	242	17 795	55 046	7 067	62 111	72 599	7 309	79 908

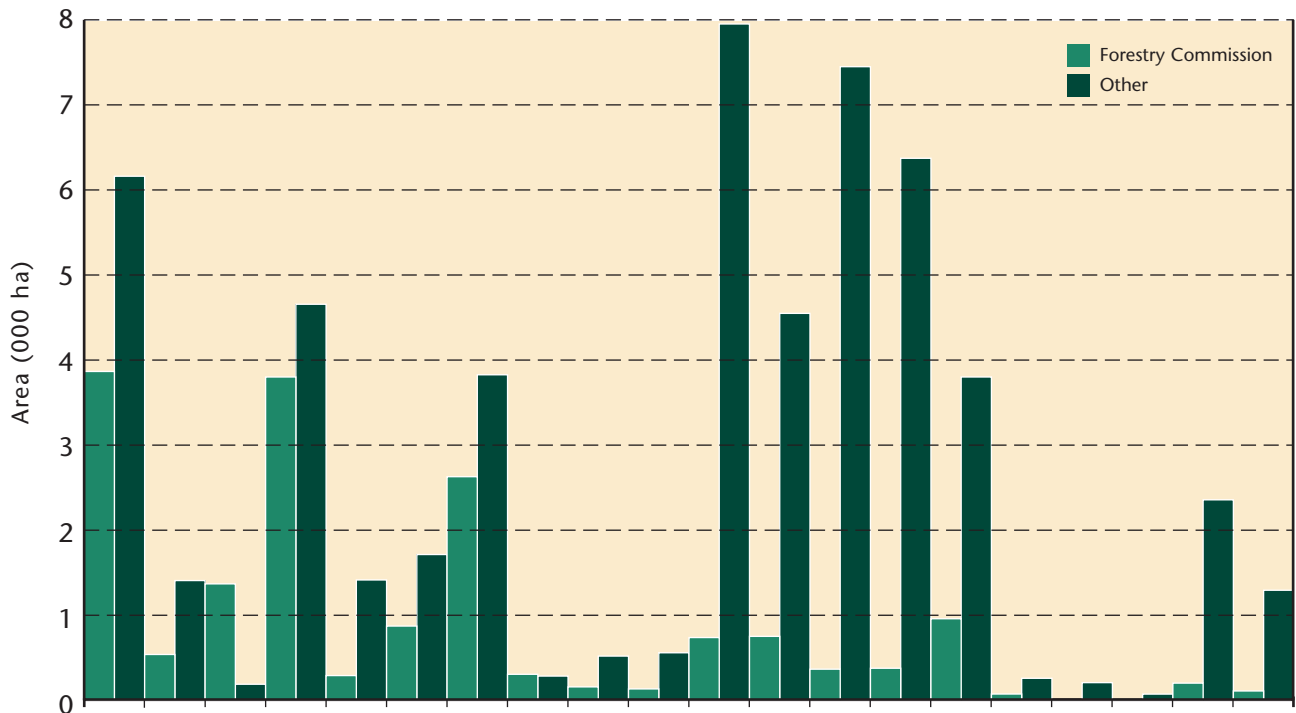
1. The standard errors of the All ownerships area estimates for the most common species or species groups (in all woodland types) are as follows:

	Category 1*	Category 2*	Total High Forest
Conifers	2%	23%	3%
Broadleaves	2%	5%	2%
Scots pine	6%	38%	6%
Oak	5%	13%	5%
Sycamore	5%	16%	5%

*See Glossary for Category 1 and Category 2 descriptions.

2. Where the standard errors of these summary measures are 10% or less, the confidence intervals will be approximately symmetrical; the true value is expected to be within +/- one standard error for about 68% (or about two-thirds) of all cases, and within +/- two standard errors for about 95% of all cases. Where percentage standard errors are larger, e.g. for less common species or more variable species composition, the confidence intervals will be less symmetrical (and wider).
3. Where possible the species in mixtures have been separately recorded. Where this has not been possible they were described as 'Mixed conifers' or 'Mixed broadleaves'.

High Forest Category 1 - Area by principal species and ownership



High Forest Category 2 - Area by principal species and ownership

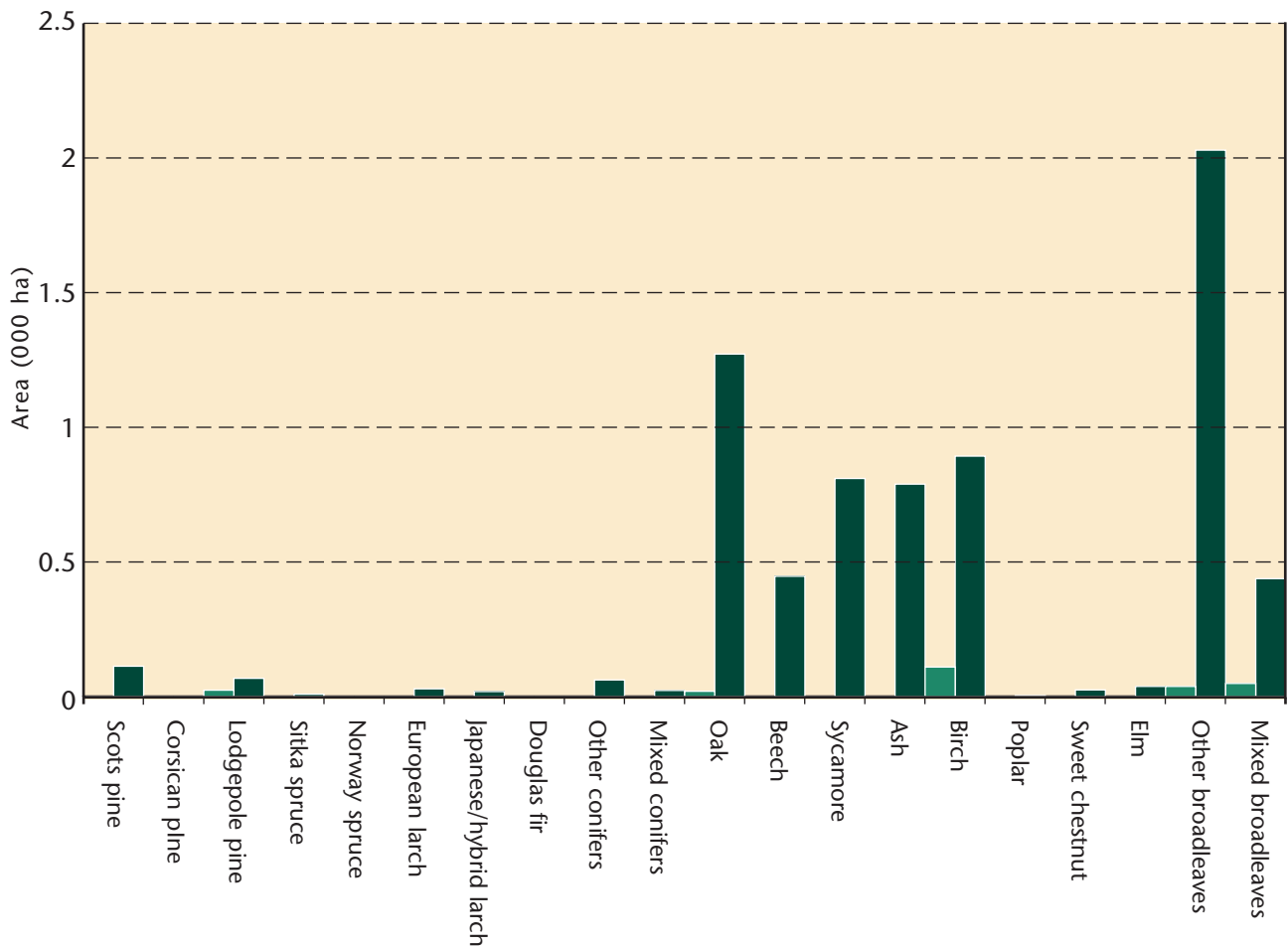
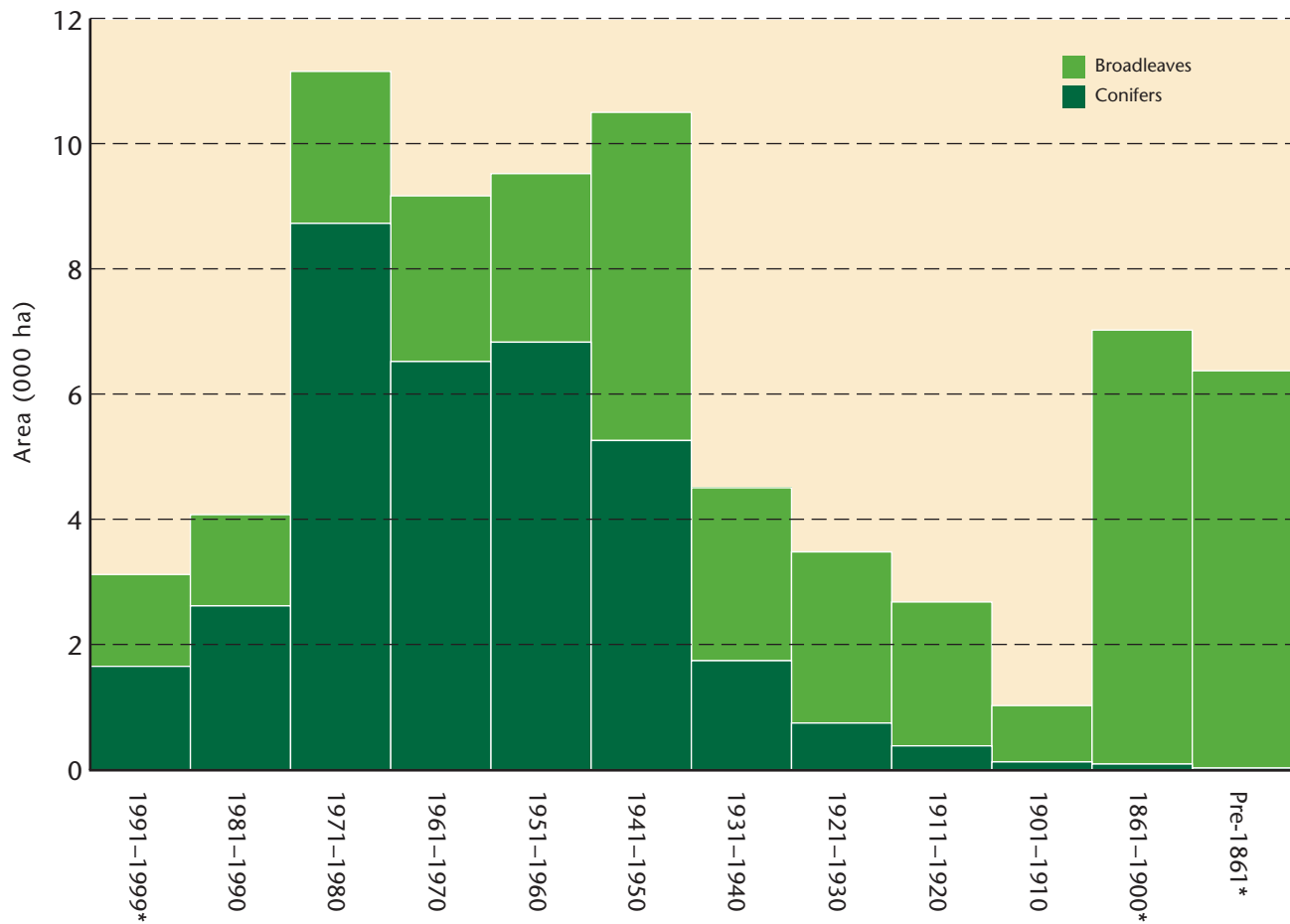


Table 10a High Forest Category 1 - Area by principal species and planting year class

Species	Planting year class*												Total (ha)
	1991 -1999	1981 -1990	1971 -1980	1961 -1970	1951 -1960	1941 -1950	1931 -1940	1921 -1930	1911 -1920	1901 -1910	1861 -1900	pre - 1861	
Scots pine	415	319	1 181	2 502	2 834	1 827	343	386	93	69	58	0	10 026
Corsican pine	32	157	297	440	384	349	197	48	43	0	0	0	1 947
Lodgepole pine	5	76	1 169	224	57	27	0	0	0	0	0	0	1 558
Sitka spruce	544	1 365	3 738	1 256	1 097	228	187	19	24	0	0	0	8 457
Norway spruce	34	87	333	464	406	314	50	5	14	0	0	0	1 706
European larch	74	208	442	456	515	726	104	27	15	19	0	0	2 587
Japanese/hybrid larch	241	295	1 139	999	1 330	1 352	781	201	71	36	11	0	6 456
Douglas fir	45	28	177	83	95	143	20	0	0	0	0	0	590
Other conifers	0	18	177	83	96	106	48	35	69	0	21	26	677
Mixed conifers	261	63	73	12	15	185	10	23	52	0	0	0	693
Total conifers	1 650	2 616	8 726	6 519	6 828	5 257	1 740	744	380	124	90	26	34 699
Oak	271	98	203	149	227	601	624	807	358	249	1 651	3 451	8 688
Beech	46	79	211	526	133	484	190	155	487	73	1 243	1 673	5 301
Sycamore	76	179	677	675	741	1 215	796	782	671	219	1 688	97	7 815
Ash	234	184	429	454	588	877	596	681	494	211	1 435	565	6 748
Birch	366	459	552	503	274	1 482	305	145	154	18	476	24	4 759
Poplar	9	0	9	13	181	76	29	7	10	0	0	0	334
Sweet chestnut	6	16	0	8	0	23	14	0	4	0	18	120	208
Elm	5	5	4	14	3	7	20	5	9	10	0	0	82
Other broadleaves	103	184	136	258	460	330	168	89	69	80	310	376	2 559
Mixed broadleaves	353	253	205	48	85	148	20	62	41	38	111	40	1 405
Total broadleaves	1 467	1 457	2 427	2 646	2 692	5 242	2 762	2 734	2 298	899	6 931	6 345	37 900
Total – all species	3 117	4 073	11 153	9 165	9 519	10 499	4 502	3 478	2 678	1 023	7 021	6 370	72 599

*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



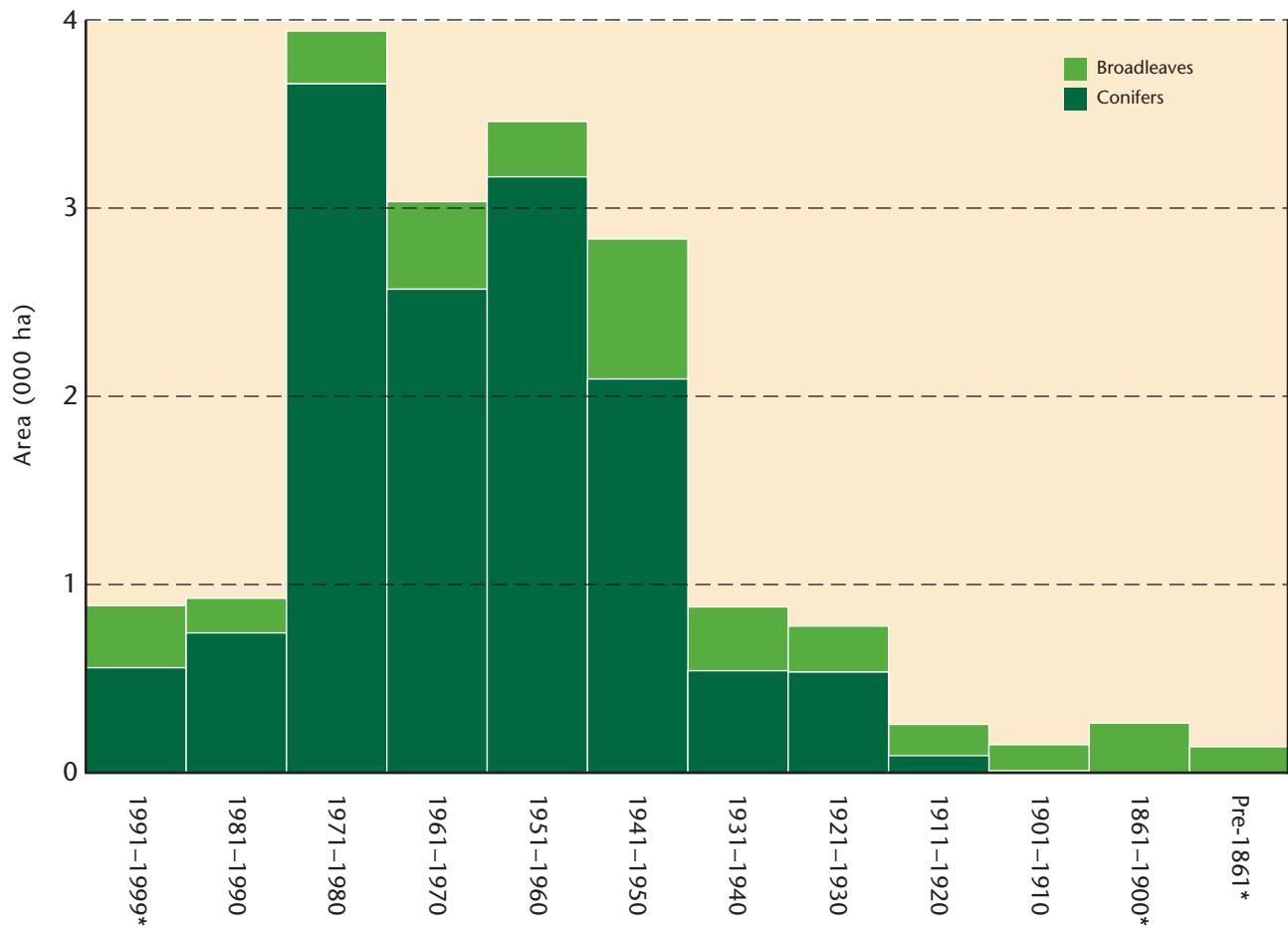
*Most of the planting year classes cover 10 years, 1991-1999 is 9 years, and the classes prior to 1901 are 40 years or more.

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

Species	Planting year class*												Total (ha)
	1991 –1999	1981 –1990	1971 –1980	1961 –1970	1951 –1960	1941 –1950	1931 –1940	1921 –1930	1911 –1920	1901 –1910	1861 –1900	pre - 1861	
Scots pine	114	79	310	869	1 271	779	105	291	48	0	0	0	3 866
Corsican pine	0	0	36	150	27	138	165	24	0	0	0	0	539
Lodgepole pine	5	76	1 084	146	57	0	0	0	0	0	0	0	1 369
Sitka spruce	354	468	1 585	658	645	72	0	19	0	0	0	0	3 801
Norway spruce	0	0	0	124	96	67	5	0	0	0	0	0	291
European larch	0	62	134	185	186	296	0	0	0	10	0	0	873
Japanese/hybrid larch	67	43	315	407	760	578	239	177	43	0	0	0	2 629
Douglas fir	19	10	177	0	86	5	10	0	0	0	0	0	306
Other conifers	0	0	0	28	39	48	20	24	0	0	0	0	158
Mixed conifers	0	5	19	0	0	110	0	0	0	0	0	0	134
Total conifers	558	743	3 660	2 569	3 166	2 092	542	535	91	10	0	0	13 966
Oak	5	5	24	31	53	93	19	100	96	48	193	72	738
Beech	19	33	48	67	53	279	72	43	0	0	72	67	752
Sycamore	0	0	48	150	14	72	81	0	0	0	0	0	366
Ash	0	10	34	57	14	67	81	5	70	38	0	0	377
Birch	277	134	86	82	88	167	86	38	0	0	0	0	959
Poplar	0	0	5	0	62	7	0	0	0	0	0	0	74
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	10	0	0	10
Other broadleaves	0	0	20	79	0	24	0	38	0	43	0	0	202
Mixed broadleaves	29	2	17	0	10	33	0	19	0	0	0	0	110
Total broadleaves	330	184	281	465	294	744	339	244	166	139	264	138	3 587
Total – all species	888	927	3 941	3 035	3 459	2 836	881	779	257	148	264	138	17 553

*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



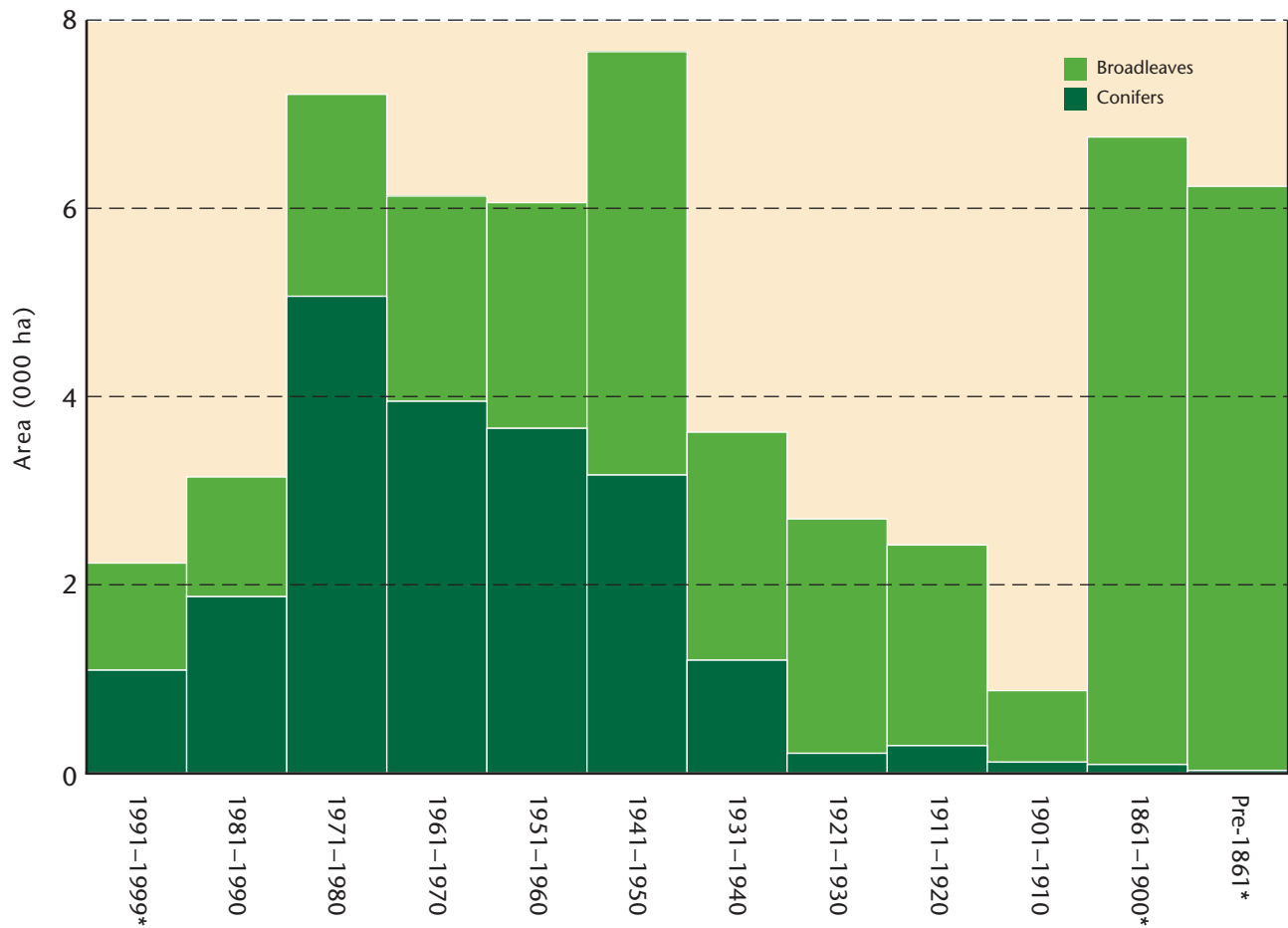
*Most of the planting year classes cover 10 years, 1991-1999 is 9 years, and the classes prior to 1901 are 40 years or more.

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

Species	Planting year class*												Total (ha)
	1991 -1999	1981 -1990	1971 -1980	1961 -1970	1951 -1960	1941 -1950	1931 -1940	1921 -1930	1911 -1920	1901 -1910	1861 -1900	pre - 1861	
Scots pine	301	240	871	1 633	1 563	1 048	238	95	45	69	58	0	6 161
Corsican pine	32	157	261	290	358	212	32	24	43	0	0	0	1 408
Lodgepole pine	0	0	84	78	0	27	0	0	0	0	0	0	189
Sitka spruce	190	897	2 153	597	452	156	187	0	24	0	0	0	4 656
Norway spruce	34	87	333	340	310	247	45	5	14	0	0	0	1 415
European larch	74	146	309	270	329	430	104	27	15	10	0	0	1 714
Japanese/hybrid larch	174	252	824	592	570	774	543	24	28	36	11	0	3 827
Douglas fir	26	18	0	83	9	138	11	0	0	0	0	0	285
Other conifers	0	18	177	54	58	57	29	11	69	0	21	26	520
Mixed conifers	261	58	54	12	15	75	10	23	52	0	0	0	559
Total conifers	1 092	1 873	5 065	3 949	3 662	3 166	1 198	209	290	115	90	26	20 733
Oak	266	93	179	118	175	507	605	707	262	202	1 458	3 379	7 951
Beech	27	46	162	459	81	205	118	112	487	73	1 171	1 606	4 549
Sycamore	76	179	629	525	727	1 143	715	782	671	219	1 688	97	7 449
Ash	234	175	396	396	574	809	515	676	424	173	1 435	565	6 372
Birch	89	325	466	421	185	1 315	219	107	154	18	476	24	3 801
Poplar	9	0	4	13	119	69	29	7	10	0	0	0	259
Sweet chestnut	6	16	0	8	0	23	14	0	4	0	18	120	208
Elm	5	5	4	14	3	7	20	5	9	0	0	0	73
Other broadleaves	103	184	117	179	460	306	168	51	69	37	310	376	2 357
Mixed broadleaves	324	250	189	48	75	115	20	43	41	38	111	40	1 294
Total broadleaves	1 138	1 272	2 146	2 181	2 398	4 498	2 423	2 490	2 132	760	6 667	6 207	34 312
Total – all species	2 229	3 146	7 212	6 130	6 060	7 664	3 621	2 699	2 421	875	6 757	6 232	55 046

*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



*Most of the planting year classes cover 10 years, 1991-1999 is 9 years, and the classes prior to 1901 are 40 years or more.

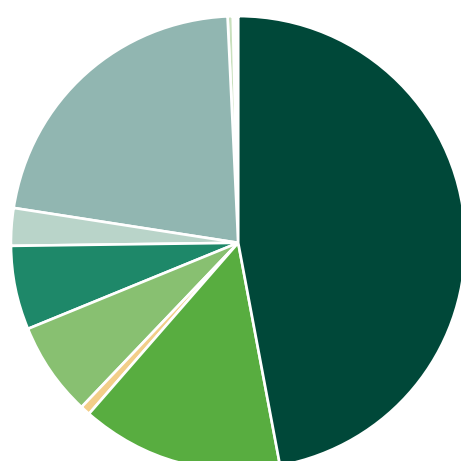
Table 11 High Forest: principal species by planting year class

Planting year class	First	%	Second	%	Third	%
1991–1999	Sitka spruce	17	Scots pine	13	Birch/Mixed b'leaves*	12
1981–1990	Sitka spruce	33	Birch	11	Scots pine	8
1971–1980	Sitka spruce	32	Scots pine	10	Lodgepole pine	10
1961–1970	Scots pine	25	Sitka spruce	13	Japanese/hybrid larch	10
1951–1960	Scots pine	27	Japanese/hybrid larch	13	Sitka spruce	10
1941–1950	Scots pine	15	Birch	15	Sycamore	12
1931–1940	Sycamore	16	Japanese/hybrid larch	15	Oak/Ash**	12
1921–1930	Sycamore	25	Oak	25	Ash	17
1911–1920	Sycamore	24	Ash	20	Beech	16
1901–1910	Oak	24	Sycamore	21	Ash	20
1861–1900	Oak	24	Sycamore	22	Ash	21
Pre-1861	Oak	53	Beech	28	Ash	8
All years	Scots pine	13	Oak	12	Sitka spruce	10

*In period 1991–99 both birch and mixed broadleaves occupy equal areas, each amounting to 12%.

**In period 1931–40 both oak and ash occupy equal areas, each amounting to 12%.

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

Ownership type by area

Personal
Business
Forestry or timber business
Charity
Local Authority
Other public
Forestry Commission
Community ownership
Unidentified

Table 12 Ownership type* by area and percentage

Ownership type	Area (ha)	%
Personal	44 575	49.5
Business	10 563	11.7
Forestry or timber business	2 520	2.8
Charity	2 914	3.2
Local Authority	5 945	6.6
Other public (not FC)	1 997	2.2
Forestry Commission	19 847	22.0
Community ownership or common land	1 378	1.5
Unidentified	389	0.4
Total	90 127	100

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

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

Survey method

The land area of Yorkshire and the Humber Region was stratified into coastal and inland 1 km x 1 km squares. A random sample of the 1 km² plots was 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 Woods (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:	Woodland area by forest type, woodland size and feature type
Table 16:	Woodland area by species and feature type
Table 17:	Numbers of live trees outside woodland by species and feature type
Table 18:	Numbers of dead trees outside woodland by species and feature type
Table 19:	Numbers of live Individual Trees by species and height band
Table 20:	Numbers of live trees in Groups by species and height band
Table 21:	Numbers of live trees in Narrow Linear Features by species and height band
Table 22:	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 Woodland and Trees

Feature type	Number of features	Total	Unit
Small Woods	2 944	1 497	Area (ha)
Wide Linear Features	2 420	458	Area (ha)
Wide Linear Features	2 420	185	Length (km)
Narrow Linear Features	21 600	1 563	Length (km)
Narrow Linear Features	21 600	702 600	Number of live trees
Groups	177 600	833 600	Number of live trees
Individual Trees	637 400	628 700	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 (ha)	Number of features	Mean size (ha)
	0.1 – <0.25	0.25 – <2.0			
Small Woods	25	1 472	1 497	2 944	0.51
Wide Linear Features	236	222	458	2 420	0.19
Total	261	1 694	1 955	5 364	0.36

1. The standard errors of the total area estimates for these feature types are:

Small Woods 54%
Wide Linear Features 78%

2. See Glossary for definitions of feature types.

Table 15 Woodland area by forest type, woodland size and feature type

Forest type	Woodland size class (ha)						Total area (ha) SW + WLF
	0.1 – <0.25 SW*		0.25 – <2.0 SW		0.1 – <2.0 WLF		
Conifer	0	0	0	0	0	0	0
Broadleaved	25	0	932	0	957	0	957
Mixed	0	236	491	222	491	458	949
Coppiced	0	0	0	0	0	0	0
Copp-w-stds	0	0	0	0	0	0	0
Windblow	0	0	0	0	0	0	0
Felled	0	0	0	0	0	0	0
Open Space	0	0	49	0	49	0	49
Total	25	236	1 472	222	1 497	458	1 955

*SW - Small Woods, †WLF - Wide Linear Features.

1. See Glossary for definitions of forest type and feature type.

Table 16 Woodland area by species and feature type

Species	Feature type		Total area (ha)	Percent of total area	
	Small Wood	Wide Linear Feature		Category	Species
Pine	49	194	243	43.4	12.7
Spruce	0	42	42	7.5	2.2
Larch	74	103	177	31.6	9.3
Cypress	0	0	0	0.0	0.0
Other conifers	0	0	0	0.0	0.0
Mixed conifers	98	0	98	17.5	5.1
Total conifers	221	339	560	100.0	29.4
Oak	49	40	89	6.6	4.7
Beech	98	0	98	7.3	5.1
Sycamore	74	0	74	5.5	3.9
Ash	123	0	123	9.1	6.5
Birch	294	0	294	21.8	15.4
Poplar	0	0	0	0.0	0.0
Sweet chestnut	0	0	0	0.0	0.0
Horse chestnut	0	0	0	0.0	0.0
Alder	74	0	74	5.5	3.9
Lime	0	0	0	0.0	0.0
Elm	0	0	0	0.0	0.0
Willow	221	0	221	16.4	11.6
Other broadleaves	294	0	294	21.8	15.4
Mixed broadleaves	0	79	79	5.9	4.1
Total broadleaves	1 227	119	1 346	100.0	70.6
Total – all species	1 448	458	1 906		100.0

1. Percentages:

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

2. The standard errors of the total area estimates for the most common species/groups are:

Pine 52%
 Birch 100%
 Willow 100%
 Other broadleaves 71%

3. See Glossary for definitions of feature types.

Table 17 Numbers of live trees outside woodland by species and feature type (000s trees)

Species	Feature type				Total live trees	Percent of total trees	
	Boundary Trees	Middle Trees	Groups	Narrow Linear Features		Category	Species
Pine	1.6	3.1	8.2	39.9	52.8	43.2	2.4
Spruce	0.0	0.8	1.7	5.9	8.4	6.9	0.4
Larch	2.4	0.0	0.0	20.6	23.0	18.8	1.1
Cypress	1.6	0.0	9.1	0.0	10.7	8.7	0.5
Other conifers	2.1	2.1	23.2	0.0	27.4	22.4	1.3
Total conifers	7.7	6.0	42.2	66.3	122.3	100.0	5.6
Oak	92.7	25.1	64.0	24.2	206.0	10.1	9.5
Beech	2.9	1.9	7.4	23.8	36.0	1.8	1.7
Sycamore	64.0	4.7	54.6	51.8	175.1	8.6	8.1
Ash	149.2	26.3	115.8	98.7	390.0	19.1	18.0
Birch	11.9	26.2	80.5	33.3	151.9	7.4	7.0
Poplar	2.4	0.0	24.1	0.0	26.5	1.3	1.2
Sweet chestnut	0.0	0.0	0.0	0.8	0.8	0.0	0.0
Horse chestnut	1.6	0.0	2.4	9.5	13.5	0.7	0.6
Alder	3.9	1.6	9.4	73.1	88.0	4.3	4.1
Lime	0.0	0.0	0.0	8.4	8.4	0.4	0.4
Elm	0.0	1.6	7.0	7.2	15.8	0.8	0.7
Willow	8.7	2.4	78.4	3.3	92.8	4.5	4.3
Other broadleaves	130.5	57.5	347.6	302.2	837.8	41.0	38.7
Total broadleaves	467.8	147.3	791.3	636.3	2042.6	100.0	94.4
Total – all species	475.5	153.3	833.6	702.6	2164.9		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 10%
 Groups 27%
 Narrow Linear Features 35%

3. See Glossary for definitions of feature types.

Table 18 Numbers of dead trees outside woodland by species and feature type (000s of 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	0.8	0.8	33.3	4.8
Spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Larch	0.0	0.8	0.0	0.8	1.6	66.7	9.6
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	0.8	0.0	1.6	2.4	100.0	14.5
Oak	0.8	0.0	0.0	0.0	0.8	5.6	4.8
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	1.6	2.3	0.8	0.0	4.7	33.1	28.3
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	4.7	0.0	4.7	33.1	28.3
Willow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other broadleaves	1.1	2.1	0.0	0.8	4.0	28.2	24.1
Total broadleaves	3.5	4.4	5.5	0.8	14.2	100.0	85.5
Total – all species	3.5	5.2	5.5	2.4	16.6		100.0

1. See Glossary for definitions of feature types.

Table 19 Numbers of live Individual Trees by species and height band (000s trees)

Species	Height band (m)				Total live trees
	2-5	5-15	15-20	>20	
Pine	0.8	3.2	0.8	0.0	4.8
Spruce	0.0	0.8	0.0	0.0	0.8
Larch	2.4	0.0	0.0	0.0	2.4
Cypress	0.8	0.8	0.0	0.0	1.6
Other conifers	3.3	0.8	0.0	0.0	4.1
Total conifers	7.3	5.6	0.8	0.0	13.7
Oak	23.4	81.2	12.6	0.8	118.0
Beech	0.8	2.4	0.8	0.8	4.8
Sycamore	15.8	38.7	14.2	0.0	68.7
Ash	30.6	111.9	29.7	3.2	175.4
Birch	21.3	16.0	0.8	0.0	38.1
Poplar	0.0	0.8	0.0	1.6	2.4
Sweet chestnut	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.8	0.8	0.0	0.0	1.6
Alder	0.8	4.7	0.0	0.0	5.5
Lime	0.0	0.0	0.0	0.0	0.0
Elm	1.6	0.0	0.0	0.0	1.6
Willow	6.3	4.7	0.0	0.0	11.0
Other broadleaves	140.0	48.0	0.0	0.0	188.0
Total broadleaves	241.4	309.2	58.1	6.4	615.1
Total – all species	248.7	314.8	58.8	6.4	628.7

Table 20 Numbers of live trees in Groups by species and height band (000s trees)

Species	Height band (m)				Total live trees
	2-5	5-15	15-20	>20	
Pine	1.7	6.5	0.0	0.0	8.2
Spruce	1.7	0.0	0.0	0.0	1.7
Larch	0.0	0.0	0.0	0.0	0.0
Cypress	6.7	2.5	0.0	0.0	9.2
Other conifers	10.8	12.4	0.0	0.0	23.2
Total conifers	20.9	21.4	0.0	0.0	42.3
Oak	12.0	51.1	0.8	0.0	63.9
Beech	4.2	1.6	1.7	0.0	7.5
Sycamore	16.6	36.4	1.6	0.0	54.6
Ash	29.9	80.3	5.6	0.0	115.8
Birch	39.2	41.3	0.0	0.0	80.5
Poplar	7.5	16.6	0.0	0.0	24.1
Sweet chestnut	0.0	0.0	0.0	0.0	0.0
Horse chestnut	0.8	0.8	0.8	0.0	2.4
Alder	0.0	9.4	0.0	0.0	9.4
Lime	0.0	0.0	0.0	0.0	0.0
Elm	1.6	5.5	0.0	0.0	7.1
Willow	46.2	32.2	0.0	0.0	78.4
Other broadleaves	268.0	79.7	0.0	0.0	347.7
Total broadleaves	426.0	354.9	10.5	0.0	791.4
Total – all species	446.9	376.3	10.5	0.0	833.6

Table 21 Numbers of live trees in Narrow Linear Features by species and height band (000s trees)

Species	Height band (m)				Total live trees
	2-5	5-15	15-20	>20	
Pine	0.0	39.9	0.0	0.0	39.9
Spruce	0.0	5.9	0.0	0.0	5.9
Larch	4.0	16.6	0.0	0.0	20.6
Cypress	0.0	0.0	0.0	0.0	0.0
Other conifers	0.0	0.0	0.0	0.0	0.0
Total conifers	4.0	62.4	0.0	0.0	66.4
Oak	9.9	11.2	3.2	0.0	24.3
Beech	8.4	8.3	7.1	0.0	23.8
Sycamore	3.3	36.4	12.1	0.0	51.8
Ash	2.4	86.8	9.5	0.0	98.7
Birch	0.8	32.5	0.0	0.0	33.3
Poplar	0.0	0.0	0.0	0.0	0.0
Sweet chestnut	0.0	0.8	0.0	0.0	0.8
Horse chestnut	8.7	0.8	0.0	0.0	9.5
Alder	3.3	50.1	19.8	0.0	73.2
Lime	6.7	1.7	0.0	0.0	8.4
Elm	0.0	7.2	0.0	0.0	7.2
Willow	0.0	3.3	0.0	0.0	3.3
Other broadleaves	273.9	28.3	0.0	0.0	302.2
Total broadleaves	317.4	267.4	51.7	0.0	636.5
Total – all species	321.4	329.8	51.7	0.0	702.6

Table 22 Number of Groups by group size

Number of trees per Group*	Number of Groups (000s)
2	38
3–5	70
6–10	36
11–20	21
21–50	13
51–100	1
>100	0
Total	178

*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 1999 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 photographs 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 23:	Comparison of woodland area between 1980 Census and 1999 Inventory
Table 24:	Comparison of High Forest area by species between 1980 Census and 1999 Inventory
Chart:	Comparison of High Forest area by species between 1980 Census and 1999 Inventory
Table 25:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1999 Inventory
Chart:	Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1999 Inventory
Table 26:	Comparison of numbers of live trees outside woodland between 1980 Census and 1999 Inventory
Table 27:	Comparison of density of non-woodland features between 1980 Census and 1999 Inventory

Woodland Cover

Chart:	Change in woodland cover through time (1890–2000)
Map Series:	Woodland cover by county through time (1895–1998)

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

Table 23 Comparison of woodland area between 1980 Census and 1999 Inventory

Woodland size (ha)	1980 Census woodland area		1999 Inventory woodland area		Change (%)
	(ha)	(%)	(ha)	(%)	(%)
2.0 or more	78 512	92.1	90 127	98.2	15
0.25 – <2.0	6 704	7.9	1 694	1.8	-75
Total	85 216		91 821		8
% Woodland land cover	5.5		6.0		

1. Differences in sampling methodology may account for some of the apparent differences.
2. The above figures from the 1999 Inventory exclude woodland between 0.1 and <0.25 hectares, thereby matching the scope of the 1980 Census. These 1999 figures will therefore not match those in the previous sections of the report.
3. Land area used to calculate woodland cover percent (1999), 1 541 113 hectares, was based on the 1991 Census of Population digital boundaries.
4. Land area used to calculate woodland cover percent (1980), 1 542 056 hectares, (Ordnance Survey data)

Table 24 Comparison of High Forest area by species between 1980 Census and 1999 Inventory

Species	1980 Census woodland area (ha)	1999 Inventory woodland area (ha)	Change (%)
Scots pine	10 304	10 267	0
Corsican pine	2 249	1 947	-13
Lodgepole pine	3 079	1 650	-46
Sitka spruce	6 458	8 466	31
Norway spruce	2 488	1 706	-31
European larch	3 981	2 616	-34
Japanese/hybrid larch	5 266	6 612	26
Douglas fir	481	590	23
Other conifers	886	739	-17
Mixed conifers	2 228	814	-63
Total conifers	37 419	35 407	-5
Oak	6 383	10 029	57
Beech	3 667	5 845	59
Sycamore	7 522	8 674	15
Ash	4 065	7 660	88
Birch	6 228	6 057	-3
Poplar	732	338	-54
Sweet chestnut	122	233	91
Elm	1 664	121	-93
Other broadleaves	4 786	5 215	9
Mixed broadleaves	3 876	1 971	-49
Total broadleaves	39 044	46 143	18
Total – all species	76 463	81 550	7
Felled	994	1 434	44
Total High Forest	77 457	82 984	7

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 9.1% (Table 2). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 9.1%.
3. The above figures from the 1999 Inventory exclude woodland between 0.1 and <0.25 ha, thereby matching the scope of the 1980 Census. The 1999 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 1999 Inventory

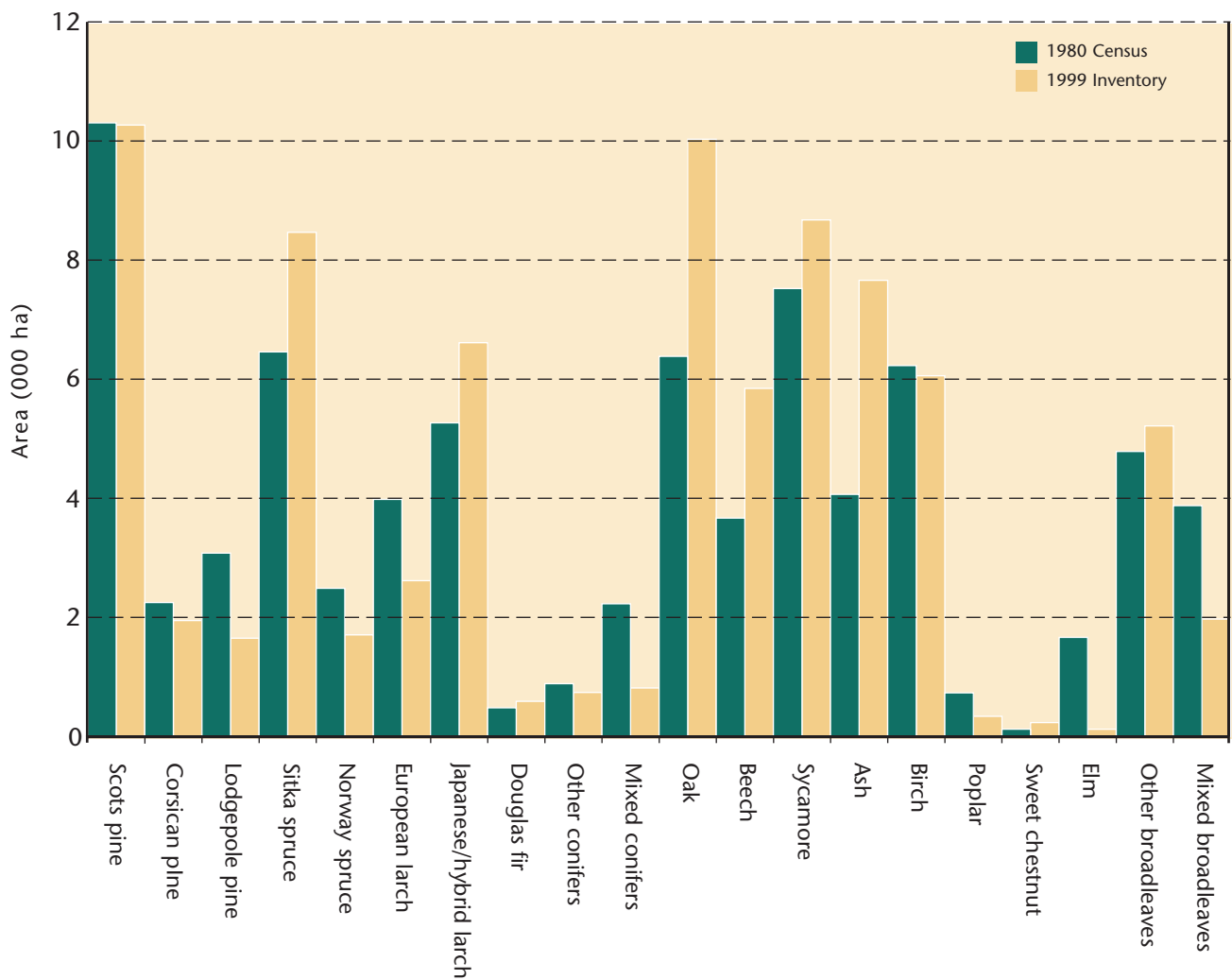


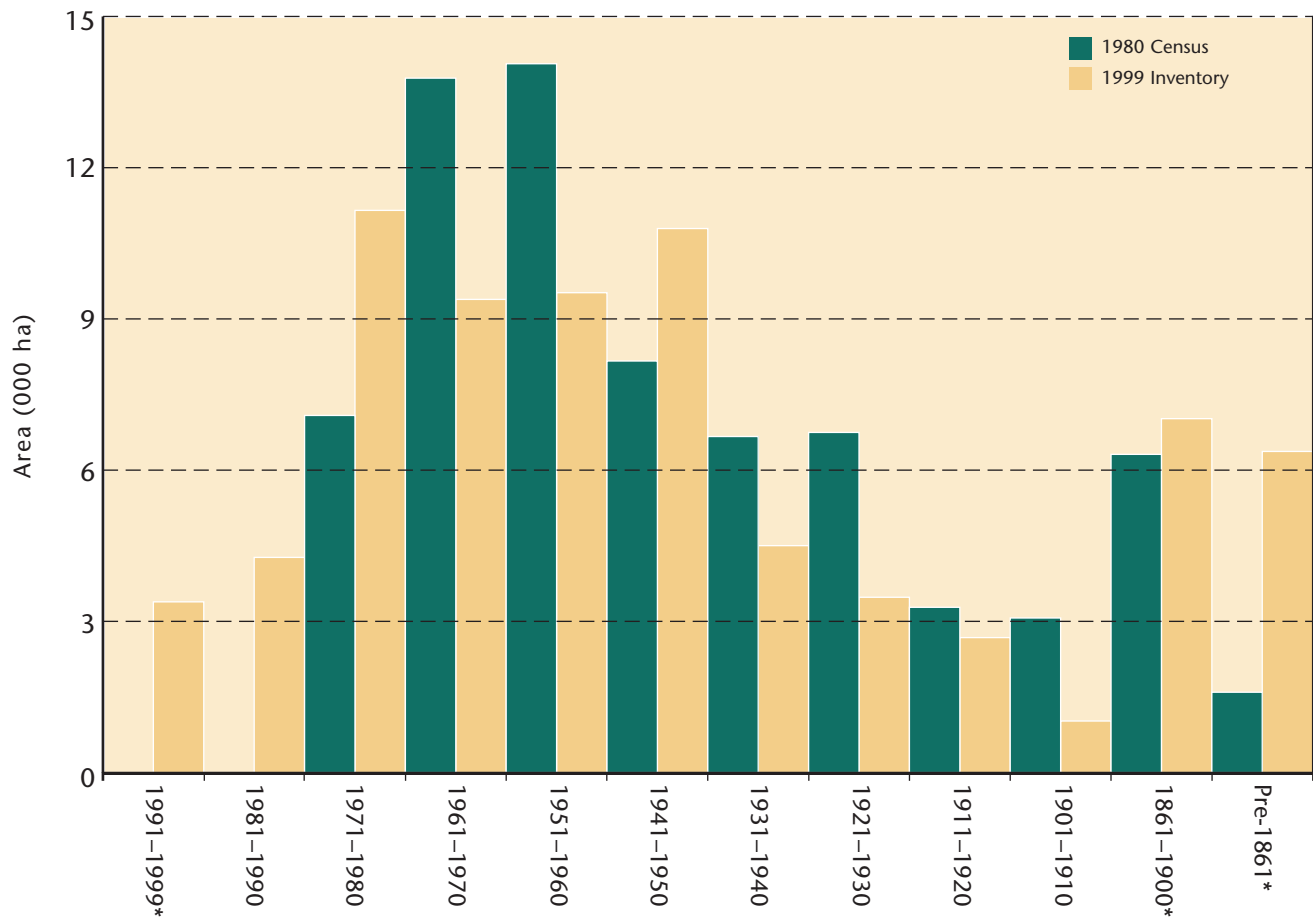
Table 25 Comparison of High Forest Category 1 area by planting year class between 1980 Census and 1999 Inventory

Planting year class	1980 Census woodland area (ha)	1999 Inventory woodland area (ha)	Change (%)
1991–1999	-	3 387	.*
1981–1990	-	4 269	.*
1971–1980	7 085	11 153	57
1961–1970	13 776	9 387	-32
1951–1960	14 062	9 520	-32
1941–1950	8 165	10 793	32
1931–1940	6 667	4 502	-32
1921–1930	6 748	3 478	-48
1911–1920	3 279	2 678	-18
1901–1910	3 067	1 023	-67
1861–1900	6 313	7 021	11
Pre-1861	1 594	6 371	300
Total: all years	70 756	73 582	4

*These classes cover the period since the 1980 Census therefore no comparison can be made.

1. The definition of the 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 1999 Inventory



*Most of the planting year classes cover 10 years, 1991-1999 is 9 years, and the classes prior to 1901 are 40 years or more.

Table 26 Comparison of numbers of live trees outside woodland between 1980 Census and 1999 Inventory (000s trees)

Feature type	1980 Census	1999 Inventory	Change (%)
Boundary Tree	457	416	-9
Middle Tree	808	105	-87
Total Individual Trees	1 265	522	-59
Groups	2 699	569	-79
Linear Features	2 182	465	-79
Total	6 146	1 556	-75

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 1999 Inventory figures have been adjusted accordingly. The 1999 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 1999 Inventory, the two surveys are not directly comparable - 1980 used 7cm diameter at breast height and 1999 used 2 m height as minimum criteria for inclusion.
4. See Glossary for definitions of feature types.

Table 27 Comparison of density of non-woodland features between 1980 Census and 1999 Inventory

Feature type	1980 Census	1999 Inventory	Change (%)
Individual Trees (per km ²)	82.1	33.9	-59
Groups (per km ²)	30.2	8.6	-72
Linear Features (m per km ²)	407.9	98.0	-76

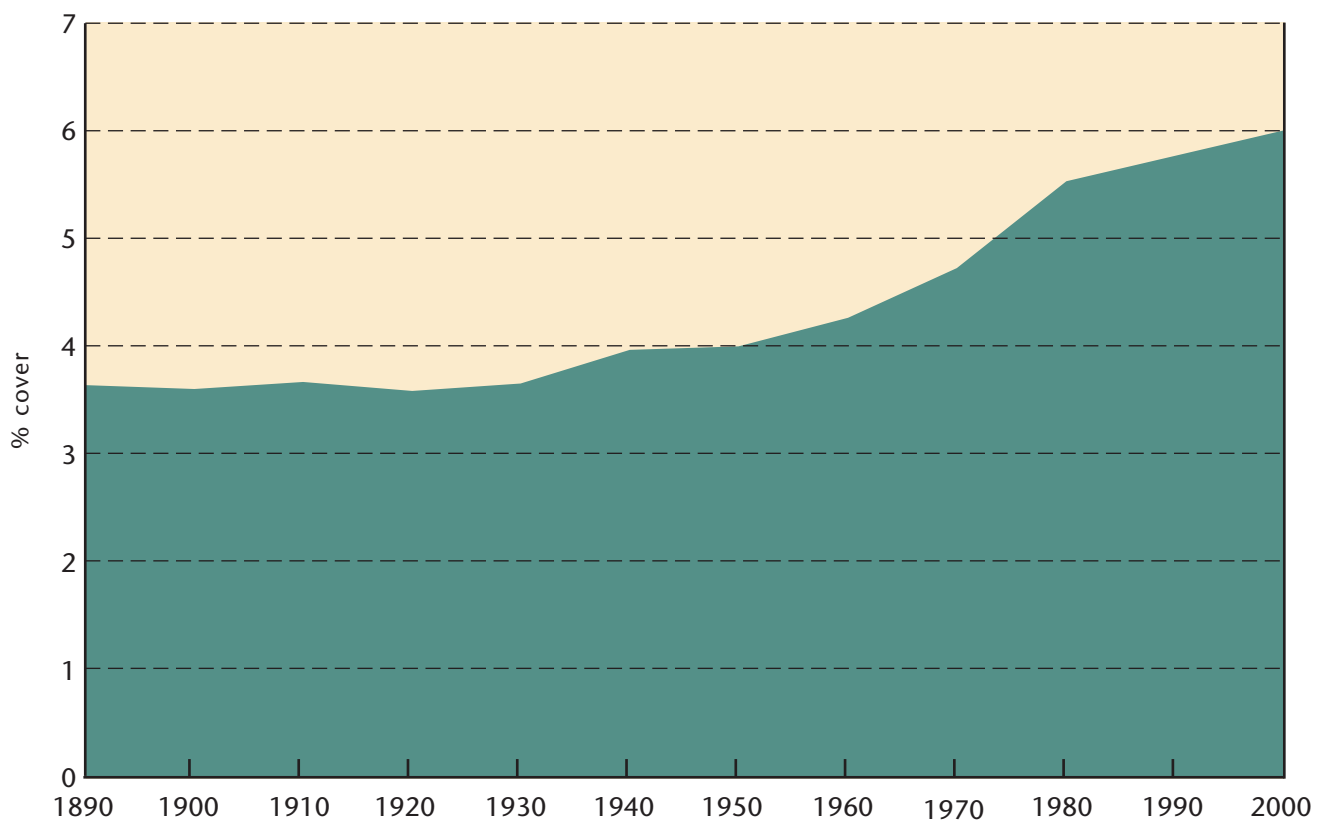
1. The Survey of Small Woodland and Trees did not record information referring to tree features (i.e. Individual trees, Groups and Narrow Linear features) within developed land.
2. In the 1980 Census hazel, hawthorn, blackthorn and goat willow were excluded; the 1999 Inventory figures have been adjusted accordingly. The 1999 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 1999 Inventory, the two surveys are not directly comparable - 1980 used 7 cm diameter at breast height and 1999 used 2 m height as minimum criteria for inclusion.
4. See Glossary for definitions of feature types.

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.

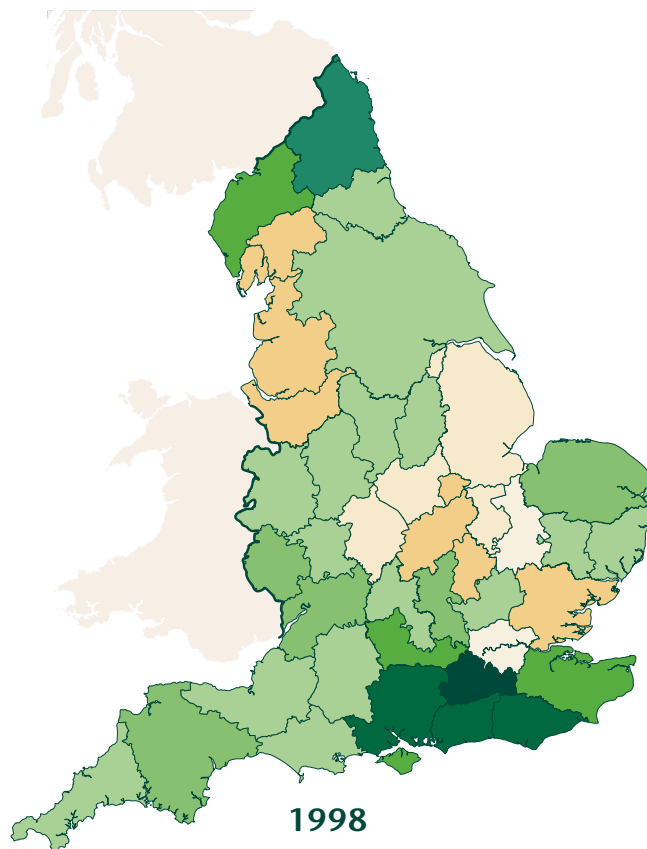
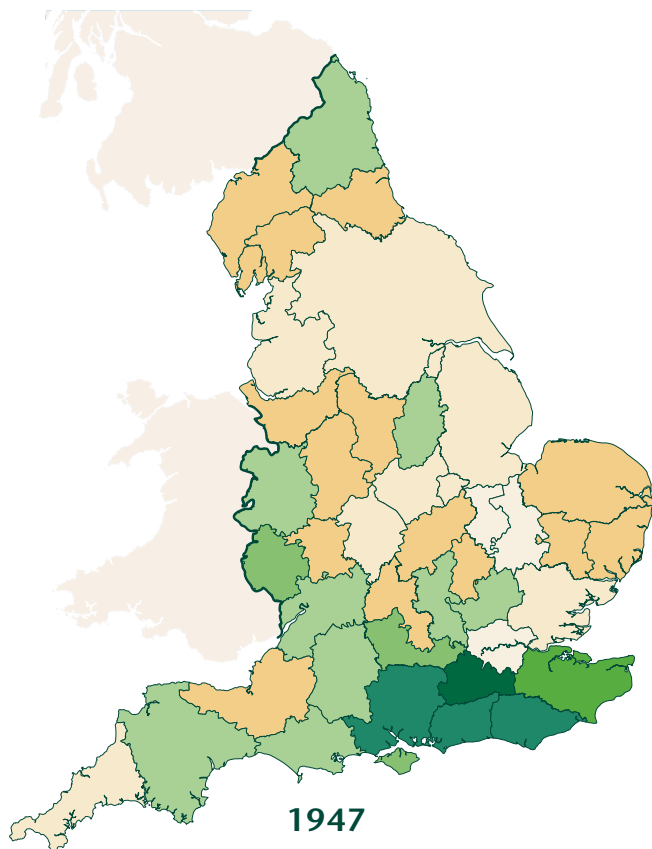
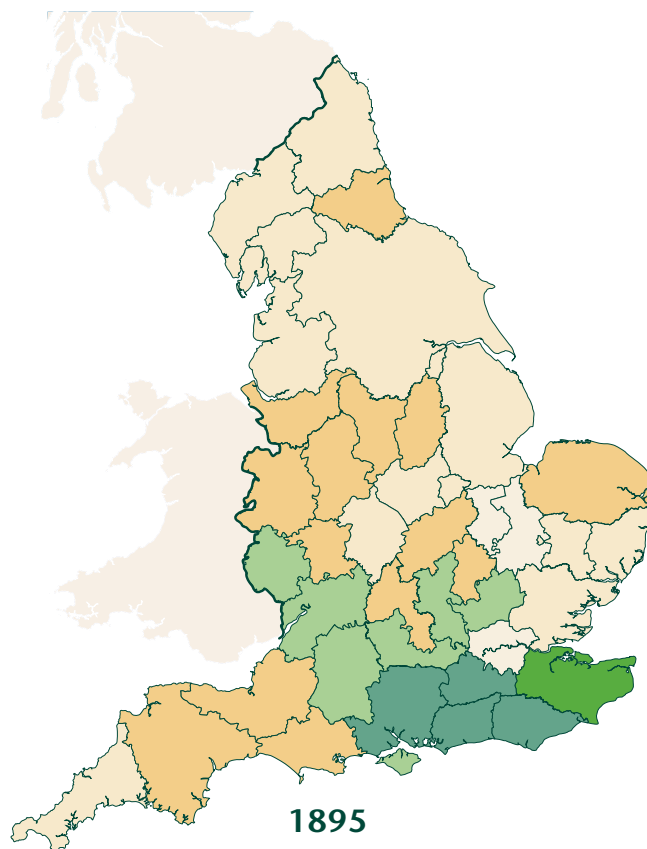
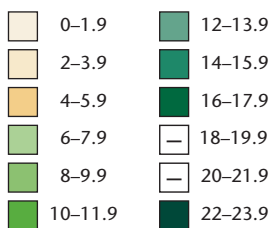
The maps use the old county structure of England, as reported on in 1895 and 1947. The data from these counties could not be re-analysed for different geographic areas. In contrast, the digital woodland map, which forms the basis of the current inventory, can be re-analysed for any geographic area.

Change in woodland cover through time (1890–2000)



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

% woodland cover



APPENDICES

The following tables summarise the results of the Main Woodland Survey and the Survey of Small Woodland and Trees by county in Yorkshire and the Humber Region. Full reports of the results are available separately by county.

- Appendix 1 Summary of woodland area by county and woodland size
- Appendix 2 Summary of woodland area by county and forest type
- Appendix 3 Summary of live trees outside woodland by county and feature type
- Appendix 4 Summary of number and length of Linear Features by county

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

APPENDIX 1

Summary of woodland area by county and woodland size

County*	Woodland size (ha) [†]		Total area (ha)	Woodland cover (%)
	2.0 or more	0.1 – <2.0		
Humberside	8 807	274	9 081	2.6
North Yorkshire	59 572	1 271	60 843	7.3
South Yorkshire	11 297	254	11 551	7.4
West Yorkshire	10 451	155	10 606	5.2
Total	90 127	1 954	92 082	6.0

*Areas of counties used to derive woodland cover % based on digital boundaries used in 1991 Census of Population.

[†]Area of woodland blocks of 2.0 ha and over derived from the Main Woodland Survey. Area of woodland blocks 0.1 – < 2.0 ha derived from the Survey of Small Woodland and Trees.

APPENDIX 2

Summary of woodland area by county and forest type

County	Forest type								Total
	Conifer	Broad-leaved	Mixed	Coppice	Coppice-w-stds	Wind-blow	Felled	Open Space	
Humberside	981	4 117	3 141	155	110	0	34	543	9 081
North Yorkshire	24 468	20 232	8 351	7	57	56	872	6 801	60 844
South Yorkshire	2 350	6 630	1 314	56	50	0	503	646	11 550
West Yorkshire	1 339	7 238	1 596	7	50	0	24	353	10 606
Total	29 138	38 217	14 402	225	267	56	1 433	8 343	92 082

1. See Glossary for definitions of forest types.

APPENDIX 3

Summary of live trees outside woodland by county and feature type (000s trees and features)

County*	Total number	Feature type			Total live trees	Tree density (per km ²)
		Groups	Narrow Linear Feature	Individual Trees		
Humberside	Features	30.4	1.5	113.5		
	Live Trees	136.7	31.7	113.5	281.9	80
North Yorkshire	Features	63.4	14.2	330.2		
	Live Trees	313.0	503.4	330.2	1 146.6	138
South Yorkshire	Features	70.7	5.9	122.3		
	Live Trees	311.1	167.4	122.3	600.8	385
West Yorkshire	Features	13.2	0.0	62.8		
	Live Trees	72.8	0.0	62.8	135.6	67
Total	Features	177.7	21.6	628.8		
	Live Trees	833.6	702.5	628.8	2 164.9	140

*Areas of counties used to derive tree density per km² based on digital boundaries used in 1991 Census of Population.

1. See Glossary for definitions of feature types

APPENDIX 4

Summary of number and length of Linear Features by county

County*	Total number of features (000s)	Total length of features (km)	Density (m per km ²)
Humberside	1.5	101	29
North Yorkshire	15.8	1 130	136
South Yorkshire	6.7	517	332
West Yorkshire	0.0	0	0
Total	24.0	1 748.2	113

*Areas of counties used to derive length per km² based on digital boundaries used in 1991 Census of Population.

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 with 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 50 m 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 50 m, 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 1 m 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 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 0.1 ha.

- **Individual Tree**

A tree with a crown that 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 a 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 50 m wide or as narrow as a single line of trees. Two types of Linear Feature are recognised:

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

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

NOTES

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