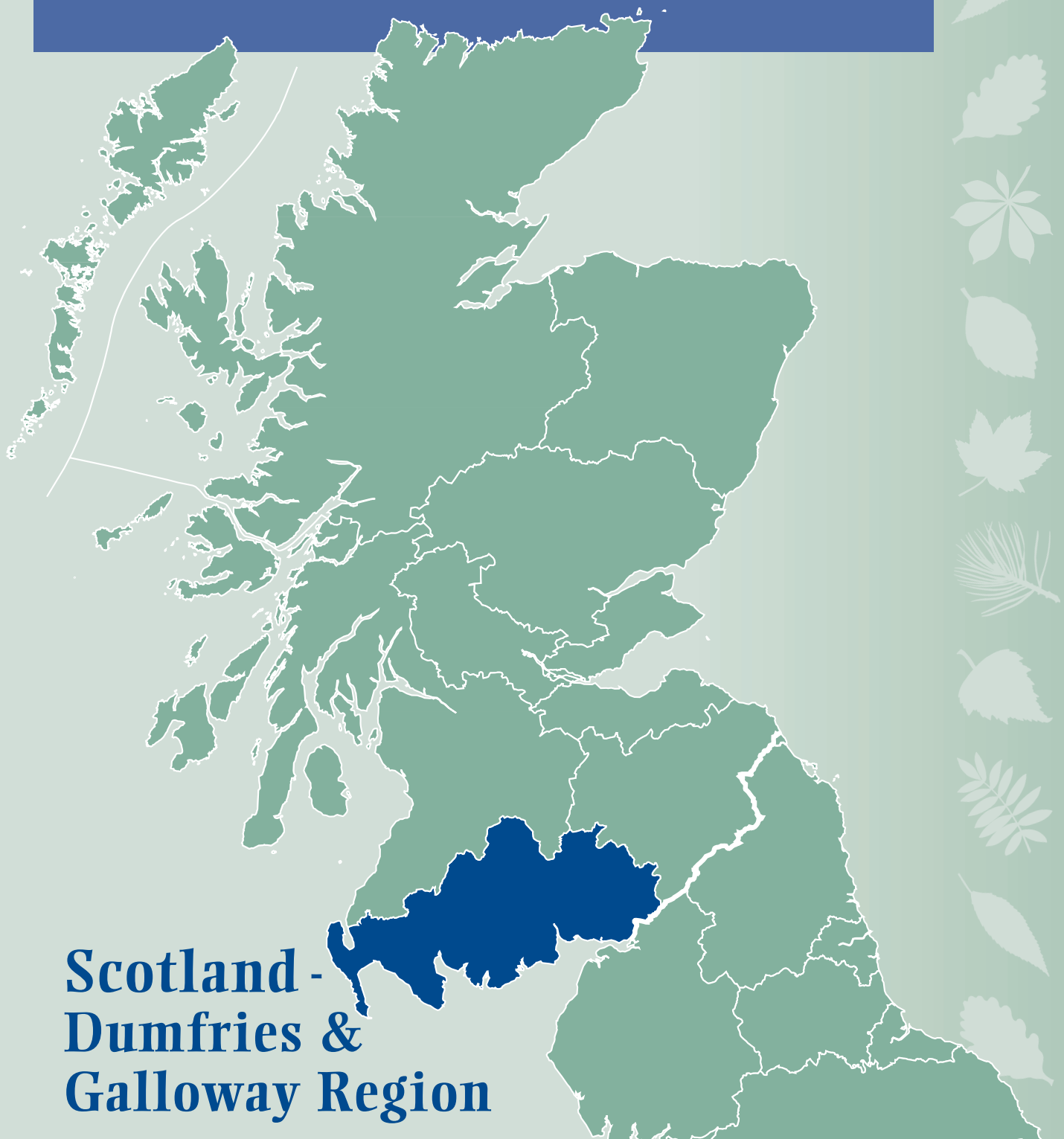




Forestry Commission

INVENTORY REPORT

National Inventory of Woodland and Trees



**Scotland -
Dumfries &
Galloway Region**

Part 1 - Woodlands of 2 hectares and over





Forestry Commission

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Woodland Surveys, Forest Research



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First published 1999

ISBN 0 85538 506 5

Printed in the United Kingdom
PPD9/31-IH(KW)-MLP/500-OCT99

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ACKNOWLEDGEMENTS

The Forestry Commission is grateful to many people who helped in the completion of this survey. In particular, the Forestry Commission would like to thank owners and occupiers of the land selected for sampling, and the Macaulay Land Use Research Institute for their help with the digital map.

Staff concerned with the survey work were: Douglas Wright, Head of Woodland Surveys Branch (to Dec.1997), who was in overall charge. Alex Herd (Survey Officer) supervised the fieldwork which was undertaken by Ken Thomson (Survey Forester) and Chris Skelton, Tony Furlong, Mark Thurston, Alan Smith, Ronald Craig and Andrew Davidson (Survey Assistants). Simon Gillam (Head of Statistics) provided valuable statistical advice.

Preparation of the digital cartography for the Region was carried out by Graham Bull, Woodland Survey Officer, and Woodland GIS Officers Chris Brown, Esther Whitton and Robert Beck.

The authors of this Report are Justin Gilbert, Woodland Data Officer and Douglas Wright, Head of Woodland Surveys (to Dec.1997).

INTRODUCTION

The following report presents the results of the main woodland survey for Dumfries and Galloway Region from the Forestry Commission National Inventory of Woodlands and Trees.

The Inventory consists of two parts:

Part 1: the main woodland survey covering woodlands of 2 or more hectares and

Part 2: the small woodland and trees survey covering small woodlands, groups of trees and individual trees.

The results which follow are for Part 1, the main woodland survey, with a reference date of 31 March 1995. Woodland Surveys Branch of Forest Research was responsible for carrying out the survey and for compiling the report.

Part 2 of the Inventory will be published separately in 1999.

BACKGROUND

The Forestry Commission has carried out a number of national woodland surveys since 1924 with the interval between surveys being 15–20 years. The most recent of these surveys was in 1979–82. With the statistics becoming increasingly out of date the Forestry Commission decided to undertake a new survey called the National Inventory of Woodland and Trees.

The aim is to complete the survey for Great Britain by March 2001. Priority is being given to Scotland followed by Southern England, Wales and Northern England.

Although Dumfries and Galloway Region ceased to exist as a local authority on 31 March 1996 its boundaries are the same as those of Dumfries and Galloway Council.

SURVEY METHOD

In Scotland the main survey has been able to use the digital map from the Land Cover of Scotland (LCS) 1988 project.

For Dumfries and Galloway Region, this digital map has been updated to 31 March 1995 and gives the extent of all woodland over 2 hectares. The total area of woodland in Dumfries and Galloway 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:



- a) 2.0 ha - <100 ha : every fifth wood
- b) 100 ha - <500 ha : two woods in five
- c) 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 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.

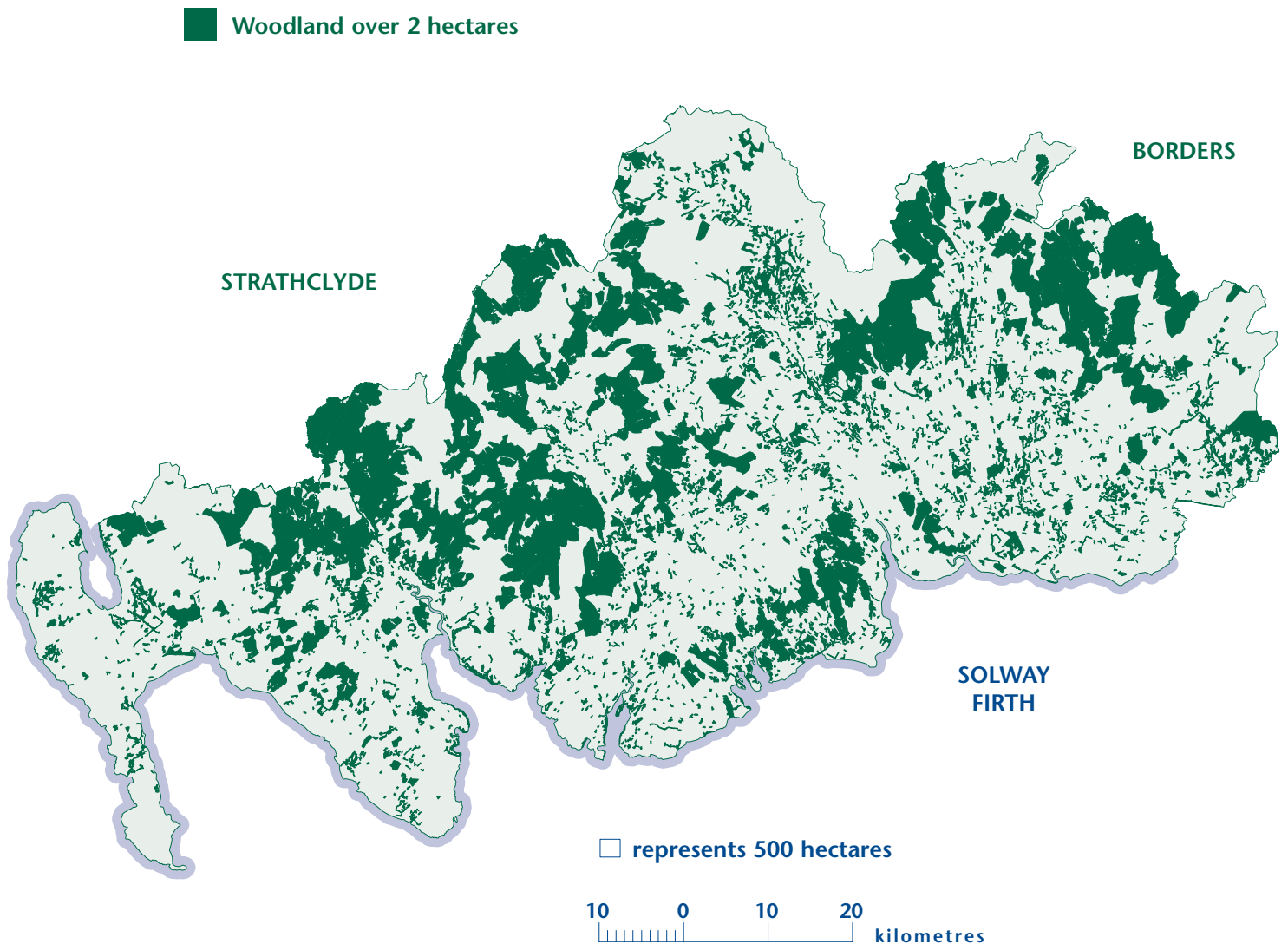
The main difference from the 1980 Census is the change in the minimum woodland area from 0.25 to 2.0 hectares. This means at this stage that the results of the main survey in the Inventory can only be compared approximately with the 1980 Census. However, when the next part of the Inventory is completed data will be available for Small Woodland between 0.25 and 2.0 hectares. This will make an analysis of change possible using comparable sets of information.

MAIN POINTS FROM THE DUMFRIES AND GALLOWAY RESULTS

- The total area of woodland in Dumfries and Galloway Region is 170 848 hectares. This represents 26.5% of the land area. (Table 1)
- 81 824 hectares or 48% of woodland is owned by or leased to the Forestry Commission and 89 025 hectares or 52% of woodland is in Other ownerships. (Table 1)
- Conifer woodland is the dominant forest type representing 78% of all woodland. Broadleaved woodland represents 9%, mixed woodland 2% and open space within woodlands 9%. (Table 3)
- The main conifer species is Sitka spruce covering 104 811 hectares or 77% of all conifer species. 49% of all conifers are within Other ownerships. (Table 4a)
- The main broadleaved species, outside the 'mixed broadleaves' category, is birch covering 3991 hectares or 24% of all broadleaved species. 84% of all broadleaves are within Other ownerships. (Table 4a)
- High Forest covers 156 037 hectares or 91% of woodland. (Table 4a)
- Woodland land cover has increased by 35 228 hectares from 21.1% to 26.5% of the land area since 1980. (Table 8)



MAP 1 - DISTRIBUTION OF WOODLAND WITHIN DUMFRIES AND GALLOWAY REGION



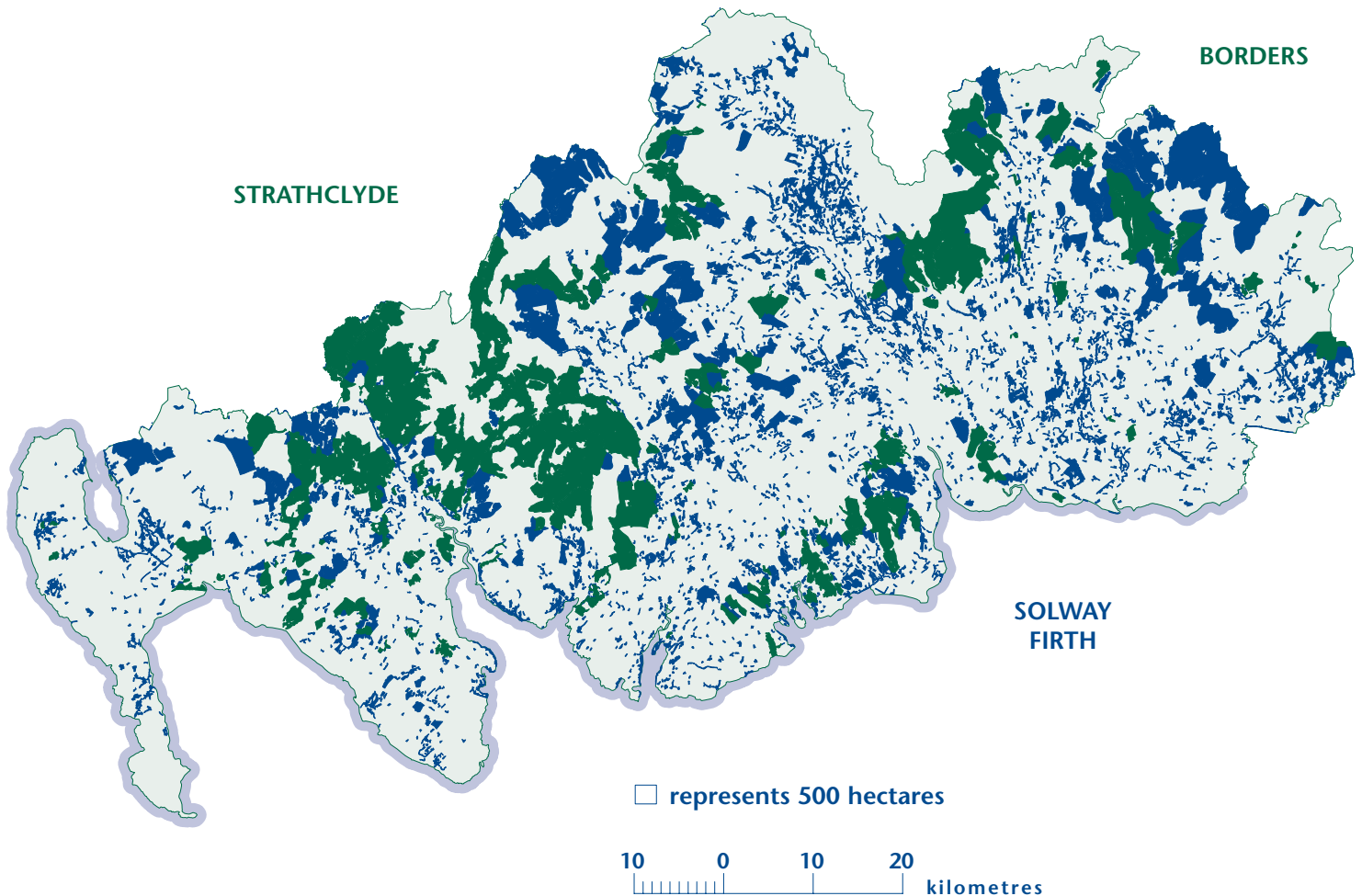
Based on Ordnance Survey mapping with the permission of the
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Reference Date 31 March 1995



MAP 2 - DISTRIBUTION OF WOODLAND BY OWNERSHIP WITHIN DUMFRIES AND GALLOWAY REGION

- Forestry Commission Woodland over 2 hectares
- Other Woodland over 2 hectares



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RESULTS

TABLE 1 SUMMARY OF AREAS BY OWNERSHIP

| | | |
|--------------------------------------|------------------|-------------------|
| Area (including inland water) | 643903 ha | |
| Ownership | ha | % woodland |
| Forestry Commission | 81824 | 48 |
| Other | 89025 | 52 |
| Total Area of Woodland | 170848 | 100 |
| % Woodland Land Cover | 26.5 | |

NOTE (Table 1)

Area of Local Authority Unit based on digital boundaries used for 1991 Census of Population.

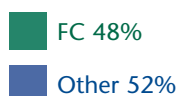
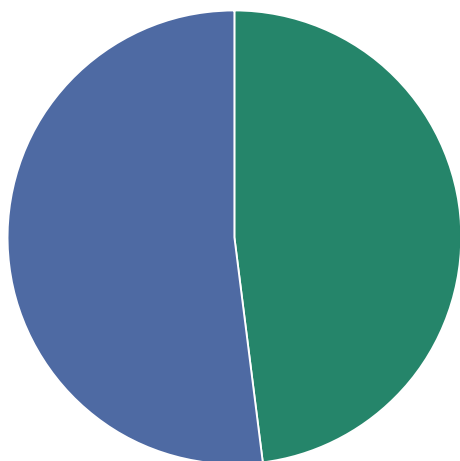
Woodland Area from LCS map updated to 31 March 1995.

Ownership Categories:

Forestry Commission (FC) All woodland owned by, or leased to, the Forestry Commission.

Other (O) Woodland other than FC woodland. Includes woodland owned by private individuals, partnerships trusts, business interests, local authorities, other government departments and agencies.

WOODLAND AREA BY OWNERSHIP



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

TABLE 2a SIZE CLASS DISTRIBUTION OF WOODLAND

| Size Class (ha) | Number of Woods | Total Area (ha) | Percent of Total Area | Mean Wood Area (ha) |
|-----------------|-----------------|-----------------|-----------------------|---------------------|
| 0 - < 2 | 89 | 24 | 0 | 0.3 |
| 2 - < 10 | 1636 | 7030 | 4 | 4.3 |
| 10 - < 20 | 274 | 3737 | 2 | 13.6 |
| 20 - < 50 | 200 | 6336 | 4 | 31.7 |
| 50 - < 100 | 76 | 5258 | 3 | 69.2 |
| 2 - < 100 | 2186 | 22361 | 13 | 10.2 |
| 100 - < 500 | 104 | 20863 | 12 | 200.6 |
| 500 - and > | 30 | 127931 | 75 | 4264.4 |
| All Woods | 2409 | 171179 | 100 | 71.1 |

NOTE (Table 2a)

The total area is 332ha more than that recorded in tables based on the sample data. This is mainly due to the field samples recording some land in other land uses not differentiated from woodland in the LCS map which was prepared from aerial photographs.

Some woods, over 2 hectares, are divided by the Regional boundary and only a part of their area falls within the Region. These part-woods are included above in the appropriate size category and are often less than 2 hectares.

TABLE 2b 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) |
|-----------------|-------------|-----------------|-----------------|-----------------------|---------------------|
| 0 - < 2 | FC | 15 | 8 | 0 | 0.6 |
| | Other | 180 | 90 | 0 | 0.5 |
| 2 - < 10 | FC | 19 | 112 | 0 | 5.9 |
| | Other | 1704 | 7347 | 4 | 4.3 |
| 10 - < 20 | FC | 19 | 319 | 0 | 16.8 |
| | Other | 293 | 3970 | 2 | 13.6 |
| 20 - < 50 | FC | 23 | 771 | 0 | 33.5 |
| | Other | 206 | 6436 | 4 | 31.2 |
| 50 - < 100 | FC | 10 | 751 | 0 | 75.1 |
| | Other | 81 | 5502 | 3 | 67.9 |
| 2 - < 100 | FC | 71 | 1953 | 1 | 27.5 |
| | Other | 2284 | 23255 | 14 | 10.2 |
| 100 - < 500 | FC | 43 | 9141 | 5 | 212.6 |
| | Other | 109 | 22520 | 13 | 206.6 |
| 500 - and > | FC | 23 | 70928 | 41 | 3083.8 |
| | Other | 26 | 43284 | 25 | 1664.8 |
| Total | FC | 152 | 82030 | 48 | 539.7 |
| | Other | 2599 | 89149 | 52 | 34.3 |
| Grand Total | | 2409 | 171179 | 100 | 71.1 |

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

NOTE (Table 2b)

The total area is 332ha more than that recorded in tables based on the sample data. This is mainly due to the field samples recording some land in other land uses not differentiated from woodland in the LCS map which was prepared from aerial photographs.

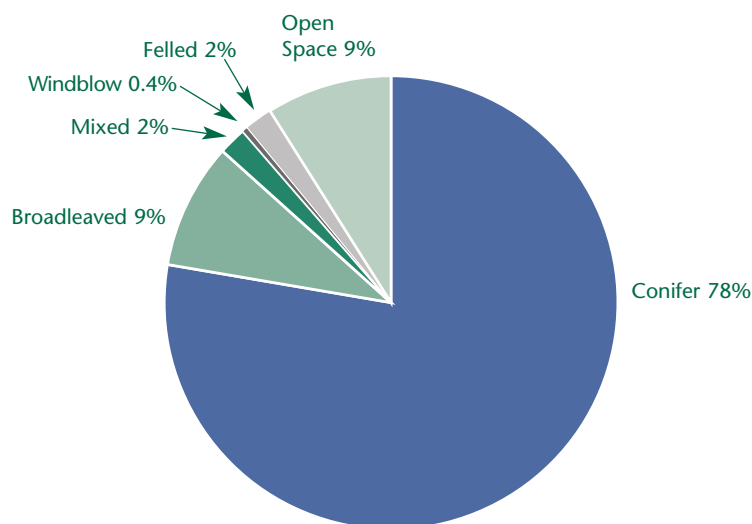
The data available from the digital map enable the identification of woodlands according to their ownerships, Forestry Commission or Other. The entries in the table cannot be added, to derive Table 2a, as some woods may consist of both FC and Other ownerships. For example, the Forestry Commission may own most of a large wood with some parts in Other ownership(s). In Table 2a the whole area would be treated as one wood and the area allocated to one size category. In Table 2b 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 3 AREAS OF WOODLAND BY FOREST TYPE AND OWNERSHIP

| Forest Type | FC | | Other | | All Woods | |
|--------------|--------------|--------------|--------------|--------------|---------------|--------------|
| | ha | % | ha | % | ha | % |
| Conifer | 68323 | 83.5 | 64900 | 72.9 | 133224 | 78.0 |
| Broadleaved | 2207 | 2.7 | 12440 | 14.0 | 14646 | 8.6 |
| Mixed | 1253 | 1.5 | 2711 | 3.0 | 3964 | 2.3 |
| Coppice | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Copp-w-Stds | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Windblow | 652 | 0.8 | 103 | 0.1 | 756 | 0.4 |
| Felled | 2299 | 2.8 | 1149 | 1.3 | 3447 | 2.0 |
| Open space | 7090 | 8.7 | 7721 | 8.7 | 14811 | 8.7 |
| Total | 81824 | 100.0 | 89024 | 100.0 | 170848 | 100.0 |

NOTE (Table 3)

Please refer to the Glossary on page 22 for definitions of forest types.

% FOREST TYPE BY AREA - ALL WOODLAND

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

TABLE 4a AREAS OF HIGH FOREST BY PRINCIPAL SPECIES AND OWNERSHIP

| | FC | | | Other | | | All Woodland | | |
|----------------------------|--------------|------------|------------|--------------|------------|------------|---------------|------------|------------|
| Species | Area (ha) | cat % | spp % | Area (ha) | cat % | spp % | Area (ha) | cat % | spp % |
| Scots pine | 811 | 1 | 1 | 1069 | 2 | 1 | 1880 | 1 | 1 |
| Corsican pine | 112 | 0 | 0 | 77 | 0 | 0 | 190 | 0 | 0 |
| Lodgepole pine | 4069 | 6 | 6 | 2745 | 4 | 3 | 6814 | 5 | 4 |
| Sitka spruce | 52996 | 76 | 73 | 51815 | 78 | 65 | 104811 | 77 | 69 |
| Norway spruce | 4435 | 6 | 6 | 4538 | 7 | 6 | 8973 | 7 | 6 |
| European larch | 113 | 0 | 0 | 319 | 0 | 0 | 432 | 0 | 0 |
| Jap/Hybrid larch | 6272 | 9 | 9 | 4147 | 6 | 5 | 10418 | 8 | 7 |
| Douglas fir | 324 | 0 | 0 | 587 | 1 | 1 | 911 | 1 | 1 |
| Other conifers | 495 | 1 | 1 | 464 | 1 | 1 | 958 | 1 | 1 |
| Mixed conifers | 160 | 0 | 0 | 421 | 1 | 1 | 581 | 0 | 0 |
| Total conifers | 69787 | 100 | 96 | 66182 | 100 | 83 | 135969 | 100 | 89 |
| Oak | 783 | 30 | 1 | 2040 | 15 | 3 | 2823 | 17 | 2 |
| Beech | 0 | 0 | 0 | 827 | 6 | 1 | 827 | 5 | 1 |
| Sycamore | 86 | 3 | 0 | 988 | 7 | 1 | 1074 | 6 | 1 |
| Ash | 101 | 4 | 0 | 412 | 3 | 1 | 514 | 3 | 0 |
| Birch | 598 | 23 | 1 | 3393 | 24 | 4 | 3991 | 24 | 3 |
| Poplar | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 |
| Sweet chestnut | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elm | 0 | 0 | 0 | 126 | 1 | 0 | 126 | 1 | 0 |
| Other broadleaves | 153 | 6 | 0 | 1236 | 9 | 2 | 1389 | 8 | 1 |
| Mixed broadleaves | 927 | 35 | 1 | 4947 | 35 | 6 | 5874 | 35 | 4 |
| Total broadleaves | 2648 | 100 | 4 | 13973 | 100 | 17 | 16621 | 100 | 11 |
| Total - all species | 72435 | | 100 | 80154 | | 100 | 152590 | | 100 |
| Felled | 2299 | | | 1149 | | | 3447 | | |
| Total High Forest | 74734 | | | 81303 | | | 156037 | | |

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



NOTE (Table 4a)

cat: species percentage of conifer or broadleaved in the ownership category.

spp: percentage of all species in the ownership category.

In addition to the areas shown there are 14811 hectares of other areas integral to the woodland not stocked with tree species.

The standard errors of the area estimates for the most common species are as follows:

| | |
|-------------------|----|
| Conifers | 2% |
| Broadleaves | 5% |
| Jap/Hybrid larch | 8% |
| Sitka Spruce | 2% |
| Mixed broadleaves | 8% |

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).

These standard errors are for the species areas in all woodland types.

AREAS OF HIGH FOREST BY PRINCIPAL SPECIES AND OWNERSHIP

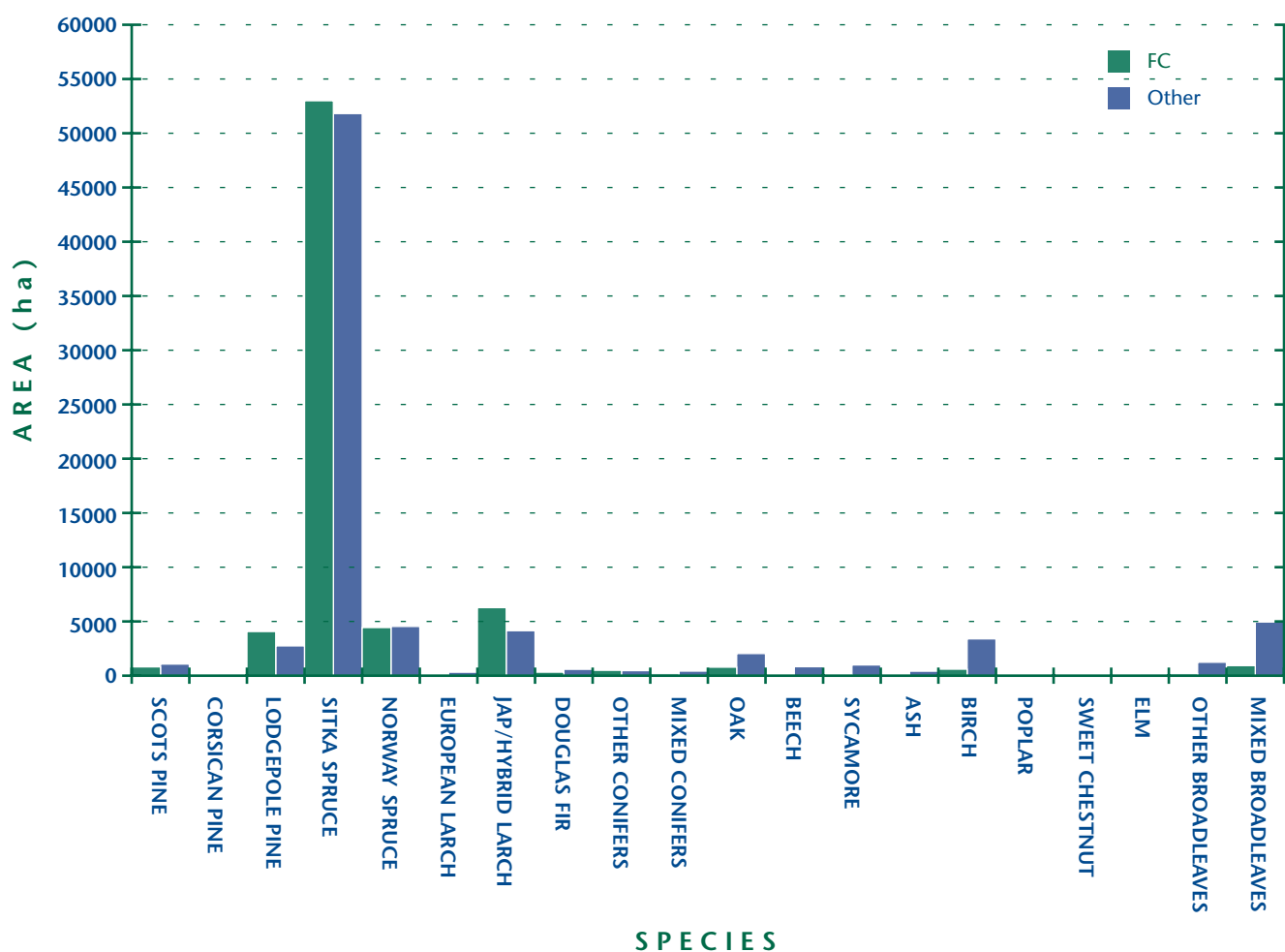


TABLE 4b AREAS OF HIGH FOREST BY PRINCIPAL SPECIES, OWNERSHIP AND CATEGORY

| | FC | | | Other | | | All Ownerships | | |
|----------------------------|--------------|-------------|--------------|--------------|--------------|--------------|----------------|--------------|---------------|
| Species | Cat 1 | Cat 2 | Tot HF | Cat 1 | Cat 2 | Tot HF | Cat 1 | Cat 2 | Tot HF |
| Scots pine | 780 | 31 | 811 | 950 | 119 | 1069 | 1730 | 150 | 1880 |
| Corsican pine | 112 | 0 | 112 | 63 | 15 | 77 | 175 | 15 | 190 |
| Lodgepole pine | 2823 | 1246 | 4069 | 2050 | 695 | 2745 | 4873 | 1941 | 6814 |
| Sitka spruce | 51636 | 1360 | 52996 | 50803 | 1012 | 51815 | 102439 | 2372 | 104811 |
| Norway spruce | 3981 | 455 | 4435 | 4357 | 181 | 4538 | 8338 | 636 | 8973 |
| European larch | 60 | 53 | 113 | 277 | 42 | 319 | 337 | 96 | 432 |
| Jap/Hybrid larch | 5635 | 637 | 6272 | 3777 | 369 | 4147 | 9412 | 1006 | 10418 |
| Douglas fir | 299 | 25 | 324 | 587 | 0 | 587 | 886 | 25 | 911 |
| Other conifers | 430 | 64 | 495 | 432 | 30 | 464 | 862 | 94 | 958 |
| Mixed conifers | 121 | 40 | 160 | 379 | 42 | 421 | 500 | 81 | 581 |
| Total conifers | 65876 | 3911 | 69787 | 63675 | 2507 | 66182 | 129551 | 6418 | 135969 |
| Oak | 220 | 563 | 783 | 1273 | 767 | 2040 | 1494 | 1329 | 2823 |
| Beech | 0 | 0 | 0 | 438 | 389 | 827 | 438 | 389 | 827 |
| Sycamore | 5 | 81 | 86 | 360 | 628 | 988 | 365 | 709 | 1074 |
| Ash | 89 | 13 | 101 | 87 | 325 | 412 | 176 | 338 | 514 |
| Birch | 167 | 432 | 598 | 960 | 2433 | 3393 | 1126 | 2865 | 3991 |
| Poplar | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 5 | 5 |
| Sweet chestnut | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elm | 0 | 0 | 0 | 19 | 107 | 126 | 19 | 107 | 126 |
| Other broadleaves | 5 | 148 | 153 | 78 | 1156 | 1236 | 83 | 1304 | 1389 |
| Mixed broadleaves | 258 | 669 | 927 | 1365 | 3582 | 4947 | 1623 | 4251 | 5874 |
| Total broadleaves | 743 | 1905 | 2648 | 4581 | 9392 | 13973 | 5324 | 11296 | 16621 |
| Total - all species | 66620 | 5816 | 72435 | 68256 | 11898 | 80154 | 134876 | 17714 | 152590 |

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

NOTE (Table 4b)

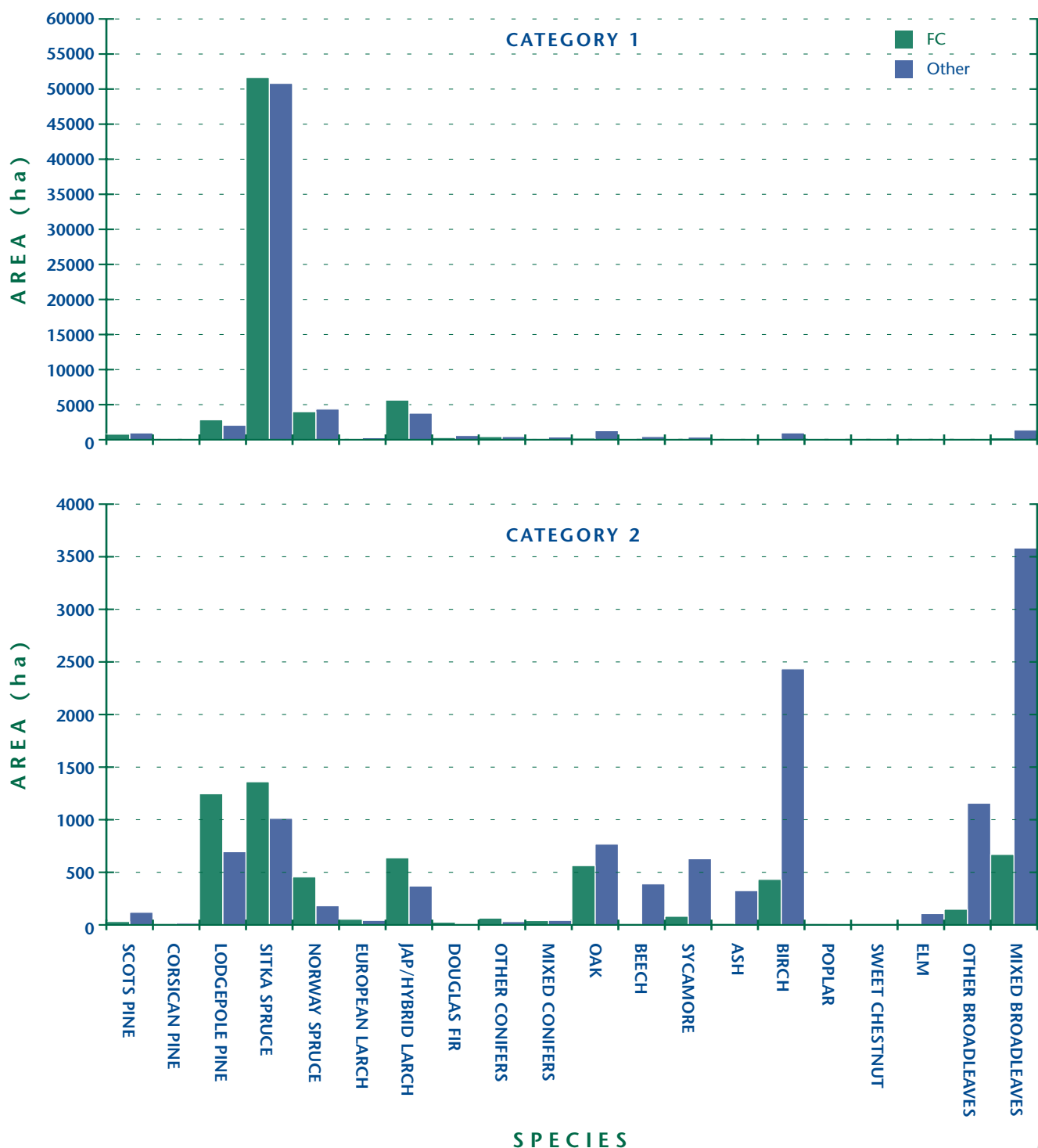
The standard errors of the area estimates for the most common species or species groups are as follows:

| | Cat 1 | Cat 2 | Total HF |
|-------------------|-------|-------|----------|
| Conifers | 1% | 9% | 2% |
| Broadleaves | 9% | 6% | 5% |
| Jap/Hybrid larch | 9% | 18% | 8% |
| Sitka spruce | 2% | 14% | 2% |
| Mixed broadleaves | 14% | 10% | 8% |

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).

These standard errors are for the species areas in all woodland types.

AREAS OF HIGH FOREST BY PRINCIPAL SPECIES AND OWNERSHIP



**TABLE 5a HIGH FOREST CATEGORY 1 -
AREAS BY PRINCIPAL SPECIES AND PLANTING YEAR CLASSES**

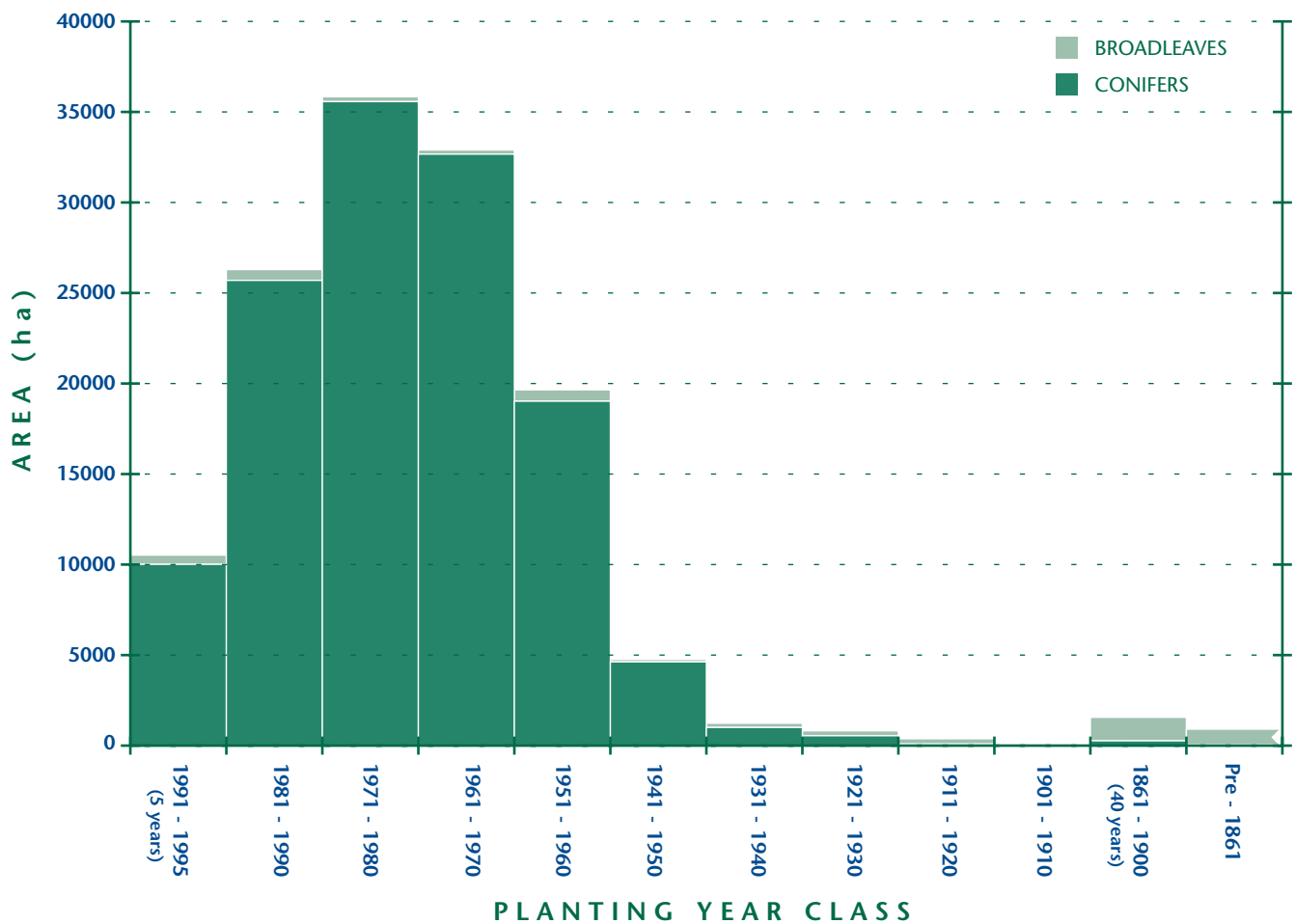
| Species | PLANTING YEAR CLASS | | | | | | | | | | | | TOTAL |
|----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | 1991 -1995 | 1981 -1990 | 1971 -1980 | 1961 -1970 | 1951 -1960 | 1941 -1950 | 1931 -1940 | 1921 -1930 | 1911 -1920 | 1901 -1910 | 1861 -1900 | pre - 1861 | |
| Scots pine | 5 | 77 | 134 | 138 | 537 | 385 | 185 | 91 | 78 | 0 | 90 | 9 | 1730 |
| Corsican pine | 0 | 0 | 0 | 0 | 112 | 0 | 0 | 63 | 0 | 0 | 0 | 0 | 175 |
| Lodgepole pine | 0 | 621 | 1102 | 2015 | 1052 | 76 | 7 | 0 | 0 | 0 | 0 | 0 | 4873 |
| Sitka Spruce | 9577 | 22942 | 31625 | 26224 | 9994 | 1545 | 454 | 45 | 13 | 0 | 20 | 0 | 102439 |
| Norway spruce | 15 | 98 | 1265 | 3187 | 2265 | 1171 | 173 | 71 | 0 | 0 | 51 | 43 | 8338 |
| European larch | 0 | 0 | 38 | 0 | 158 | 0 | 0 | 76 | 0 | 0 | 65 | 0 | 337 |
| Jap/Hybrid larch | 335 | 1203 | 1094 | 805 | 4281 | 1402 | 108 | 165 | 0 | 0 | 19 | 0 | 9412 |
| Douglas fir | 56 | 261 | 122 | 21 | 316 | 16 | 51 | 34 | 0 | 0 | 11 | 0 | 886 |
| Other conifers | 0 | 463 | 151 | 213 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 862 |
| Mixed conifers | 26 | 31 | 40 | 66 | 273 | 29 | 25 | 0 | 0 | 0 | 9 | 0 | 500 |
| Total conifers | 10013 | 25696 | 35570 | 32668 | 19023 | 4625 | 1003 | 545 | 91 | 0 | 265 | 52 | 129551 |
| Oak | 66 | 142 | 5 | 12 | 4 | 0 | 80 | 7 | 83 | 0 | 450 | 645 | 1494 |
| Beech | 27 | 0 | 0 | 10 | 170 | 2 | 0 | 37 | 0 | 0 | 90 | 102 | 438 |
| Sycamore | 0 | 39 | 15 | 10 | 250 | 7 | 0 | 8 | 0 | 0 | 37 | 0 | 365 |
| Ash | 0 | 0 | 0 | 9 | 7 | 11 | 89 | 0 | 0 | 0 | 20 | 40 | 176 |
| Birch | 52 | 189 | 181 | 66 | 74 | 33 | 10 | 196 | 89 | 0 | 221 | 14 | 1126 |
| Poplar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sweet chestnut | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elm | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 15 | 0 | 19 |
| Other blvs | 30 | 30 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 9 | 83 |
| Mixed blvs | 332 | 196 | 62 | 119 | 124 | 78 | 48 | 24 | 114 | 18 | 460 | 47 | 1623 |
| Total broadleaves | 508 | 596 | 267 | 230 | 629 | 132 | 232 | 272 | 286 | 18 | 1297 | 857 | 5324 |
| Total - all species | 10521 | 26292 | 35837 | 32898 | 19653 | 4757 | 1235 | 817 | 376 | 18 | 1562 | 909 | 134876 |

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

NOTE (Table 5a)

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 - AREAS BY PLANTING YEAR CLASS



**TABLE 5b HIGH FOREST CATEGORY 1 - FORESTRY COMMISSION
AREAS BY PRINCIPAL SPECIES AND PLANTING YEAR CLASSES**

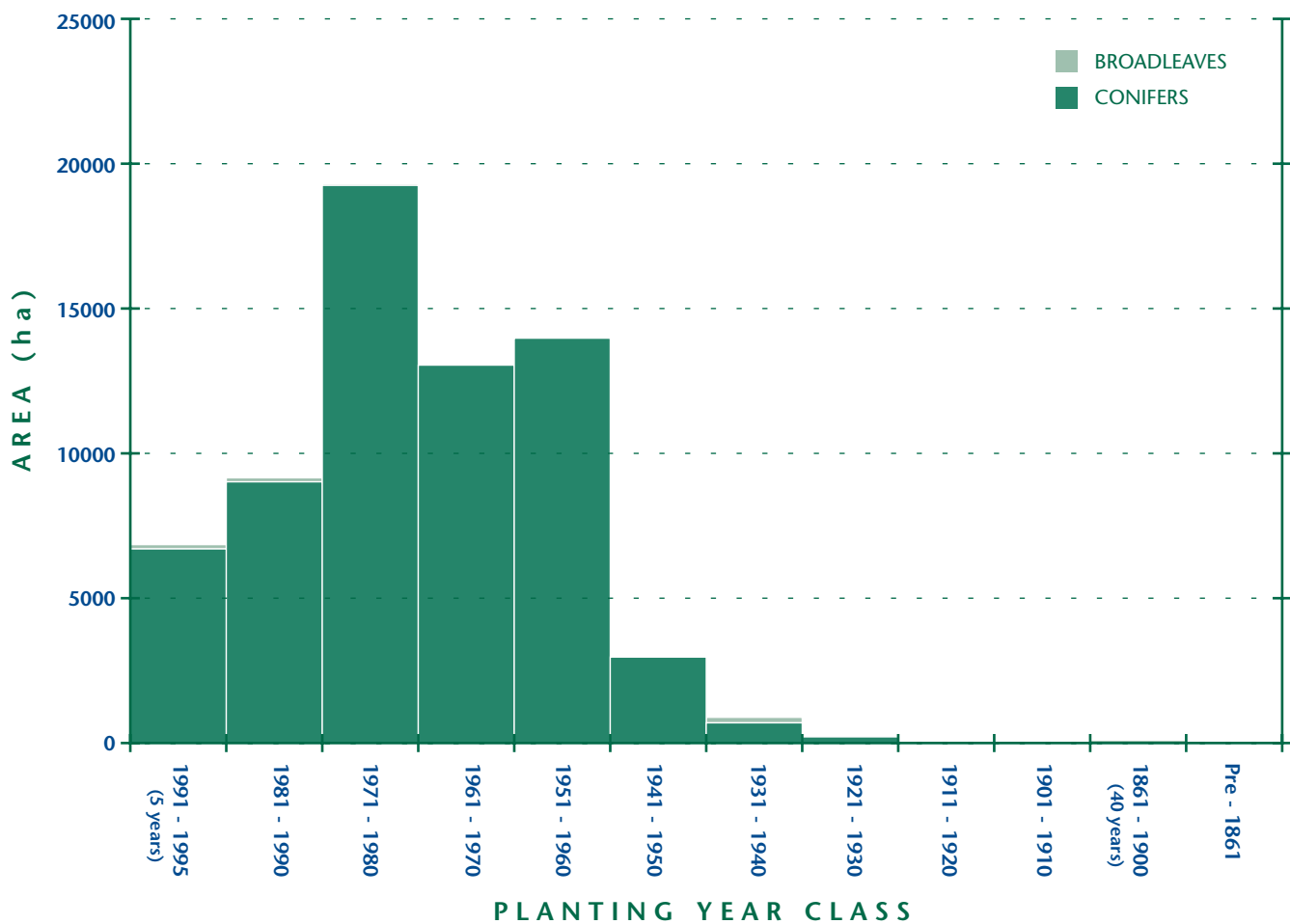
| Species | PLANTING YEAR CLASS | | | | | | | | | | | | TOTAL |
|----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| | 1991 -1995 | 1981 -1990 | 1971 -1980 | 1961 -1970 | 1951 -1960 | 1941 -1950 | 1931 -1940 | 1921 -1930 | 1911 -1920 | 1901 -1910 | 1861 -1900 | pre - 1861 | |
| Scots pine | 5 | 5 | 40 | 50 | 251 | 285 | 70 | 75 | 0 | 0 | 0 | 0 | 780 |
| Corsican pine | 0 | 0 | 0 | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 |
| Lodgepole pine | 0 | 79 | 350 | 1438 | 905 | 44 | 7 | 0 | 0 | 0 | 0 | 0 | 2823 |
| Sitka spruce | 6387 | 7861 | 17984 | 10418 | 7564 | 1010 | 376 | 30 | 5 | 0 | 0 | 0 | 51636 |
| Norway spruce | 0 | 0 | 273 | 824 | 1730 | 1031 | 124 | 0 | 0 | 0 | 0 | 0 | 3981 |
| European larch | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 60 |
| Jap/Hybrid larch | 266 | 642 | 520 | 281 | 3266 | 580 | 45 | 35 | 0 | 0 | 0 | 0 | 5635 |
| Douglas fir | 44 | 0 | 69 | 9 | 112 | 0 | 51 | 13 | 0 | 0 | 0 | 0 | 299 |
| Other conifers | 0 | 403 | 5 | 12 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 430 |
| Mixed conifers | 0 | 25 | 12 | 14 | 25 | 19 | 25 | 0 | 0 | 0 | 0 | 0 | 121 |
| Total conifers | 6702 | 9017 | 19252 | 13046 | 13976 | 2968 | 697 | 213 | 5 | 0 | 0 | 0 | 65876 |
| Oak | 0 | 13 | 0 | 1 | 0 | 0 | 63 | 0 | 7 | 0 | 99 | 37 | 220 |
| Beech | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sycamore | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Ash | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 0 | 0 | 0 | 0 | 0 | 89 |
| Birch | 0 | 69 | 50 | 0 | 17 | 25 | 0 | 0 | 0 | 0 | 0 | 5 | 167 |
| Poplar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sweet chestnut | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elm | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other blvs | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Mixed blvs | 148 | 57 | 0 | 0 | 0 | 0 | 38 | 2 | 0 | 13 | 0 | 0 | 258 |
| Total broadleaves | 148 | 139 | 55 | 3 | 19 | 25 | 190 | 2 | 7 | 13 | 99 | 42 | 743 |
| Total - all species | 6850 | 9156 | 19307 | 13049 | 13995 | 2994 | 888 | 216 | 12 | 13 | 99 | 42 | 66620 |

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

NOTE (Table 5b)

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 - AREAS BY PLANTING YEAR CLASS



**TABLE 5c HIGH FOREST CATEGORY 1 - OTHER OWNERSHIPS
AREAS BY PRINCIPAL SPECIES AND PLANTING YEAR CLASSES**

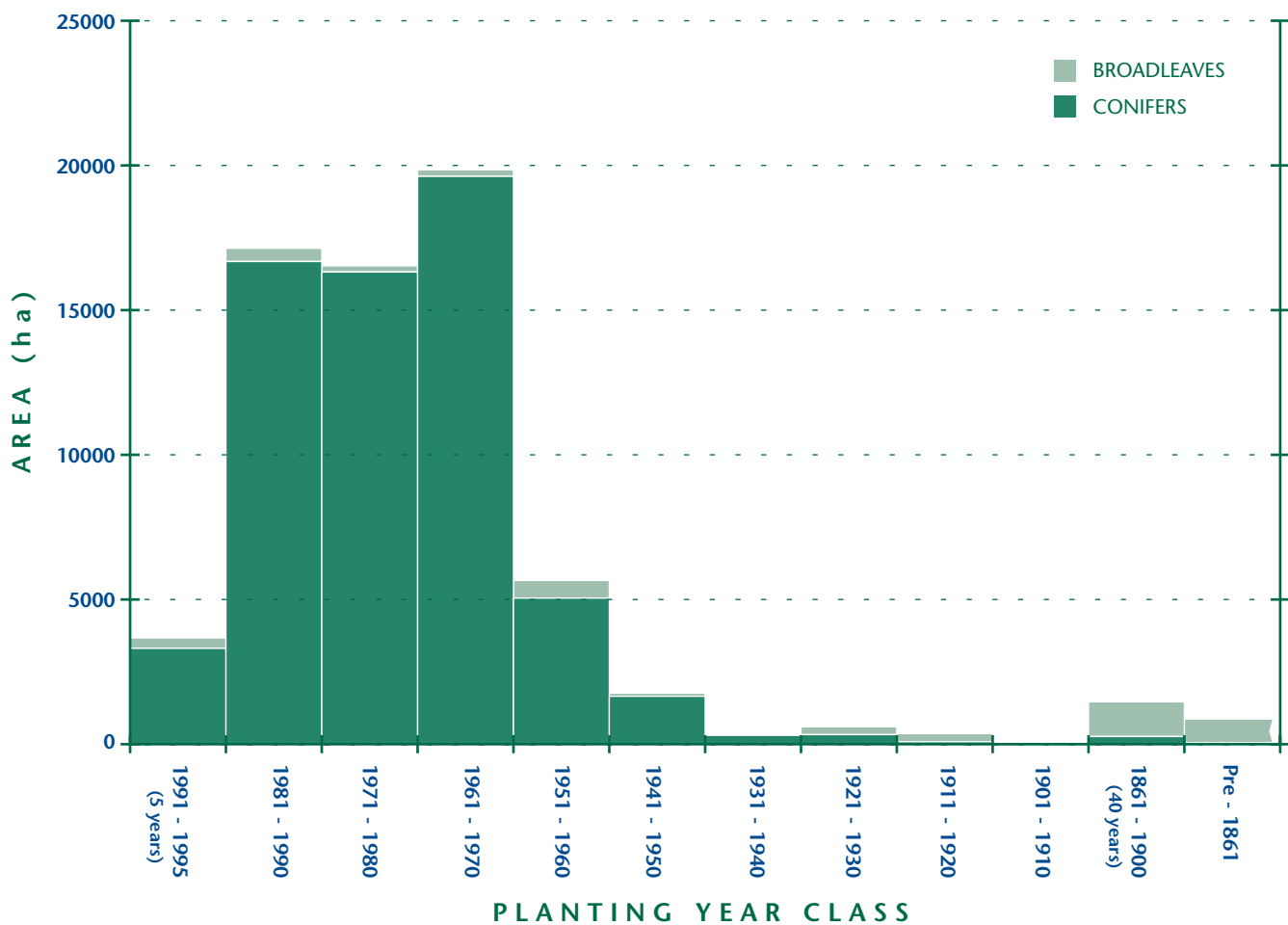
| Species | PLANTING YEAR CLASS | | | | | | | | | | | | TOTAL |
|----------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| | 1991 -1995 | 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 | 73 | 95 | 88 | 286 | 100 | 114 | 16 | 78 | 0 | 90 | 9 | 950 |
| Corsican pine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 0 | 63 |
| Lodgepole pine | 0 | 542 | 751 | 577 | 147 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 2050 |
| Sitka spruce | 3190 | 15081 | 13641 | 15805 | 2429 | 535 | 78 | 15 | 8 | 0 | 20 | 0 | 50803 |
| Norway spruce | 15 | 98 | 992 | 2363 | 535 | 140 | 49 | 71 | 0 | 0 | 51 | 43 | 4357 |
| European larch | 0 | 0 | 38 | 0 | 158 | 0 | 0 | 16 | 0 | 0 | 65 | 0 | 277 |
| Jap/Hybrid larch | 69 | 560 | 574 | 523 | 1014 | 823 | 63 | 130 | 0 | 0 | 19 | 0 | 3777 |
| Douglas fir | 11 | 261 | 53 | 12 | 204 | 16 | 0 | 21 | 0 | 0 | 11 | 0 | 587 |
| Other conifers | 0 | 59 | 146 | 201 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 432 |
| Mixed conifers | 26 | 5 | 28 | 52 | 248 | 11 | 0 | 0 | 0 | 0 | 9 | 0 | 379 |
| Total conifers | 3312 | 16679 | 16318 | 19622 | 5048 | 1656 | 305 | 331 | 86 | 0 | 265 | 52 | 63675 |
| Oak | 66 | 129 | 5 | 11 | 4 | 0 | 17 | 7 | 76 | 0 | 351 | 608 | 1273 |
| Beech | 27 | 0 | 0 | 10 | 170 | 2 | 0 | 37 | 0 | 0 | 90 | 102 | 438 |
| Sycamore | 0 | 39 | 15 | 8 | 247 | 7 | 0 | 8 | 0 | 0 | 37 | 0 | 360 |
| Ash | 0 | 0 | 0 | 9 | 7 | 11 | 0 | 0 | 0 | 0 | 20 | 40 | 87 |
| Birch | 52 | 120 | 131 | 66 | 57 | 8 | 10 | 196 | 89 | 0 | 221 | 9 | 960 |
| Poplar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sweet chestnut | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elm | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 15 | 0 | 19 |
| Other blvs | 30 | 30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 9 | 78 |
| Mixed blvs | 184 | 139 | 62 | 119 | 124 | 78 | 10 | 22 | 114 | 5 | 460 | 47 | 1365 |
| Total broadleaves | 360 | 457 | 212 | 227 | 610 | 107 | 42 | 270 | 279 | 5 | 1198 | 815 | 4581 |
| Total - all species | 3672 | 17136 | 16530 | 19849 | 5658 | 1763 | 347 | 601 | 364 | 5 | 1463 | 867 | 68256 |

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

NOTE (Table 5c)

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 OWNERSHIPS - AREAS BY PLANTING YEAR CLASS



**TABLE 6 HIGH FOREST -
PRINCIPAL SPECIES BY PLANTING YEAR CLASSES**

| Planting Year Class | First | % | Second | % | Third | % |
|---------------------|-------------------|-----|-------------------|----|-------------------|----|
| 1991-1995 | Sitka spruce | 86 | Mixed broadleaves | 6 | Jap/Hybrid larch | 4 |
| 1981-1990 | Sitka spruce | 83 | Jap/Hybrid larch | 5 | Mixed broadleaves | 2 |
| 1971-1980 | Sitka spruce | 84 | Lodgepole pine | 4 | Norway spruce | 4 |
| 1961-1970 | Sitka spruce | 78 | Norway spruce | 9 | Lodgepole pine | 9 |
| 1951-1960 | Sitka spruce | 46 | Jap/Hybrid larch | 20 | Norway spruce | 11 |
| 1941-1950 | Sitka spruce | 27 | Jap/Hybrid larch | 23 | Norway spruce | 19 |
| 1931-1940 | Mixed broadleaves | 22 | Sitka spruce | 20 | Birch | 10 |
| 1921-1930 | Birch | 27 | Mixed broadleaves | 17 | Jap/Hybrid larch | 12 |
| 1911-1920 | Mixed broadleaves | 24 | Birch | 22 | Oak | 17 |
| 1901-1910 | Mixed broadleaves | 100 | - | | - | |
| 1861-1900 | Mixed broadleaves | 33 | Oak | 29 | Beech | 8 |
| Pre 1861 | Oak | 56 | Mixed broadleaves | 17 | Beech | 14 |
| All years | Sitka spruce | 69 | Jap/Hybrid larch | 7 | Norway spruce | 6 |

**TABLE 7 OWNERSHIP TYPE BY AREA
AND PERCENTAGE**

| Ownership Type | Area (ha) | % |
|-------------------------------------|---------------|--------------|
| Personal | 69545 | 40.7 |
| Private forestry or timber business | 3979 | 2.3 |
| Other private business | 6531 | 3.8 |
| Local Authority | 0 | 0.0 |
| Other public body (not FC) | 434 | 0.3 |
| Forestry Commission | 81824 | 47.9 |
| Charity | 3590 | 2.1 |
| Community ownership or common land | 0 | 0.0 |
| Unclassified | 4945 | 2.9 |
| Total | 170848 | 100.0 |

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

NOTE (Table 7)

Please refer to the Glossary on page 22 for definitions of ownership types.

COMPARISON OF RESULTS WITH THE 1980 CENSUS

The 1980 Census and 1995 Inventory were undertaken by very different sampling methods. The comparison with the 1980 Census of Woodlands and Trees is not yet complete because of the difference in minimum area for woodland. Within the 1980 Census the minimum area of woodland was 0.25 hectares whilst in the National Inventory of Woodland it is 2 hectares. The total area of woodland within the Inventory will be revised to include an estimate of the area between 0.25 - 2.0 hectares once the Small Woodlands and Trees Survey is completed.

The apparent differences shown in the following tables should therefore be treated with caution, particularly where areas are small.

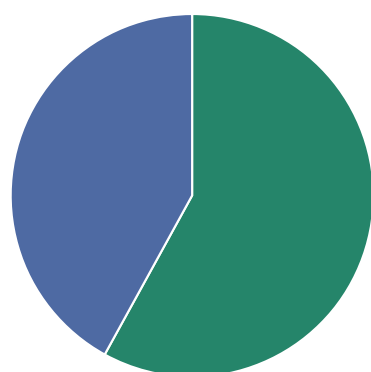
TABLE 8 WOODLAND AREAS AND OWNERSHIP

| | CENSUS 31/3/80 | INVENTORY 31/3/95 | CHANGE (%) |
|---------------------------------|---------------------------|------------------------------|-----------------------|
| Area (inc. inland water) | 642545 | 643903 | 0.2 |
| FC Woodland area | 78383 | 81824 | 4.4 |
| Other ownership area | 57237 | 89025 | 55.5 |
| Total Area of Woodland | 135620 | 170848 | 26.0 |
| % Woodland Cover | 21.1 | 26.5 | 25.7 |

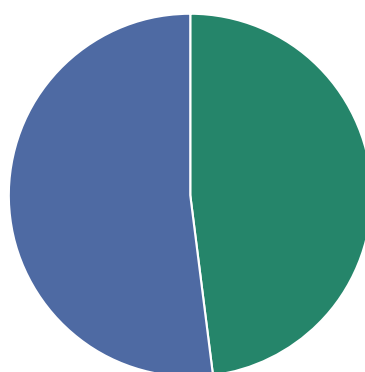
NOTE (Table 8)

Area (including inland water)-in the interval between the two surveys the Regional boundary was revised. The method of measurement has also undergone development.

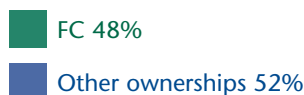
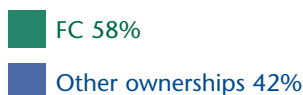
CENSUS 1980



INVENTORY 1995



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



**TABLE 9 COMPARISON BETWEEN 1995 INVENTORY
AND 1980 CENSUS
HIGH FOREST - AREAS BY PRINCIPAL SPECIES**

| SPECIES | 1980 CENSUS | 1995 INVENTORY |
|----------------------------|---------------|----------------|
| Scots pine | 3880 | 1880 |
| Corsican pine | 771 | 190 |
| Lodgepole pine | 10153 | 6814 |
| Sitka spruce | 72938 | 104811 |
| Norway spruce | 10543 | 8973 |
| European larch | 855 | 432 |
| Jap/Hybrid larch | 10974 | 10418 |
| Douglas fir | 1103 | 911 |
| Other conifers | 1101 | 958 |
| Mixed conifers | 1558 | 581 |
| Total conifers | 113876 | 135969 |
| Oak | 1773 | 2823 |
| Beech | 873 | 827 |
| Sycamore | 934 | 1074 |
| Ash | 653 | 514 |
| Birch | 1114 | 3991 |
| Poplar | 58 | 5 |
| Sweet chestnut | 1 | 0 |
| Elm | 402 | 126 |
| Other broadleaves | 1143 | 1389 |
| Mixed broadleaves | 1722 | 5874 |
| Total broadleaves | 8672 | 16621 |
| TOTAL - all species | 122547 | 152590 |
| Felled | 1269 | 3447 |
| Total - High Forest | 123816 | 156037 |

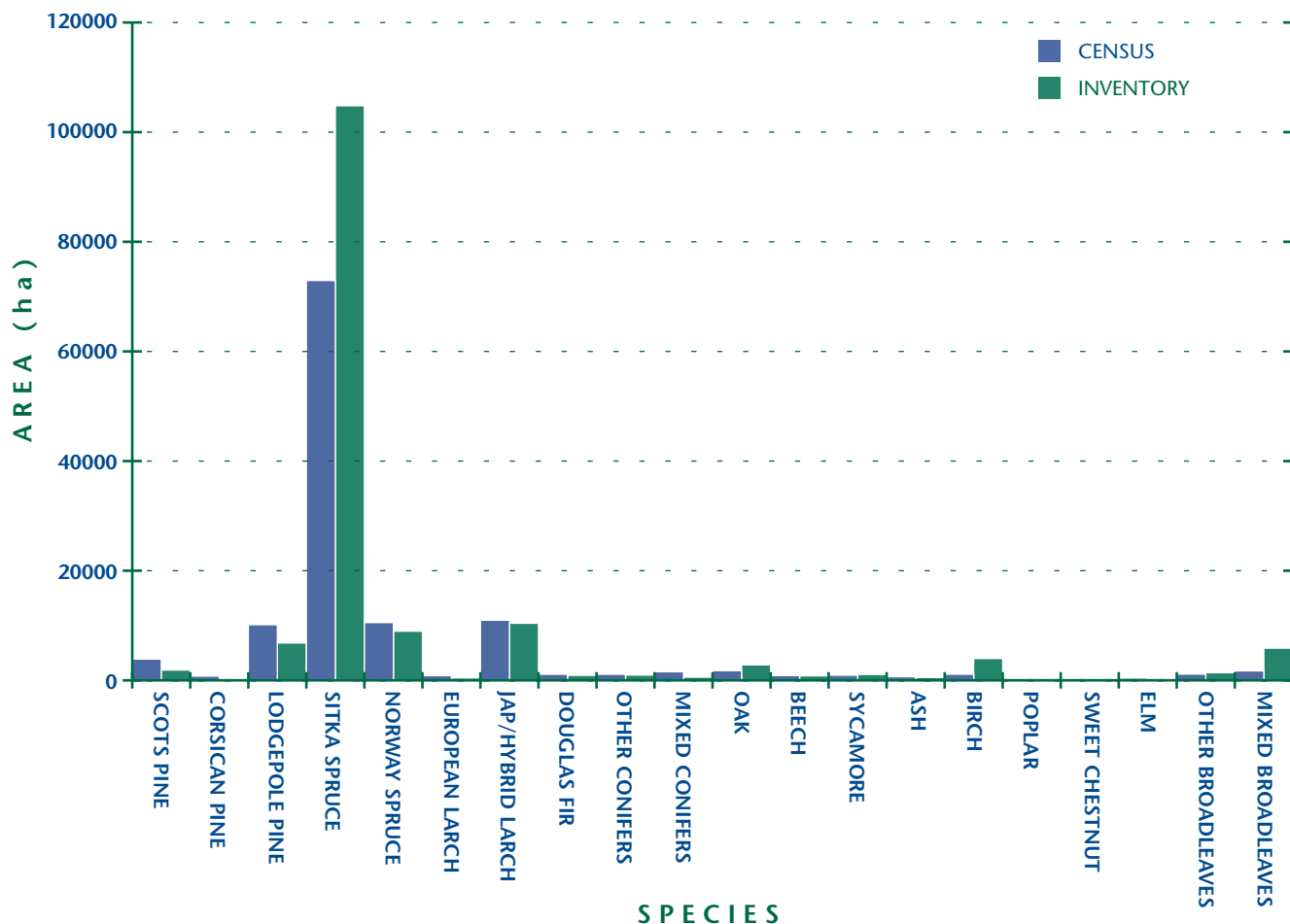
NOTE (Table 9)

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 8.7% (Table 3). To obtain meaningful comparisons between the two datasets the 1980 Census data have therefore been reduced by 8.7%. Area allocated to scrub has also been included in the 1980 Census data to make it comparable with the 1995 Inventory data.

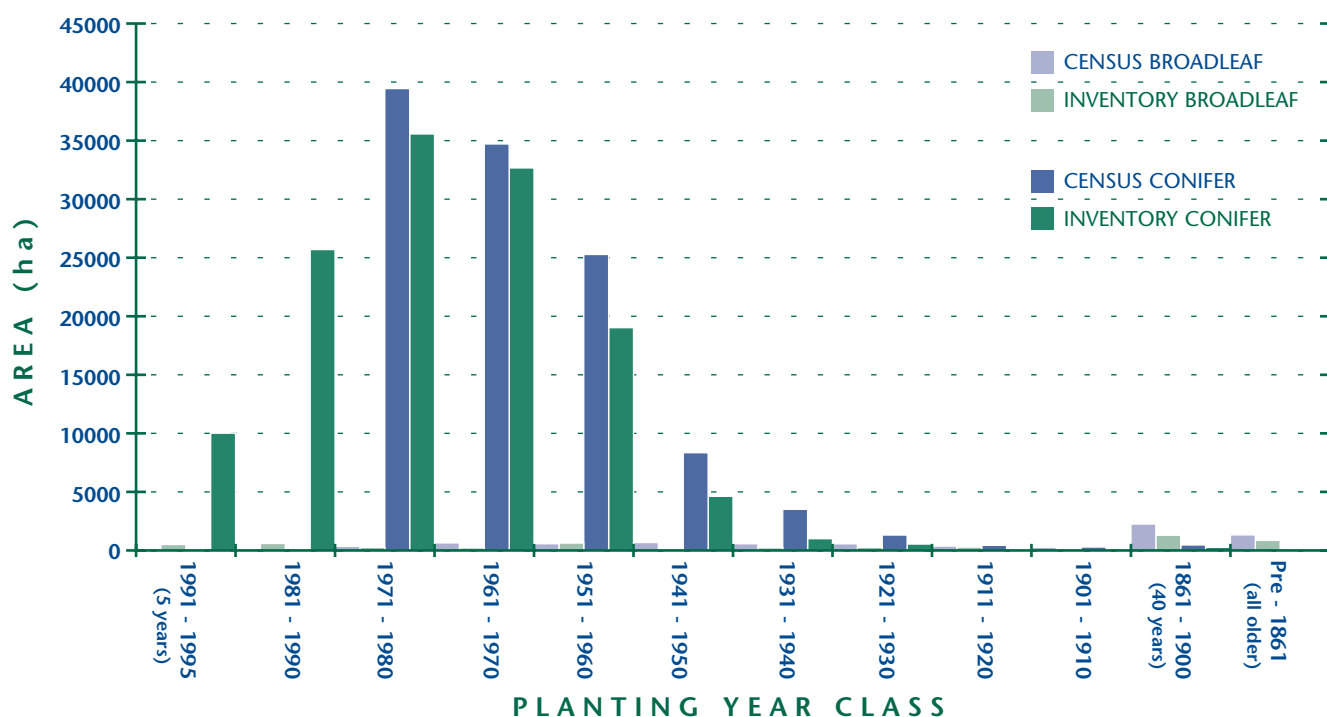
N.B. Woodlands between 0.25 and 2.0 hectares are not yet included in the 1995 Inventory figures (above). These are expected to contain a high proportion of broadleaved species.

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

COMPARISON BETWEEN 1995 INVENTORY AND 1980 CENSUS - HIGH FOREST - AREAS BY PRINCIPAL SPECIES



COMPARISON BETWEEN 1995 INVENTORY AND 1980 CENSUS - HIGH FOREST CATEGORY 1 - AREAS BY PLANTING YEAR CLASS



GLOSSARY

Woodland

In the United Kingdom woodland is defined as land 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. 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 hectares and over, and with a minimum width of 50 m, is included in the main woodland survey, Part 1 of the Inventory; other woodland and trees are assessed in Part 2, the small woodland and trees survey.

High Forest

All woodland with the exception of stands managed as coppice or coppice with standards with, or 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 and small roundwood.

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 hectare 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 Ownerships**

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 Body (not FC)

Government department/agency, nationalised industry, etc.

Charitable

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

*Community Ownership or
Common Land*

The common property of all members of the community.

Forestry Commission

Land owned by or land leased to the Forestry Commission.



NOTES





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