Forestry Commission

NFI summary report

National Forest Inventory statistics for North East

Issued by: National Forest Inventory
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Date: March 2017

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North East

Map 1 Map of England and the aligned areas

The map shows shortened names for some of the aligned areas. The short names and their full equivalents are to be found in **Appendix A**.

Key findings for North East

North East (NEA) has a land area of 843,400 hectares making it 8th out of the 14 aligned areas by land area. With 116,130 ha of woodland, NEA ranks 4th out of 14 in terms of woodland area (14% woodland cover). Some 43% of the woodland is under Forestry Commission ownership or management.

Sitka spruce is the most commonly occurring of the conifer species whether assessed by stocked area (63%), standing volume (56%) or number of trees (71%).

Ash is the most commonly occurring of the broadleaved species when assessed by stocked area (14%). Oak is the most commonly occurring of the broadleaved species when assessed by standing volume (21%). Birch is the most commonly occurring of the broadleaved species when assessed by number of trees (14%).

Some 12% of standing coniferous volume is beyond the age of maximum mean annual increment (or above terminal height of 25m in higher windthrow risk areas). The harvesting assumptions applied in the forecast assume that a proportion of this volume will be felled over a period of time from the start of the forecast. Some 35% of conifer and mixed broadleaf/conifer sections (PS only) show evidence of thinning.

Overall 44% of standing broadleaved volume is beyond the age of maximum mean annual increment (or above terminal height of 25m in higher windthrow risk areas). Some 6% of broadleaved sections (PS only) show evidence of thinning.

Across NEA:

- Ash is estimated as 6% of total stocked area (14% of broadleaved stocked area), 4% of standing volume (13% of broadleaved standing volume) and 4% of the number of trees (12% of the number of broadleaved trees).
- Oak is estimated as 5% of total stocked area (13% of broadleaved stocked area), 6% of standing volume (21% of broadleaved standing volume) and 2% of the number of trees (6% of the number of broadleaved trees).
- Sweet chestnut is not recorded in the woodland under Forestry Commission ownership or management. Sweet chestnut was not found in any of the National Forest Inventory field sample assessments.
- Larch is estimated as 4% of total stocked area (7% of conifer stocked area), 7% of standing volume (9% of conifer standing volume) and 3% of the number of trees (5% of the number of conifer trees).

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Part 1 – introduction and methodology

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Introduction

National forest inventories are carried out by the Forestry Commission to provide accurate, up-to-date information about the size, distribution, composition and condition of the forests and woodlands in Great Britain (GB). This information is essential for developing and monitoring policies and guidance to support sustainable forest management.

The current National Forest Inventory (NFI), which began in 2010, is a multipurpose operation that has involved the production of a forest and woodland map for Britain and a continuing programme of field surveys (the first cycle of field surveys completed in late 2015) of the mapped forest and woodland areas.

Information and data collected by the National Forest Inventory is being used for a number of purposes, including estimates and 25-year forecasts of forest metrics such as:

- standing volume
- timber availability
- tree growth and increment
- carbon stocks
- biomass

Estimates of aspects of the biodiversity and social value of forests and woodlands will also be provided by the NFI.

This report brings together key woodland information for England previously published across the range of NFI thematic reports. Within the NFI programme, results are presented by the NUTS 1 boundaries[*]. This report heads a series of reports where the woodland statistics are broken down by aligned area. The data sources and methodology covering the suite of reports is to found in the report for England and the aligned areas.

[*] See http://ec.europa.eu/eurostat/web/nuts/overview for a description of the Nomenclature of territorial units for statistics (NUTS) classification system.

How the estimates are prepared

The methodology, data sources and assumptions are described in the England report. It is important that the estimates presented in this report are interpreted in the light of the information provided in the England report.

The methodology introduces the sub-compartment database and the National Forest Inventory. It describes the metrics presented in this report and how they are derived. The methodology covers how the FC and private sector (PS) forecasts are prepared and includes commentary on the assumptions made in order to calculate the forecast estimates. Finally the methodology covers the tree health metrics.

Note on the estimates

The values in the tables have been independently rounded, so may not add to the totals shown. In some breakdowns of Private sector estimates, the estimates in the body of the table may not sum to the quoted total because each individual value, including the total, has been independently generated by the estimation procedure used for results from the NFI sample survey. Sampling standard errors attached to Private sector estimates are expressed in relative terms (%) to the right of the relevant estimate and as ± error bars in the figures. Percentages in the pie charts may also not sum to 100 due to rounding.

Due to biological and sampling constraints, for example where there is a very small population of a species within a particular region, the estimates may have a high associated standard error. Since this indicates a high level of uncertainty around those estimates then caution should be used when drawing any conclusions from these values as the estimate may not be representative of the real population. Such estimates have been ‘lowlighted’ in the tables.

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Part 2 - what our woodlands are like today

Woodland area statistics

Woodland area by woodland type

Figure 1 Woodland area by woodland type

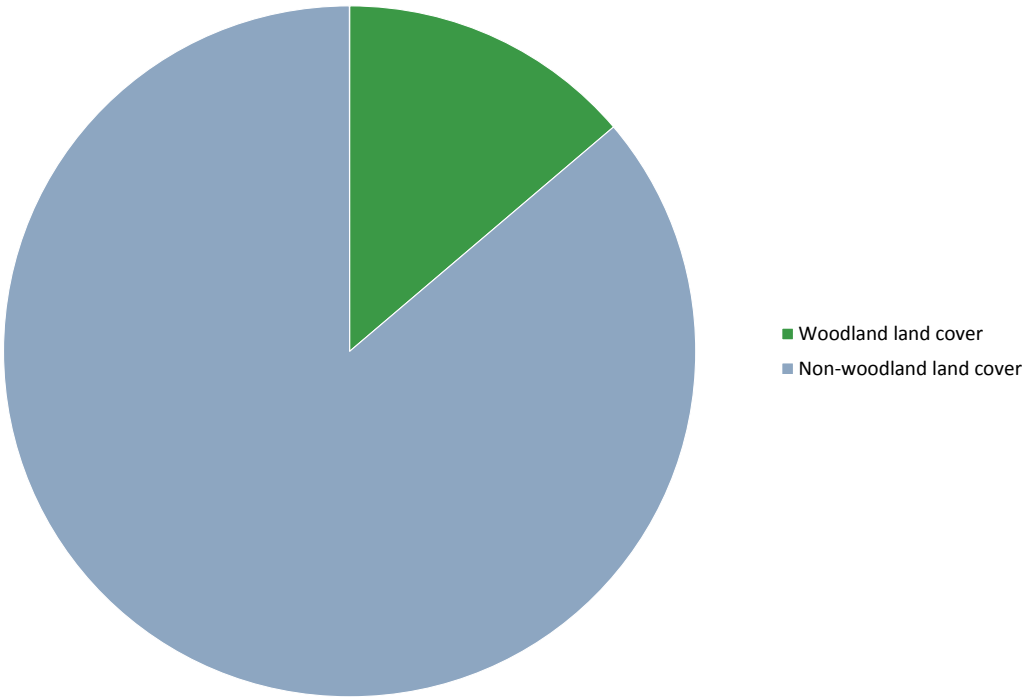

Table 1 Woodland area by woodland type

Woodland Type	Area (ha)	%
North East		
Woodland	112,265	97%
Assumed woodland	3,668	3%
Low density	196	0%
Total mapped woodland	**116,130**	**100%**
Non-woodland area	727,270	
Land area	843,400	
Woodland land cover		**14%**
Non-woodland land cover		**86%**

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Woodland area by ownership

Figure 2 Woodland area by ownership

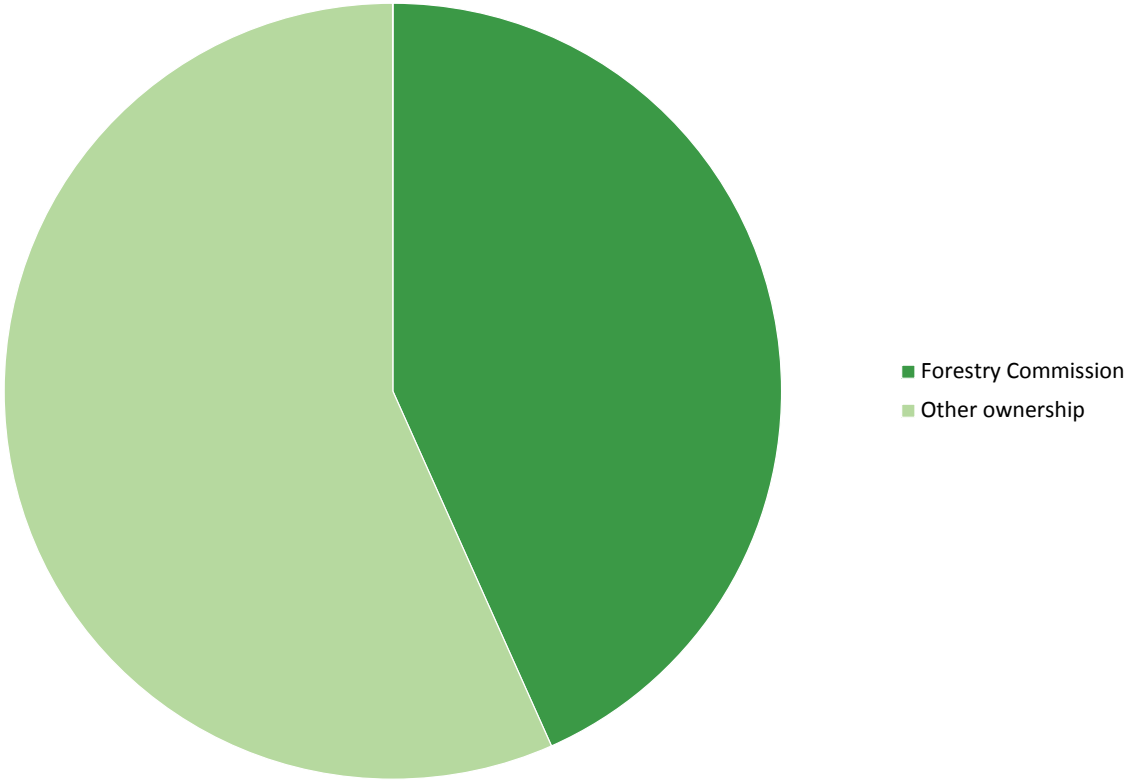

Table 2 Woodland area by ownership

Ownership	Area (ha)	% Woodland
North East		
Forestry Commission	50,311	43%
Other ownership	65,819	57%
Total area of woodland	**116,130**	**100%**

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Woodland area by interpreted forest type

Figure 3 Woodland area by interpreted forest type

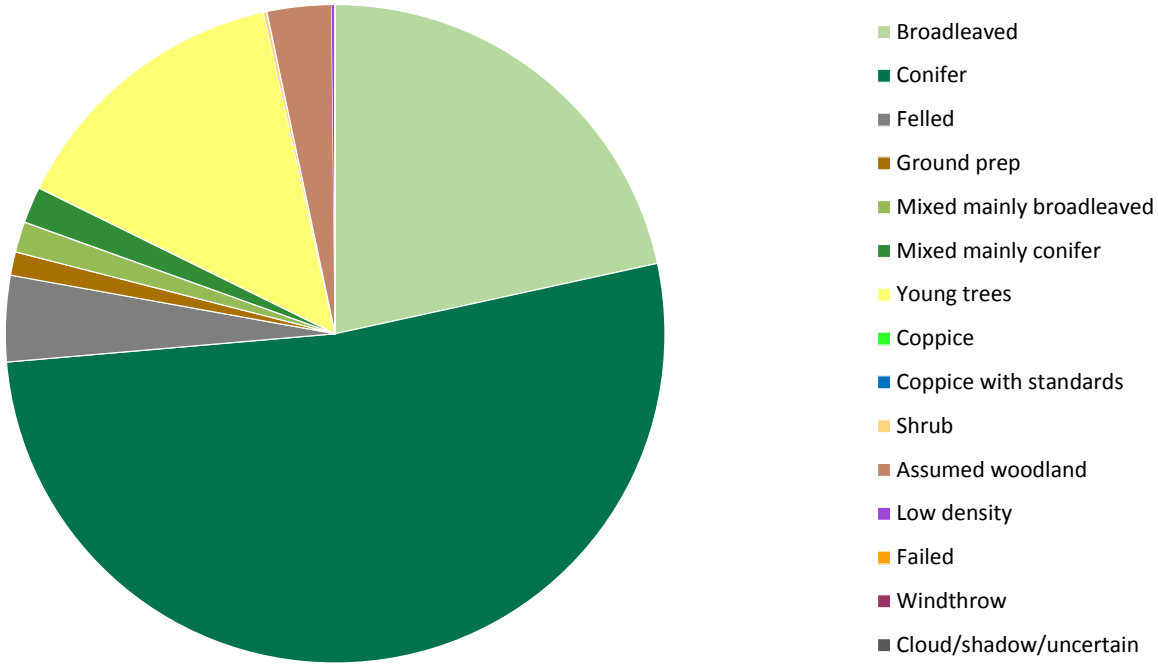

Table 3 Woodland area by interpreted forest type

Forest type	Total area (ha)	% of total area
North East		
Broadleaved	25,047	22%
Conifer	60,449	52%
Felled	4,906	4%
Ground prep	1,339	1%
Mixed mainly broadleaved	1,745	2%
Mixed mainly conifer	2,074	2%
Young trees	16,522	14%
Coppice	12	0%
Coppice with standards	0	0%
Shrub	171	0%
Assumed woodland	3,668	3%
Low density	196	0%
Failed	0	0%
Windthrow	0	0%
Cloud/shadow/uncertain	0	0%
TOTALS	**116,130**	**100%**

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Woodland area by interpreted forest type and woodland size

Figure 4 Woodland area by interpreted forest type and woodland size

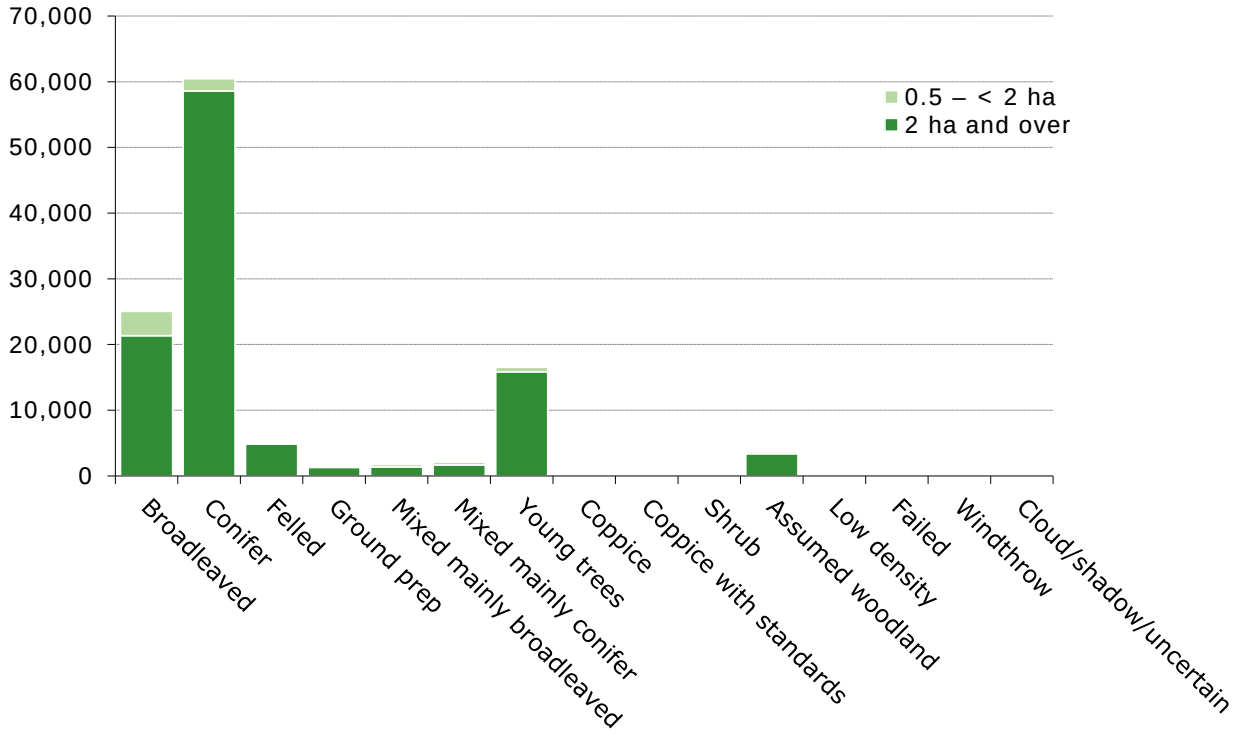

Table 4 Woodland area by interpreted woodland type and woodland size

Forest type	Woodland size		Total area (ha)
	2 ha and over	0.5 – < 2 ha	
North East			
Broadleaved	21,351	3,696	25,047
Conifer	58,585	1,865	60,449
Felled	4,875	31	4,906
Ground prep	1,300	39	1,339
Mixed mainly broadleaved	1,369	376	1,745
Mixed mainly conifer	1,659	415	2,074
Young trees	15,855	666	16,522
Coppice	11	1	12
Coppice with standards	0	0	0
Shrub	120	51	171
Assumed woodland	3,385	283	3,668
Low density	176	20	196
Failed	0	0	0
Windthrow	0	0	0
Cloud/shadow/uncertain	0	0	0
TOTALS	**108,687**	**7,442**	**116,130**

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Woodland area by interpreted forest type and ownership

Figure 5 Woodland area by interpreted forest type and ownership

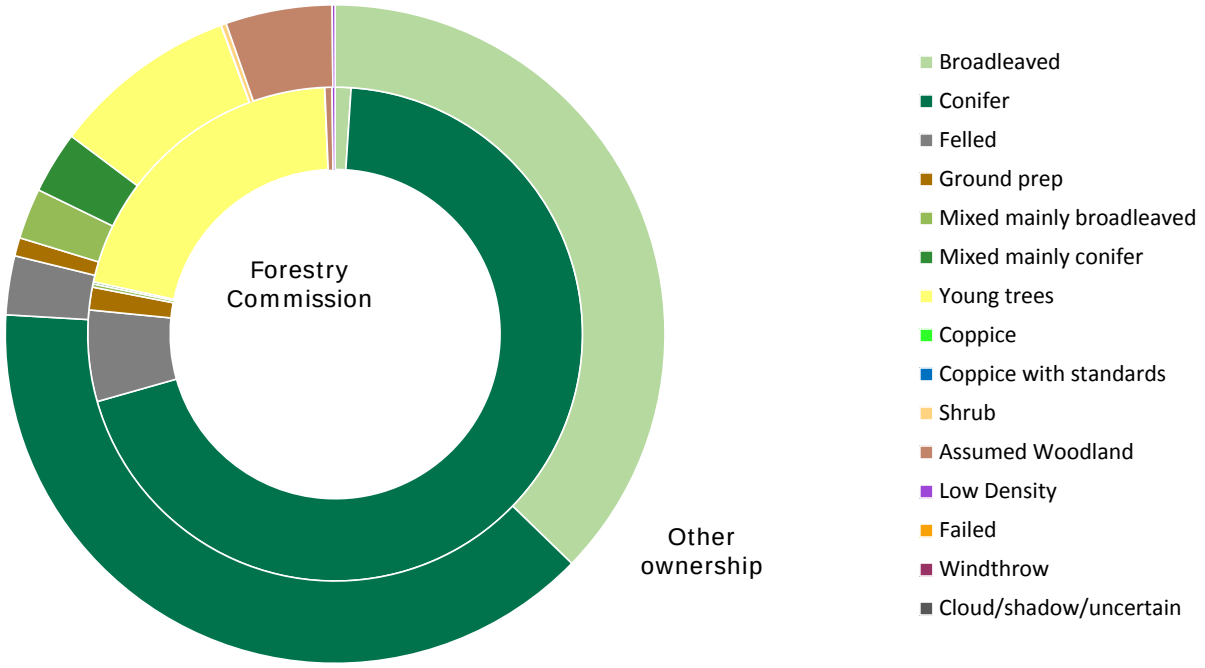

Table 5 Woodland area by interpreted forest type and ownership

Forest type	Forestry Commission		Other ownership	
	Area (ha)	% of total area	Area (ha)	% of total area
North East				
Broadleaved	520	1%	24,527	37%
Conifer	34,996	70%	25,453	39%
Felled	3,004	6%	1,902	3%
Ground prep	747	1%	591	1%
Mixed mainly broadleaved	107	0%	1,638	2%
Mixed mainly conifer	67	0%	2,007	3%
Young trees	10,526	21%	5,995	9%
Coppice	0	0%	12	0%
Coppice with standards	0	0%	0	0%
Shrub	6	0%	165	0%
Assumed Woodland	235	0%	3,434	5%
Low Density	101	0%	95	0%
Failed	0	0%	0	0%
Windthrow	0	0%	0	0%
Cloud/shadow/uncertain	0	0%	0	0%
TOTALS	**50,311**	**100%**	**65,819**	**100%**

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Woodland area by interpreted forest type, woodland size and ownership

Table 6 Woodland area by interpreted forest type, woodland size and ownership

Forest type	2 ha and over		0.5 – < 2 ha		Total area (ha)
	Forestry Commission	Other	Forestry Commission	Other	
North East					
Broadleaved	513	20,838	7	3,689	25,047
Conifer	34,986	23,599	10	1,854	60,449
Felled	3,004	1,871	0	31	4,906
Ground prep	746	554	2	37	1,339
Mixed mainly broadleaved	107	1,262	0	376	1,745
Mixed mainly conifer	66	1,593	1	413	2,074
Young trees	10,525	5,328	2	667	16,522
Coppice	0	11	0	1	12
Coppice with standards	0	0	0	0	0
Shrub	6	113	0	51	171
Assumed woodland	230	3,156	5	278	3,668
Low Density	101	75	0	20	196
Failed	0	0	0	0	0
Windthrow	0	0	0	0	0
Cloud/shadow/uncertain	0	0	0	0	0
Totals	**50,284**	**58,401**	**27**	**7,418**	**116,130**

Woodland area by size class distribution

Figure 6 Woodland area by size class distribution

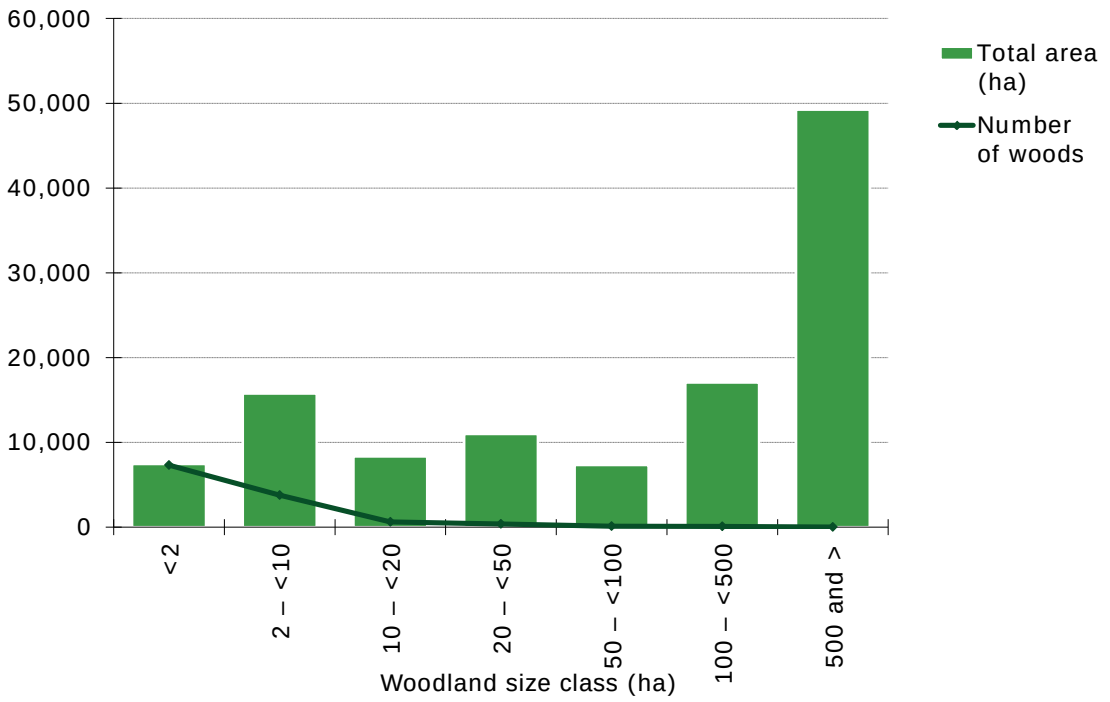

Table 7 Woodland area by size class distribution

Size class (ha)	Total area (ha)	Number of woods	% of total area	Mean wood area (ha)
North East				
<2	7,442	7,306	6%	1
2 – <10	15,762	3,774	14%	4
10 – <20	8,339	598	7%	14
20 – <50	10,979	361	9%	30
50 – <100	7,328	107	6%	68
100 – <500	17,045	87	15%	196
500 and >	49,234	15	42%	3,282
All woods	**116,130**	**12,248**	**100%**	**9**

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Open areas in woodland by land use type

Figure 7 Open areas in woodland by land use type

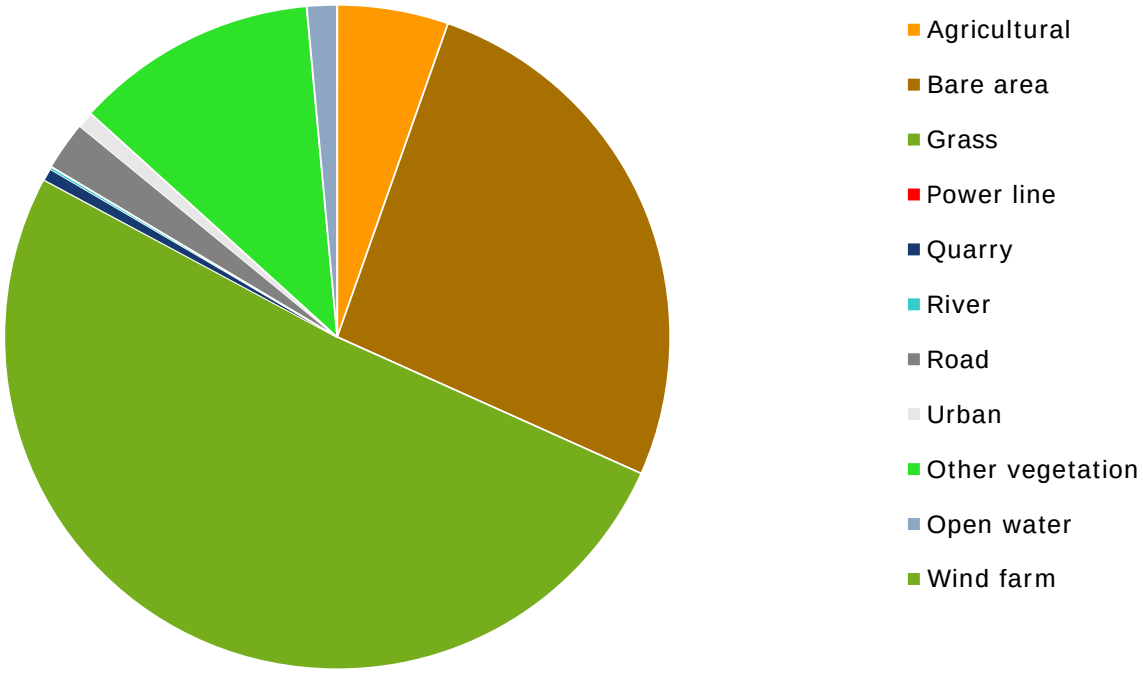

Table 8 Open areas in woodland by land use type

Interpreted open area	Total area (ha)	% of total area
North East		
Agricultural	171	5%
Bare area	832	26%
Grass	1,614	51%
Power line	< 1	0%
Quarry	18	1%
River	4	0%
Road	75	2%
Urban	25	1%
Other vegetation	373	12%
Open water	46	1%
Wind farm	0	0%
TOTALS	**3,158**	**100%**

Net area under canopy

Stocked area by species

Figure 8 Stocked area by principal tree species

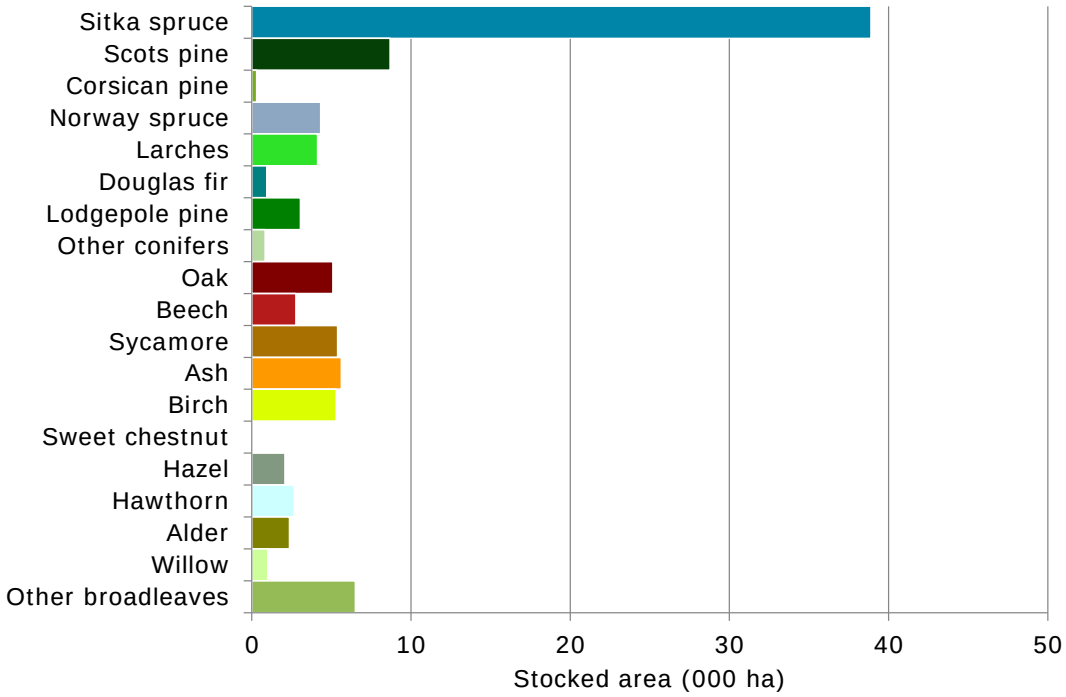

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Table 9 Stocked area by principal tree species

Principal species	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
Conifers				
Sitka spruce	28.7	10.2	*13*	**38.9**
Scots pine	1.9	6.8	*14*	**8.7**
Corsican pine	0.3	< 0.1	*83*	**0.3**
Norway spruce	2.7	1.7	*28*	**4.3**
Larches	1.2	3.0	*19*	**4.1**
Douglas fir	0.3	0.6	*53*	**1.0**
Lodgepole pine	2.1	1.0	*36*	**3.1**
Other conifers	0.4	0.4	*51*	**0.8**
All conifers	**37.6**	**23.8**	***6***	**61.3**
Broadleaves				
Oak	< 0.1	5.0	*17*	**5.1**
Beech	0.1	2.6	*20*	**2.8**
Sycamore	< 0.1	5.3	*15*	**5.4**
Ash	< 0.1	5.6	*16*	**5.6**
Birch	0.1	5.2	*14*	**5.3**
Sweet chestnut	0.0	0.0	-	**0.0**
Hazel	< 0.1	2.1	*26*	**2.1**
Hawthorn	0.0	2.7	*26*	**2.7**
Alder	< 0.1	2.3	*22*	**2.4**
Willow	0.0	1.0	*36*	**1.0**
Other broadleaves	2.1	4.4	*13*	**6.5**
All broadleaves	**2.5**	**36.3**	***5***	**38.9**
All species				
All species	**40.1**	**60.2**	***3***	**100.3**

Figure 9 Stocked area by principal conifer species

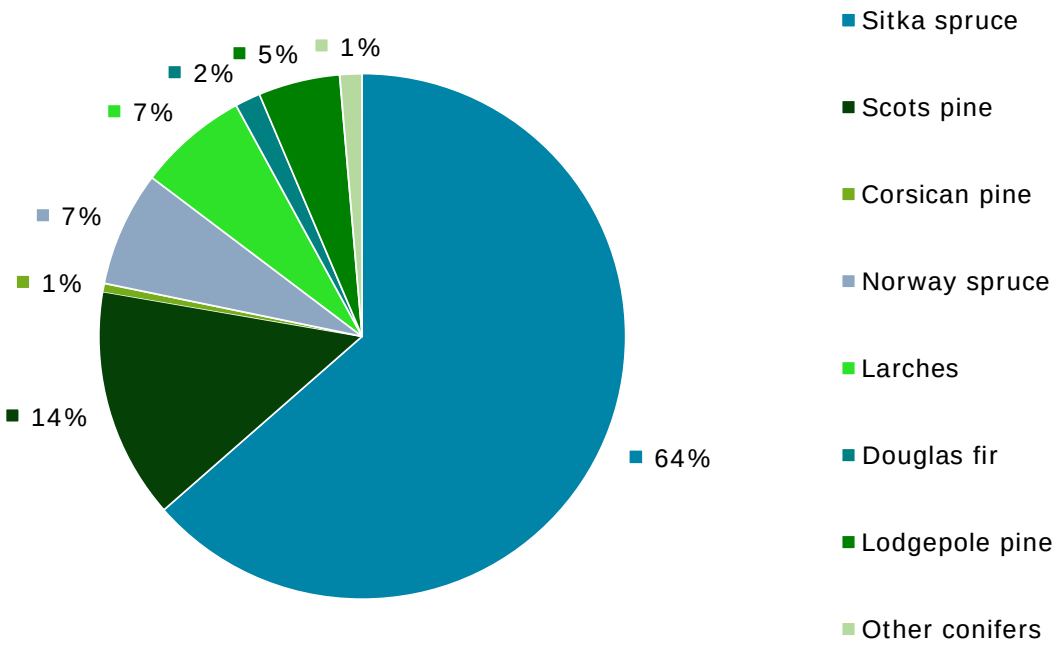
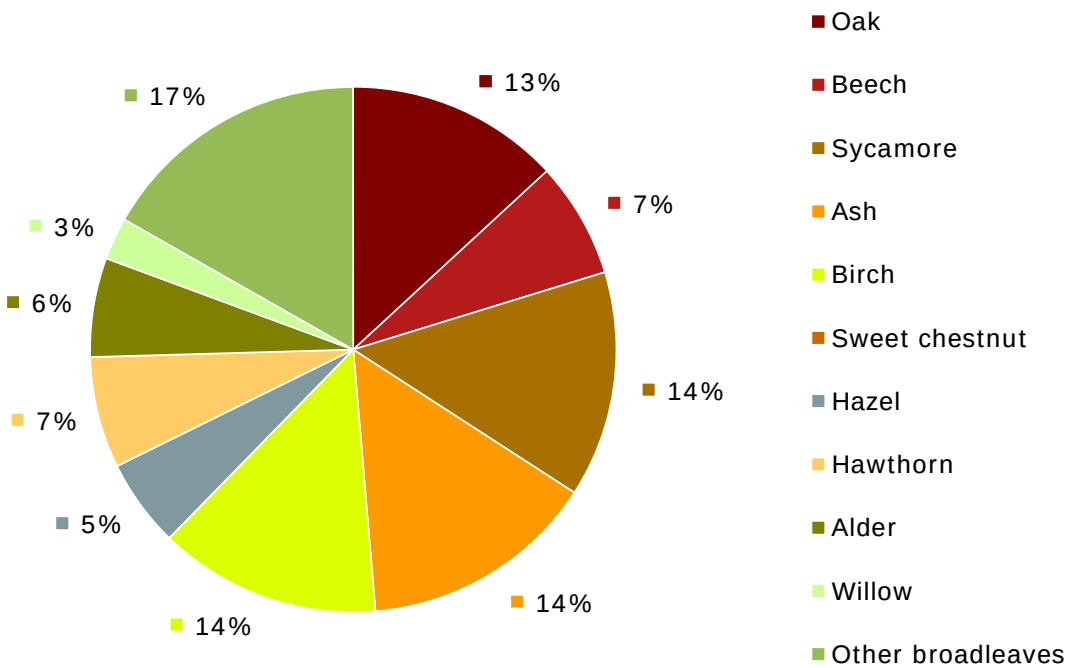


Figure 10 Stocked area by principal broadleaved species



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Stocked area by age class

Figure 11 Stocked area by age class

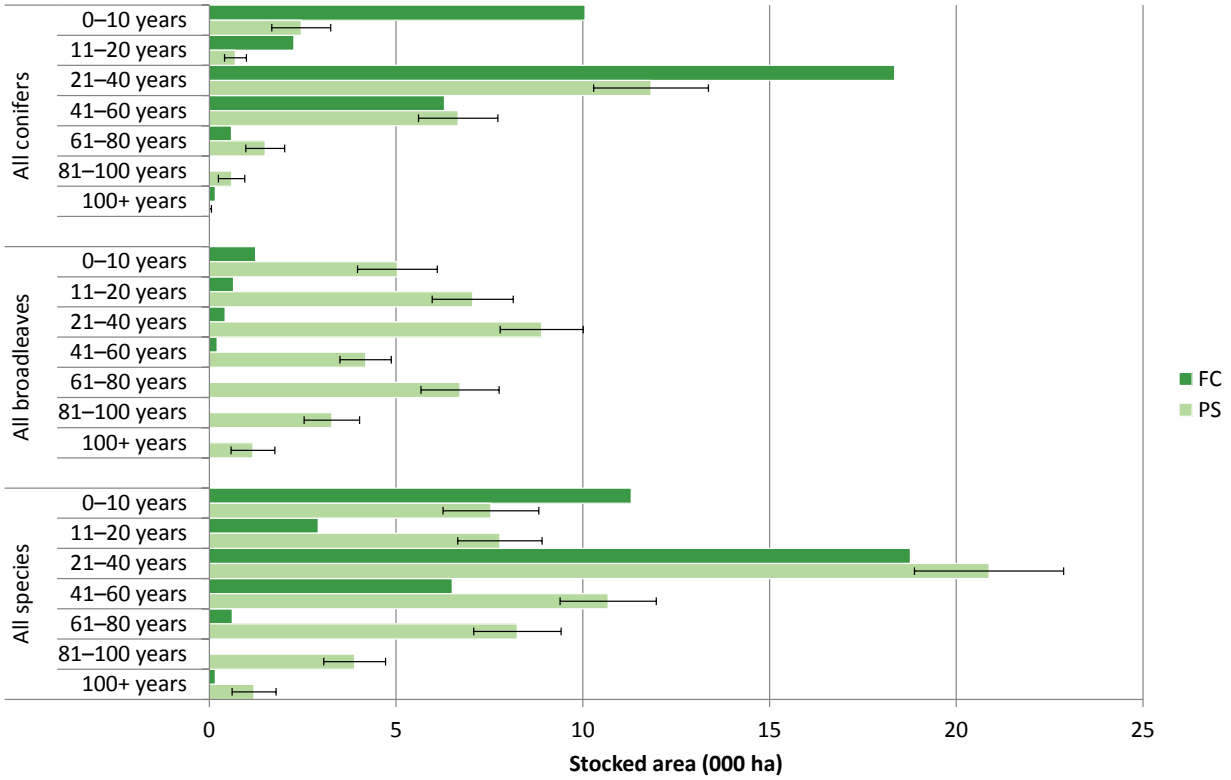

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Table 10 Stocked area by age class

Age class (years)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
All conifers				
0–10	10.1	2.5	*32*	**12.5**
11–20	2.3	0.7	*42*	**3.0**
21–40	18.3	11.8	*13*	**30.2**
41–60	6.3	6.7	*16*	**13.0**
61–80	0.6	1.5	*35*	**2.1**
81–100	< 0.1	0.6	*59*	**0.6**
100+	0.2	< 0.1	*100*	**0.2**
Total	**37.6**	**23.8**	***6***	**61.3**
All broadleaves				
0–10	1.2	5.0	*21*	**6.3**
11–20	0.6	7.1	*15*	**7.7**
21–40	0.4	8.9	*13*	**9.3**
41–60	0.2	4.2	*16*	**4.4**
61–80	< 0.1	6.7	*16*	**6.7**
81–100	< 0.1	3.3	*23*	**3.3**
100+	< 0.1	1.2	*50*	**1.2**
Total	**2.5**	**36.3**	***5***	**38.9**
All species				
0–10	11.3	7.5	*17*	**18.8**
11–20	2.9	7.8	*15*	**10.7**
21–40	18.8	20.9	*10*	**39.6**
41–60	6.5	10.7	*12*	**17.2**
61–80	0.6	8.2	*14*	**8.9**
81–100	< 0.1	3.9	*21*	**3.9**
100+	0.2	1.2	*49*	**1.4**
Total	**40.1**	**60.2**	***3***	**100.3**

Stocked area by mean stand dbh class

Figure 12 Stocked area by mean stand dbh class

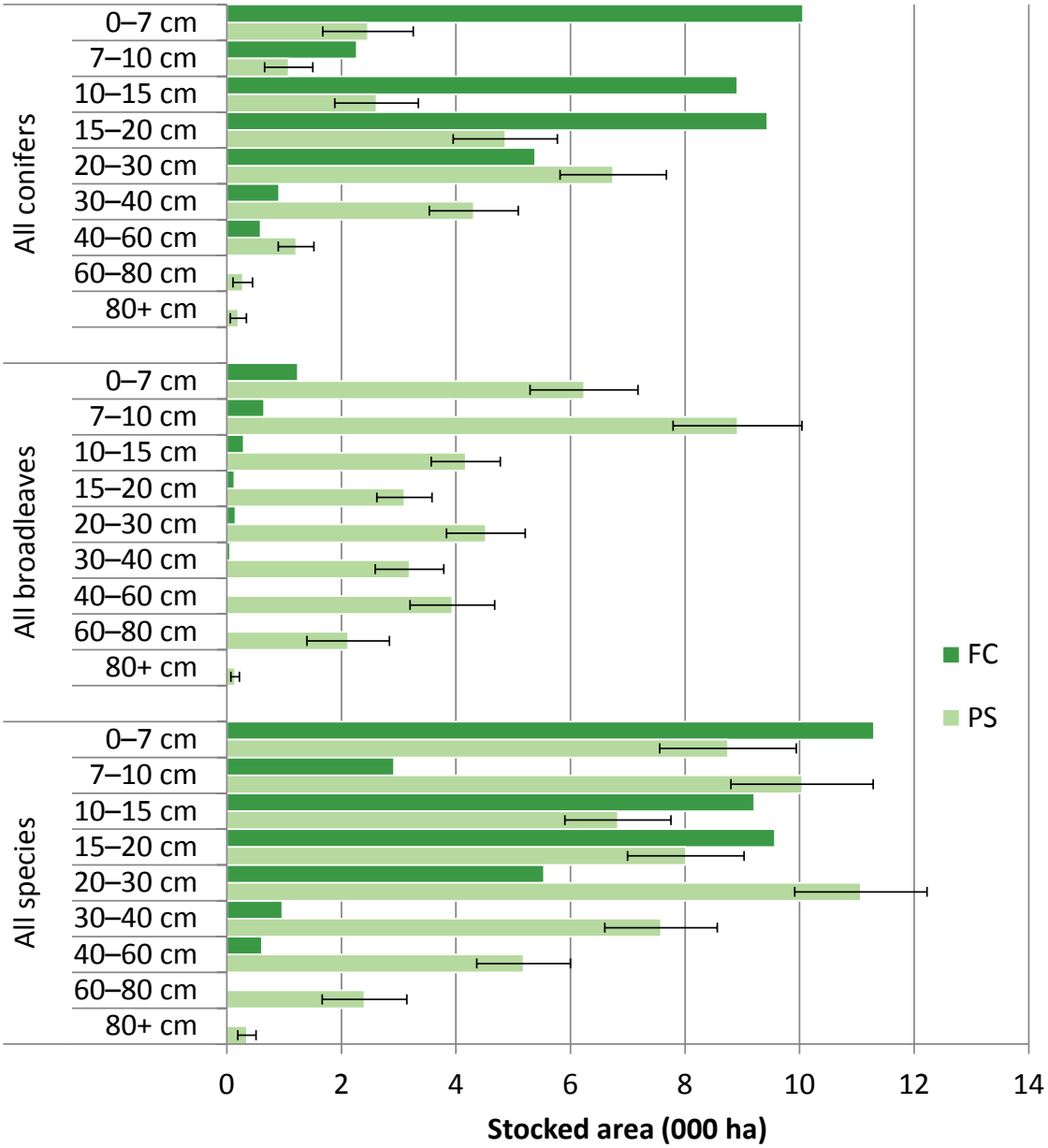

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Table 11 Stocked area by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
All conifers				
0–7	10.1	2.5	*32*	**12.5**
7–10	2.3	1.1	*39*	**3.3**
10–15	8.9	2.6	*28*	**11.5**
15–20	9.4	4.9	*19*	**14.3**
20–30	5.4	6.7	*14*	**12.1**
30–40	0.9	4.3	*18*	**5.2**
40–60	0.6	1.2	*26*	**1.8**
60–80	< 0.1	0.3	*61*	**0.3**
80+	< 0.1	0.2	*69*	**0.2**
Total	**37.6**	**23.8**	***6***	**61.3**
All broadleaves				
0–7	1.2	6.2	*15*	**7.5**
7–10	0.6	8.9	*13*	**9.6**
10–15	0.3	4.2	*14*	**4.5**
15–20	0.1	3.1	*16*	**3.2**
20–30	0.2	4.5	*15*	**4.7**
30–40	< 0.1	3.2	*19*	**3.2**
40–60	< 0.1	3.9	*19*	**4.0**
60–80	< 0.1	2.1	*34*	**2.1**
80+	0.0	0.1	*52*	**0.1**
Total	**2.5**	**36.3**	***5***	**38.9**
All species				
0–7	11.3	8.7	*14*	**20.0**
7–10	2.9	10.0	*12*	**13.0**
10–15	9.2	6.8	*14*	**16.0**
15–20	9.6	8.0	*13*	**17.6**
20–30	5.5	11.1	*10*	**16.6**
30–40	1.0	7.6	*13*	**8.6**
40–60	0.6	5.2	*16*	**5.8**
60–80	< 0.1	2.4	*31*	**2.4**
80+	< 0.1	0.3	*46*	**0.4**
Total	**40.1**	**60.2**	***3***	**100.3**

Clearfelled area

Table 12 Clearfelled area

Clearfelled area	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East	2.3	1.6	*38*	**3.9**

Comparison of mapped area estimates and stocked area estimates

Figure 13 Simplified comparison of mapped area and stocked area

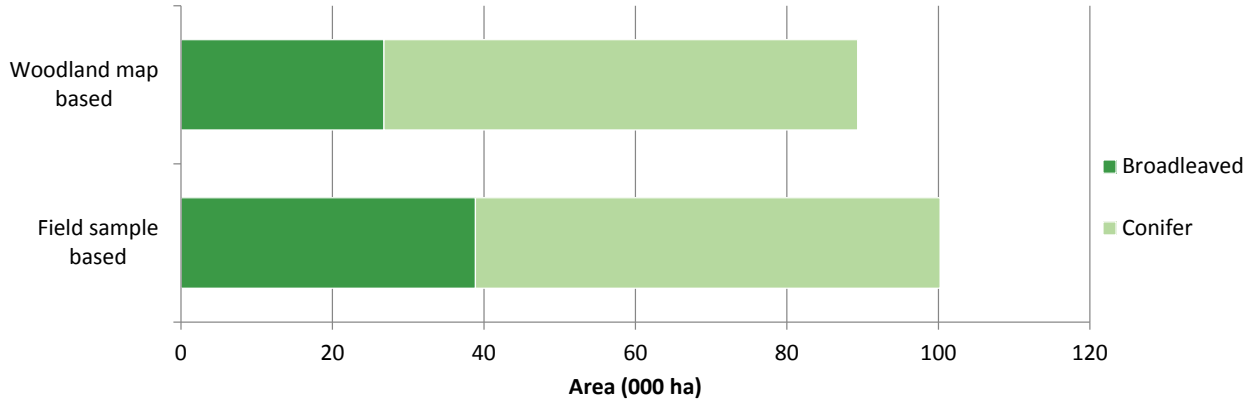

Table 13 Simplified comparison of mapped area and stocked area

	Woodland map based	Field sample based
	area (000 ha)	
North East		
Broadleaved	26.8	38.9
Conifer	62.5	61.3

The broadleaved class includes broadleaved, mixed mainly broadleaved, coppice and coppice with standards. The conifer class includes conifer and mixed mainly conifer. The transition class is excluded from this table as it is not possible to differentiate between conifer and broadleaves with aerial photography interpretation. The area of young trees is included in the field sample based estimates.

Standing volume

Standing volume by species

Figure 14 Standing volume by principal tree species

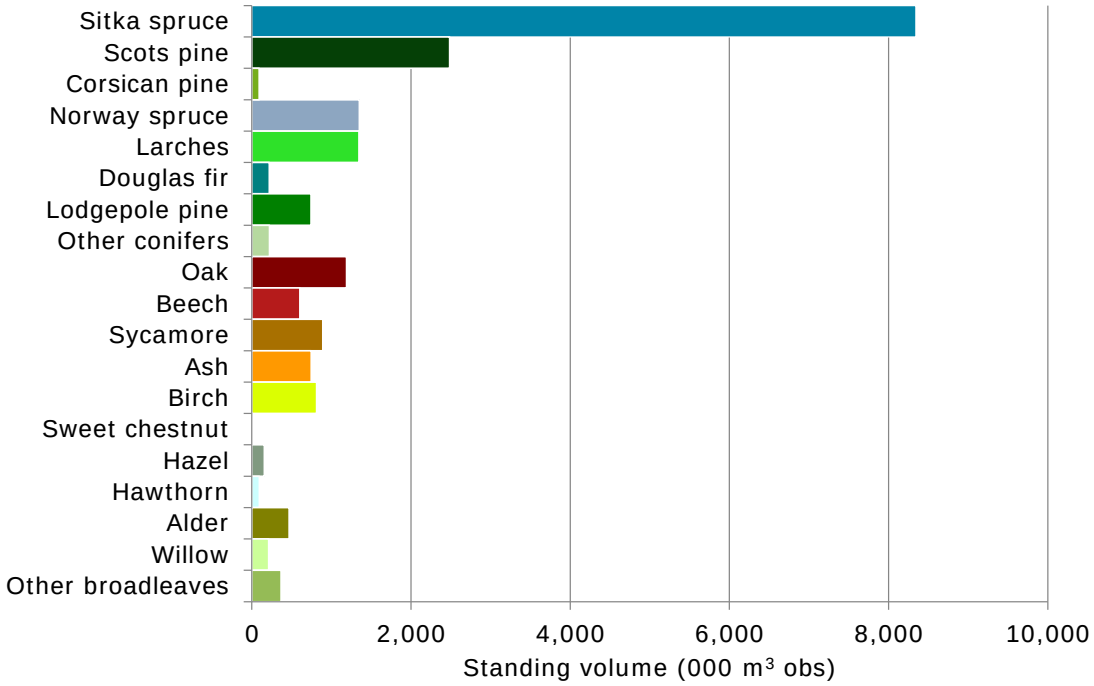

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Table 14 Standing volume by principal tree species

Principal species	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
Conifers				
Sitka spruce	4,963	3,379	*17*	**8,342**
Scots pine	329	2,156	*16*	**2,485**
Corsican pine	53	41	*89*	**94**
Norway spruce	575	777	*31*	**1,353**
Larches	174	1,172	*27*	**1,345**
Douglas fir	61	160	*52*	**221**
Lodgepole pine	384	359	*41*	**743**
Other conifers	72	150	*52*	**222**
All conifers	**6,611**	**8,211**	***8***	**14,822**
Broadleaves				
Oak	9	1,182	*23*	**1,191**
Beech	20	584	*27*	**604**
Sycamore	6	886	*20*	**892**
Ash	< 1	748	*18*	**748**
Birch	21	794	*20*	**815**
Sweet chestnut	0	0	-	**0**
Hazel	< 1	157	*28*	**157**
Hawthorn	0	96	*34*	**96**
Alder	6	464	*29*	**470**
Willow	0	213	*47*	**213**
Other broadleaves	57	312	*20*	**369**
All broadleaves	**121**	**5,436**	***7***	**5,557**
All species				
All species	**6,731**	**13,663**	***5***	**20,395**

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Figure 15 Standing volume by principal conifer species

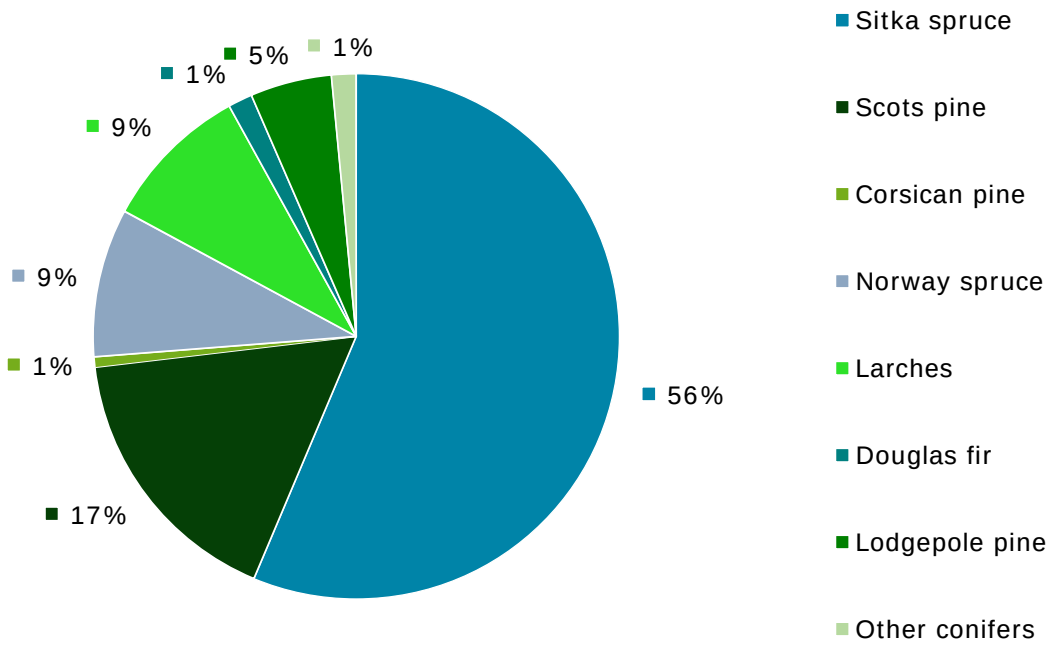
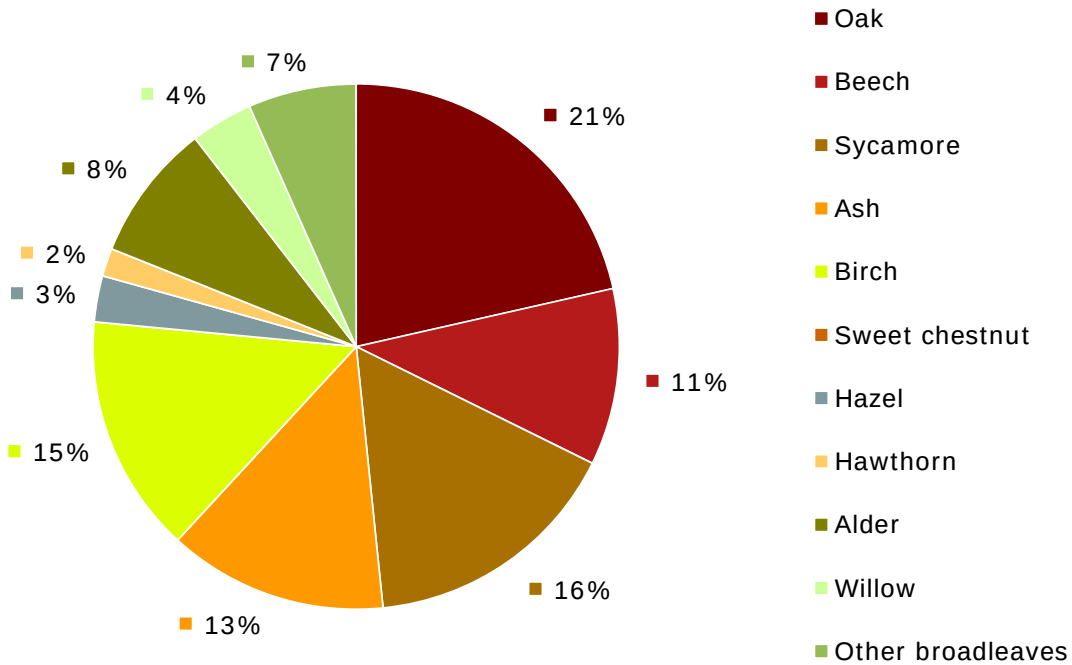


Figure 16 Standing volume by principal broadleaved species



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Standing volume by age class

Figure 17 Standing volume by age class

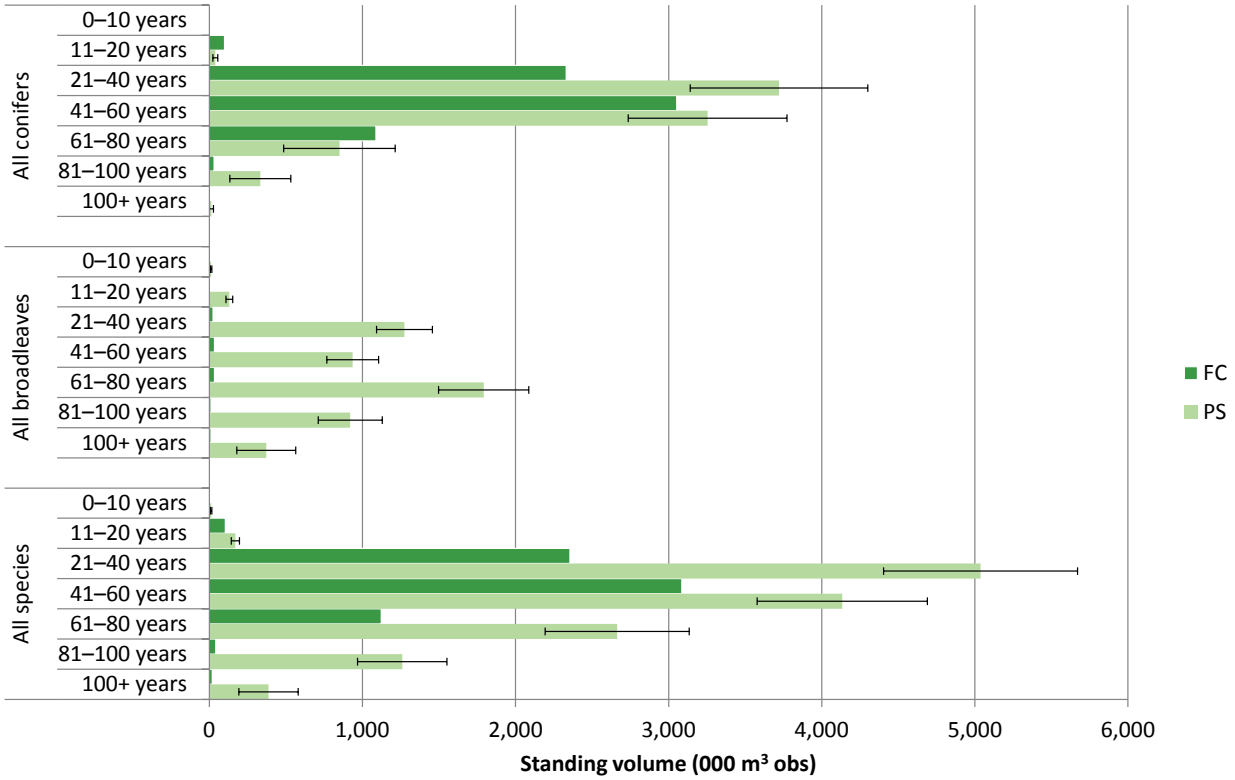

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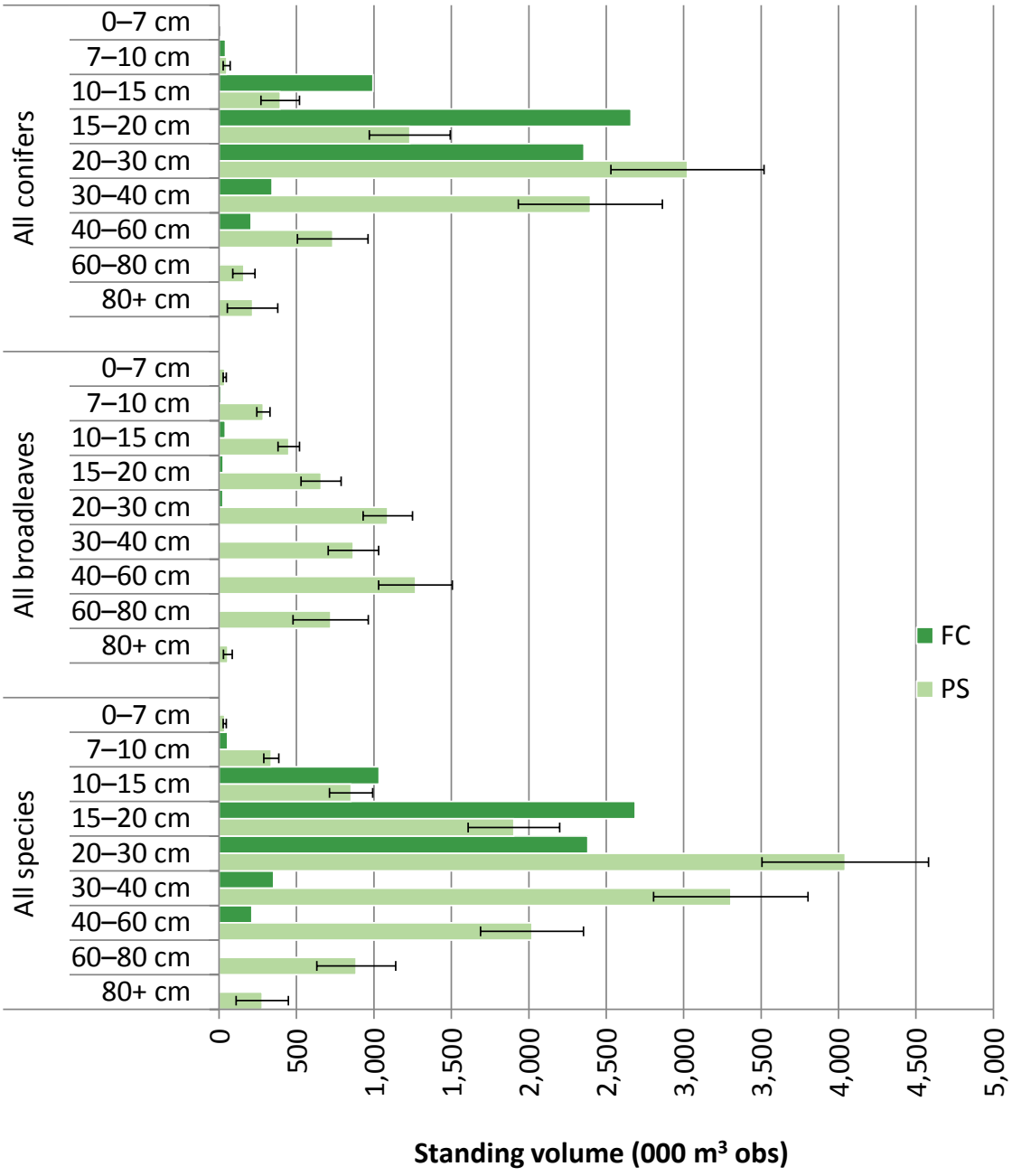
Table 15 Standing volume by age class

Age class (years)	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
All conifers				
0–10	< 1	< 1	*64*	**< 1**
11–20	99	39	*40*	**138**
21–40	2,330	3,721	*16*	**6,051**
41–60	3,053	3,254	*16*	**6,307**
61–80	1,089	850	*43*	**1,939**
81–100	31	333	*60*	**364**
100+	8	14	*100*	**22**
Total	**6,611**	**8,211**	***8***	**14,822**
All broadleaves				
0–10	< 1	12	*37*	**12**
11–20	6	131	*17*	**137**
21–40	25	1,274	*14*	**1,299**
41–60	34	936	*18*	**970**
61–80	34	1,792	*16*	**1,825**
81–100	11	920	*23*	**931**
100+	11	372	*52*	**383**
Total	**121**	**5,436**	***7***	**5,557**
All species				
0–10	< 1	12	*36*	**12**
11–20	105	170	*16*	**276**
21–40	2,355	5,037	*13*	**7,392**
41–60	3,087	4,133	*13*	**7,220**
61–80	1,122	2,664	*18*	**3,786**
81–100	42	1,260	*23*	**1,302**
100+	19	387	*50*	**406**
Total	**6,731**	**13,663**	***5***	**20,395**

Standing volume by mean stand dbh class

Figure 18 Standing volume by stand mean dbh class



Go to Part 2

Table 16 Standing volume by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
All conifers				
0–7	< 1	< 1	*97*	**< 1**
7–10	41	49	*45*	**91**
10–15	994	396	*31*	**1,390**
15–20	2,661	1,232	*21*	**3,893**
20–30	2,357	3,025	*16*	**5,381**
30–40	342	2,398	*19*	**2,740**
40–60	208	735	*31*	**943**
60–80	7	161	*45*	**167**
80+	< 1	217	*76*	**217**
Total	**6,611**	**8,211**	***8***	**14,822**
All broadleaves				
0–7	< 1	36	*28*	**37**
7–10	14	286	*15*	**301**
10–15	40	451	*15*	**490**
15–20	27	659	*20*	**686**
20–30	25	1,090	*15*	**1,114**
30–40	10	867	*19*	**878**
40–60	4	1,269	*19*	**1,273**
60–80	< 1	721	*34*	**722**
80+	< 1	57	*50*	**57**
Total	**121**	**5,436**	***7***	**5,557**
All species				
0–7	< 1	37	*28*	**37**
7–10	55	337	*14*	**393**
10–15	1,034	853	*16*	**1,886**
15–20	2,688	1,904	*16*	**4,592**
20–30	2,381	4,044	*13*	**6,425**
30–40	353	3,304	*15*	**3,657**
40–60	212	2,021	*16*	**2,232**
60–80	7	886	*29*	**893**
80+	< 1	279	*60*	**279**
Total	**6,731**	**13,663**	***5***	**20,395**

Number of measureable trees

Number of measureable trees by species

Figure 19 Number of measureable trees by principal tree species

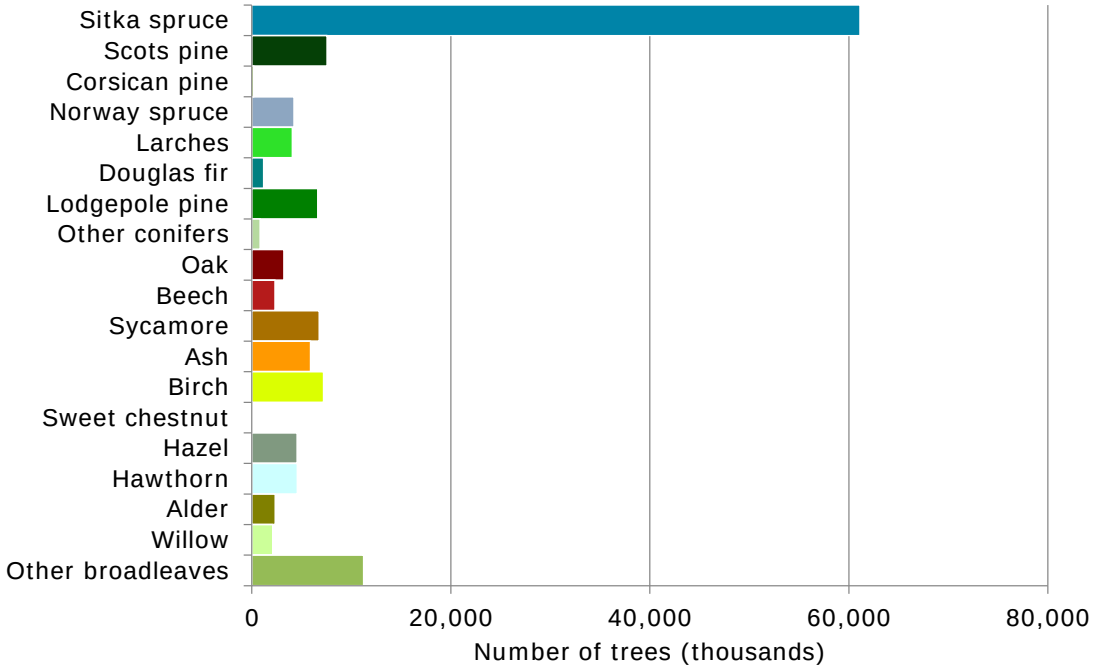


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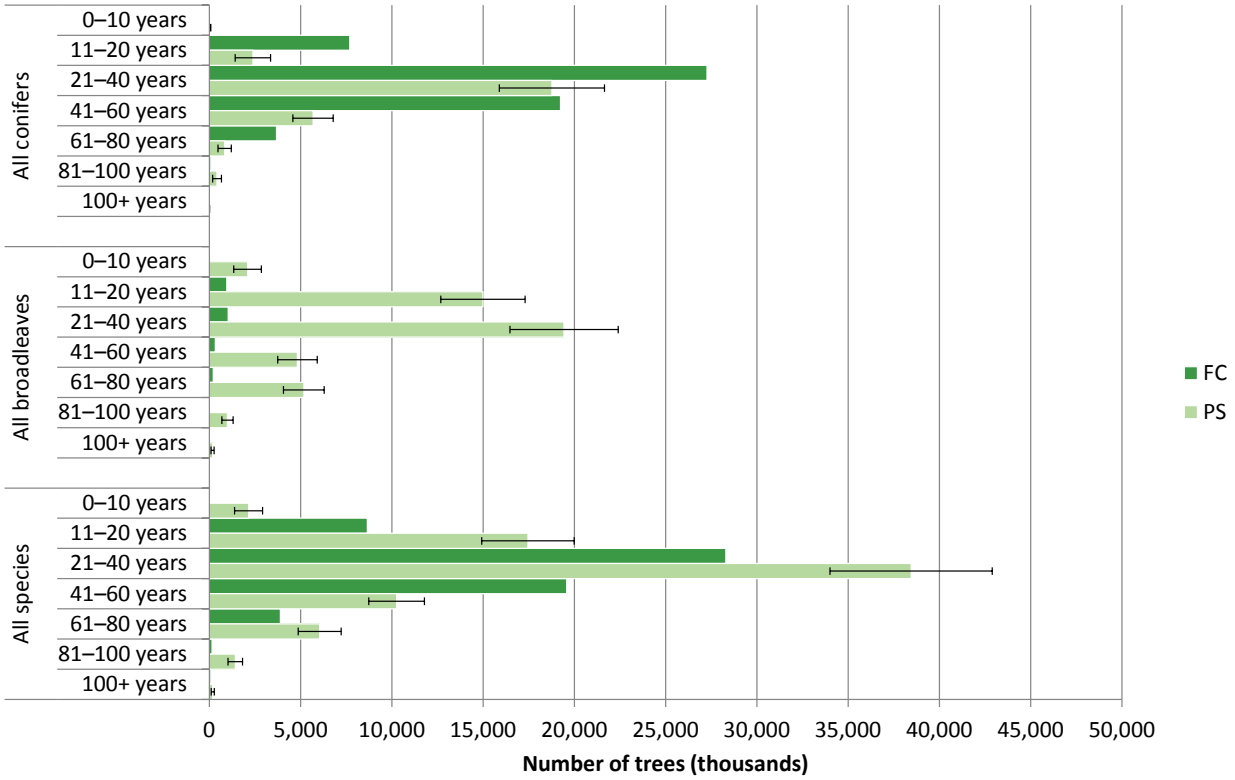
Table 17 Number of measureable trees by principal tree species

Principal species	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
Conifers				
Sitka spruce	45,638	15,468	*17*	**61,106**
Scots pine	1,953	5,621	*18*	**7,574**
Corsican pine	180	24	*80*	**204**
Norway spruce	2,483	1,763	*34*	**4,246**
Larches	1,762	2,327	*19*	**4,089**
Douglas fir	476	727	*76*	**1,203**
Lodgepole pine	4,960	1,684	*34*	**6,644**
Other conifers	569	285	*52*	**854**
All conifers	**58,022**	**28,155**	***9***	**86,177**
Broadleaves				
Oak	57	3,187	*18*	**3,244**
Beech	136	2,204	*25*	**2,340**
Sycamore	40	6,753	*17*	**6,794**
Ash	3	5,916	*22*	**5,919**
Birch	287	6,942	*17*	**7,229**
Sweet chestnut	0	0	-	**0**
Hazel	2	4,562	*25*	**4,564**
Hawthorn	0	4,587	*40*	**4,587**
Alder	91	2,268	*24*	**2,359**
Willow	0	2,110	*40*	**2,110**
Other broadleaves	2,061	9,187	*19*	**11,248**
All broadleaves	**2,677**	**47,697**	***7***	**50,374**
All species				
All species	**60,699**	**75,970**	***6***	**136,669**

Number of measureable trees by age class

Figure 20 Number of measureable trees by age class



Go to Part 2

Table 18 Number of measureable trees by age class

Age class (years)	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
All conifers				
0–10	44	47	*71*	**91**
11–20	7,697	2,388	*41*	**10,085**
21–40	27,267	18,771	*15*	**46,037**
41–60	19,240	5,681	*19*	**24,921**
61–80	3,676	841	*43*	**4,518**
81–100	76	422	*57*	**499**
100+	22	5	*100*	**27**
Total	**58,022**	**28,155**	***9***	**86,177**
All broadleaves				
0–10	7	2,096	*36*	**2,103**
11–20	960	14,992	*15*	**15,952**
21–40	1,033	19,434	*15*	**20,467**
41–60	332	4,824	*22*	**5,156**
61–80	221	5,178	*22*	**5,399**
81–100	69	994	*31*	**1,063**
100+	55	180	*47*	**235**
Total	**2,677**	**47,697**	***7***	**50,374**
All species				
0–10	51	2,152	*36*	**2,203**
11–20	8,658	17,456	*14*	**26,114**
21–40	28,300	38,450	*12*	**66,750**
41–60	19,572	10,256	*15*	**29,828**
61–80	3,897	6,046	*19*	**9,943**
81–100	145	1,424	*28*	**1,569**
100+	77	186	*45*	**262**
Total	**60,699**	**75,970**	***6***	**136,669**

Number of measureable trees by mean stand dbh class

Figure 21 Number of measureable trees by mean stand dbh class

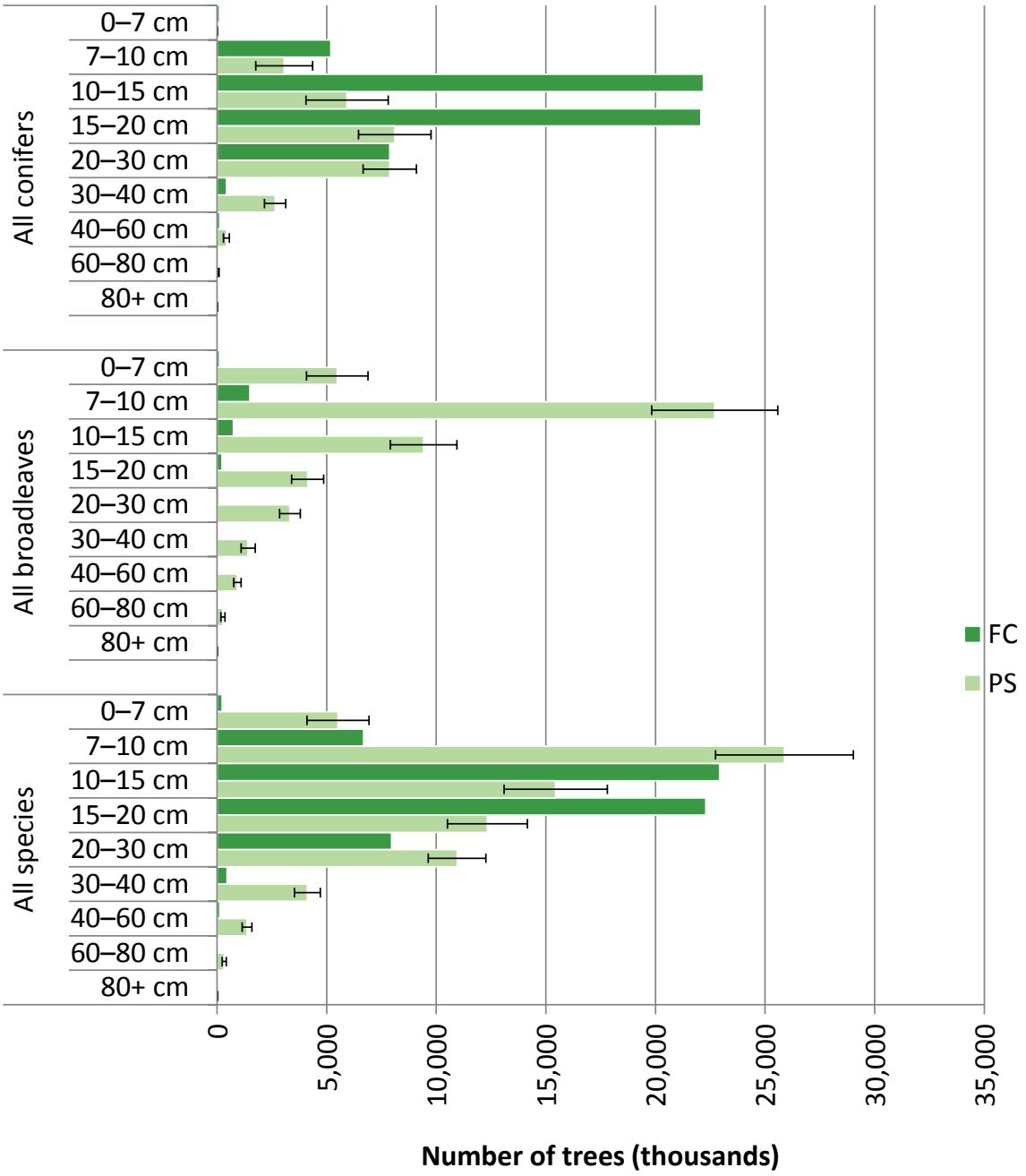


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Table 19 Number of measureable trees by mean stand dbh class

Mean stand DBH	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
All conifers				
0–7 cm	122	6	*97*	**128**
7–10 cm	5,188	3,064	*42*	**8,252**
10–15 cm	22,185	5,932	*32*	**28,118**
15–20 cm	22,076	8,109	*20*	**30,184**
20–30 cm	7,877	7,883	*15*	**15,760**
30–40 cm	439	2,652	*18*	**3,091**
40–60 cm	132	432	*31*	**564**
60–80 cm	2	60	*51*	**62**
80+ cm	< 1	17	*72*	**17**
Total	**58,022**	**28,155**	***9***	**86,177**
All broadleaves				
0–7 cm	115	5,486	*26*	**5,601**
7–10 cm	1,496	22,702	*13*	**24,197**
10–15 cm	744	9,419	*16*	**10,163**
15–20 cm	218	4,138	*18*	**4,356**
20–30 cm	86	3,326	*14*	**3,412**
30–40 cm	16	1,421	*23*	**1,436**
40–60 cm	3	927	*19*	**930**
60–80 cm	< 1	268	*34*	**268**
80+ cm	< 1	9	*51*	**9**
Total	**2,677**	**47,697**	***7***	**50,374**
All species				
0–7 cm	238	5,516	*26*	**5,754**
7–10 cm	6,683	25,881	*12*	**32,564**
10–15 cm	22,930	15,444	*15*	**38,374**
15–20 cm	22,293	12,336	*15*	**34,629**
20–30 cm	7,963	10,949	*12*	**18,912**
30–40 cm	455	4,117	*14*	**4,572**
40–60 cm	135	1,370	*16*	**1,505**
60–80 cm	2	329	*29*	**332**
80+ cm	< 1	27	*50*	**27**
Total	**60,699**	**75,970**	***6***	**136,669**

Biomass stocks in live woodland trees

Biomass stocks by species

Figure 22 Biomass stocks by principal tree species

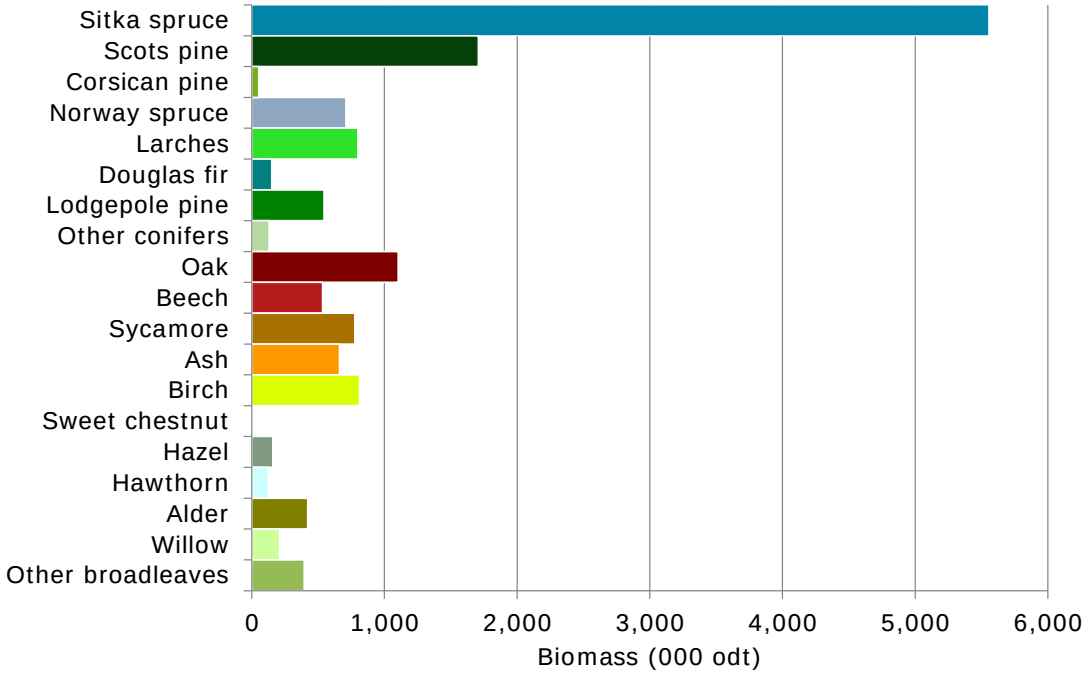

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Table 20 Biomass stocks by principal tree species

Principal species	FC	Private sector		Total
	biomass (000 odt)	biomass (000 odt)	*SE%*	biomass (000 odt)
Conifers				
Sitka spruce	3,458	2,097	*16*	**5,555**
Scots pine	243	1,465	*15*	**1,708**
Corsican pine	31	22	*89*	**53**
Norway spruce	322	387	*30*	**709**
Larches	122	679	*26*	**801**
Douglas fir	45	106	*53*	**151**
Lodgepole pine	297	248	*41*	**545**
Other conifers	43	88	*52*	**131**
All conifers	**4,561**	**5,107**	***7***	**9,669**
Broadleaves				
Oak	9	1,095	*22*	**1,104**
Beech	19	514	*26*	**533**
Sycamore	6	771	*19*	**776**
Ash	< 1	661	*18*	**661**
Birch	20	792	*19*	**813**
Sweet chestnut	0	0	-	**0**
Hazel	< 1	159	*27*	**159**
Hawthorn	0	126	*34*	**126**
Alder	5	416	*30*	**422**
Willow	0	210	*45*	**210**
Other broadleaves	61	335	*18*	**396**
All broadleaves	**120**	**5,088**	***7***	**5,208**
All species				
All species	**4,682**	**10,207**	***5***	**14,889**

Carbon stocks in live woodland trees

Carbon stocks by species

Figure 23 Carbon stocks by principal tree species

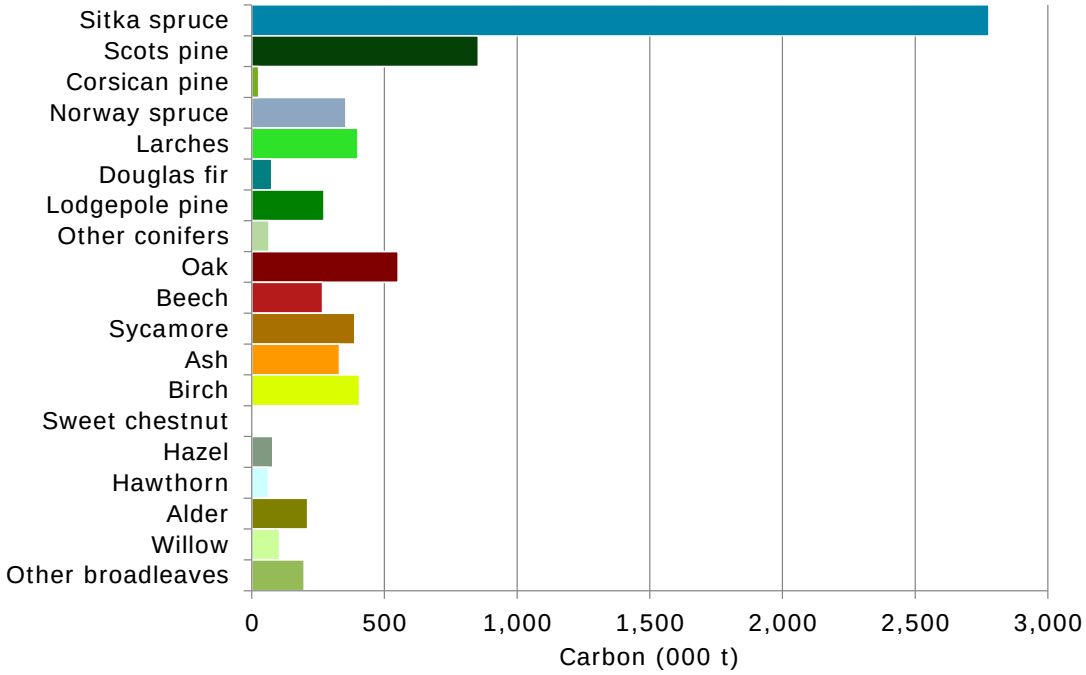

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Table 21 Carbon stocks by principal tree species

Principal species	FC	Private sector		Total
	carbon (000 t)	carbon (000 t)	*SE%*	carbon (000 t)
Conifers				
Sitka spruce	1,729	1,048	*16*	**2,778**
Scots pine	121	732	*15*	**854**
Corsican pine	16	11	*89*	**27**
Norway spruce	161	194	*30*	**355**
Larches	61	339	*26*	**400**
Douglas fir	22	53	*53*	**76**
Lodgepole pine	149	124	*41*	**273**
Other conifers	21	44	*52*	**65**
All conifers	**2,281**	**2,554**	***7***	**4,834**
Broadleaves				
Oak	4	548	*22*	**552**
Beech	10	257	*26*	**267**
Sycamore	3	385	*19*	**388**
Ash	< 1	331	*18*	**331**
Birch	10	396	*19*	**406**
Sweet chestnut	0	0	-	**0**
Hazel	< 1	80	*27*	**80**
Hawthorn	0	63	*34*	**63**
Alder	3	208	*30*	**211**
Willow	0	105	*45*	**105**
Other broadleaves	30	167	*18*	**198**
All broadleaves	**60**	**2,544**	***7***	**2,604**
All species				
All species	**2,341**	**5,104**	***5***	**7,445**

Existing woodland management information and economic viability data (PS only)

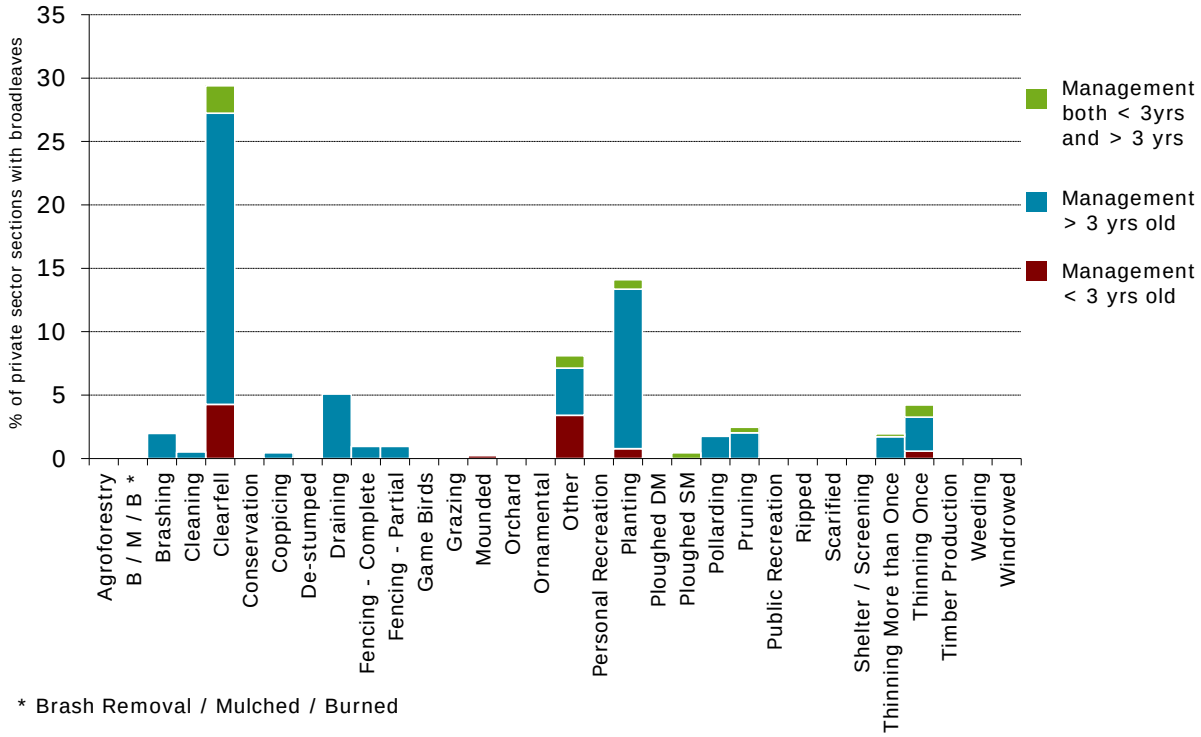
Sample square distribution

Table 22 Sample square distribution

Number of squares surveyed	Number of squares surveyed	Number of Private sector squares surveyed	Number of Private sector squares containing coniferous species	Number of Private sector squares containing broadleaved species
North East	186	160	125	128

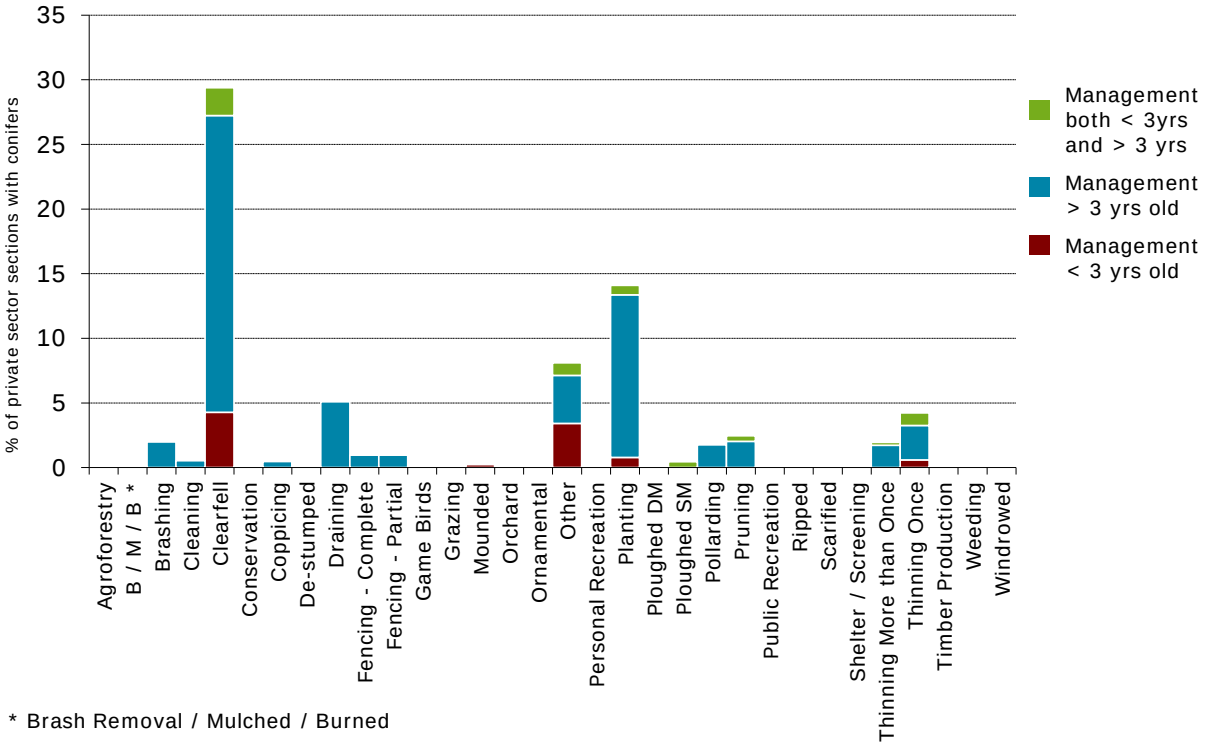
Evidence of management

Figure 24 Evidence of management in PS broadleaf sections



* Brash Removal / Mulched / Burned

Figure 25 Evidence of management in PS conifer sections



* Brash Removal / Mulched / Burned

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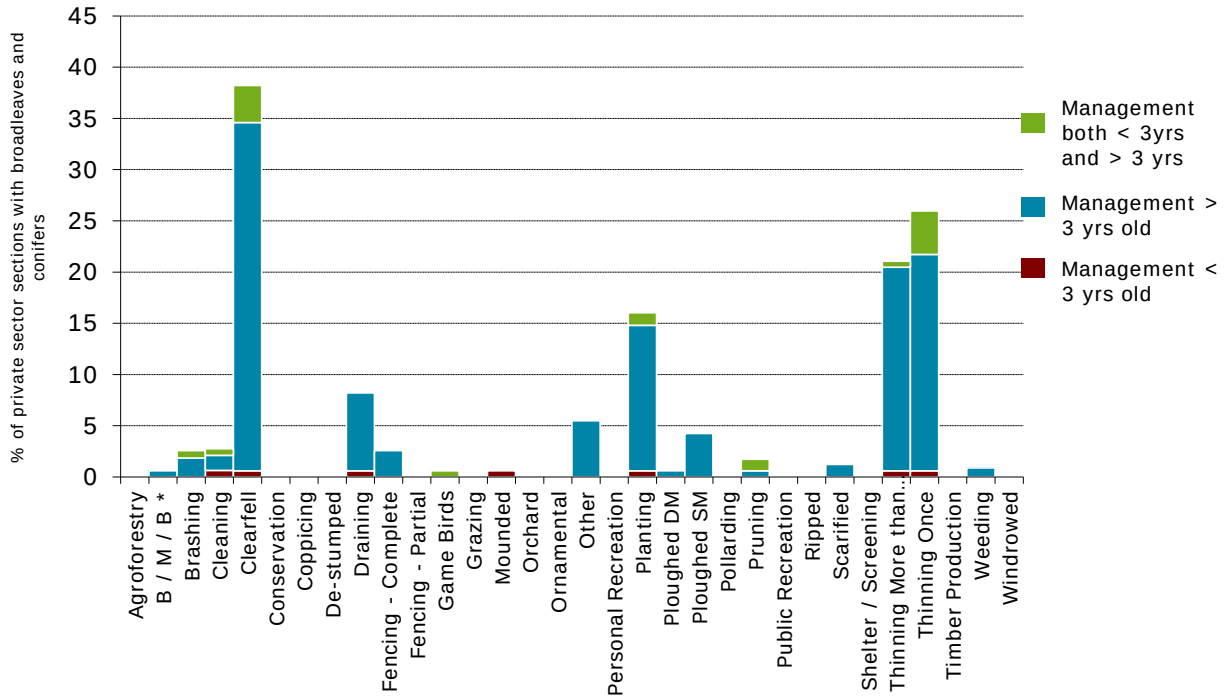
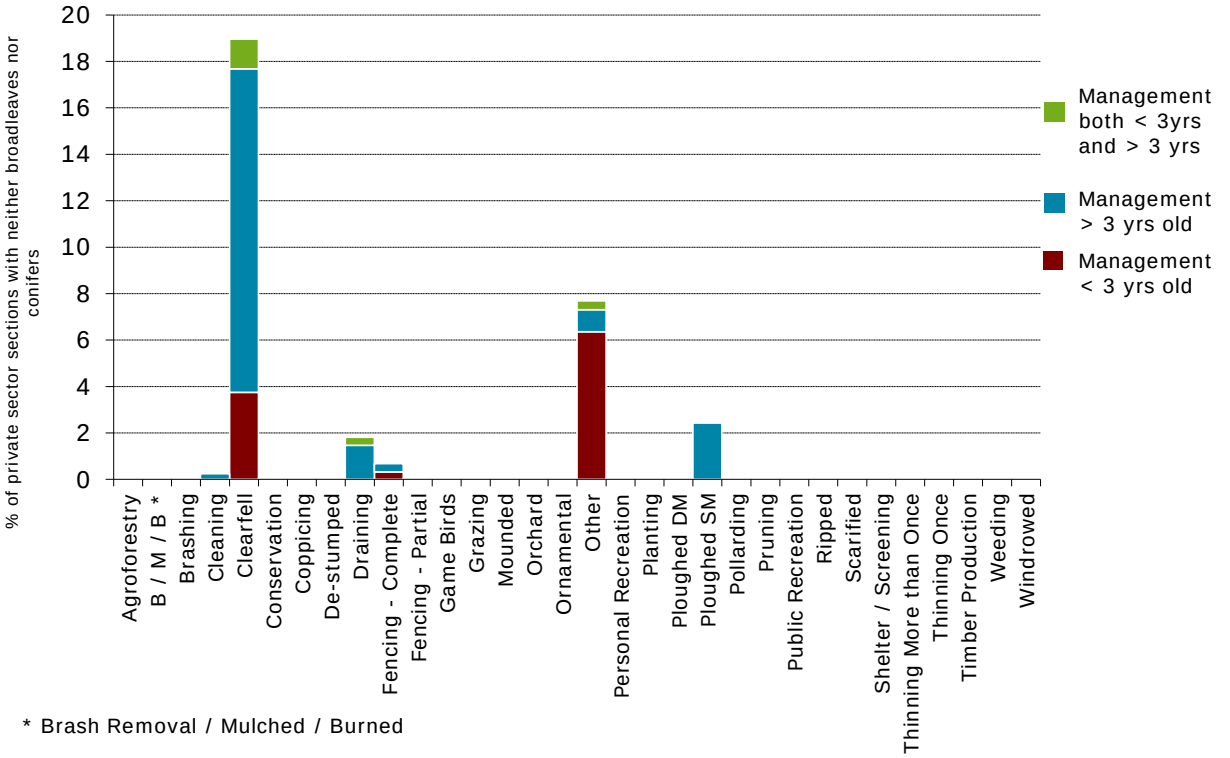
Figure 26 Evidence of management in PS mixed broadleaf/conifer sections



* Brash Removal / Mulched / Burned

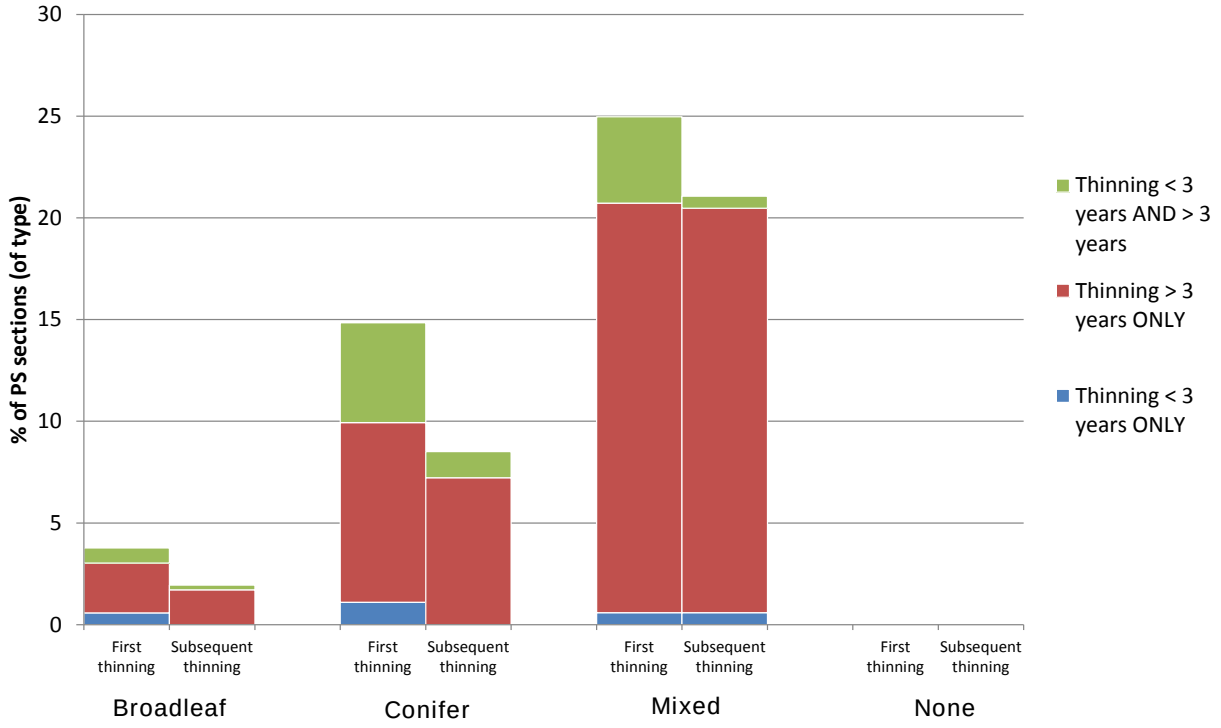
Figure 27 Evidence of management in PS sections with no broadleaf or conifer



* Brash Removal / Mulched / Burned

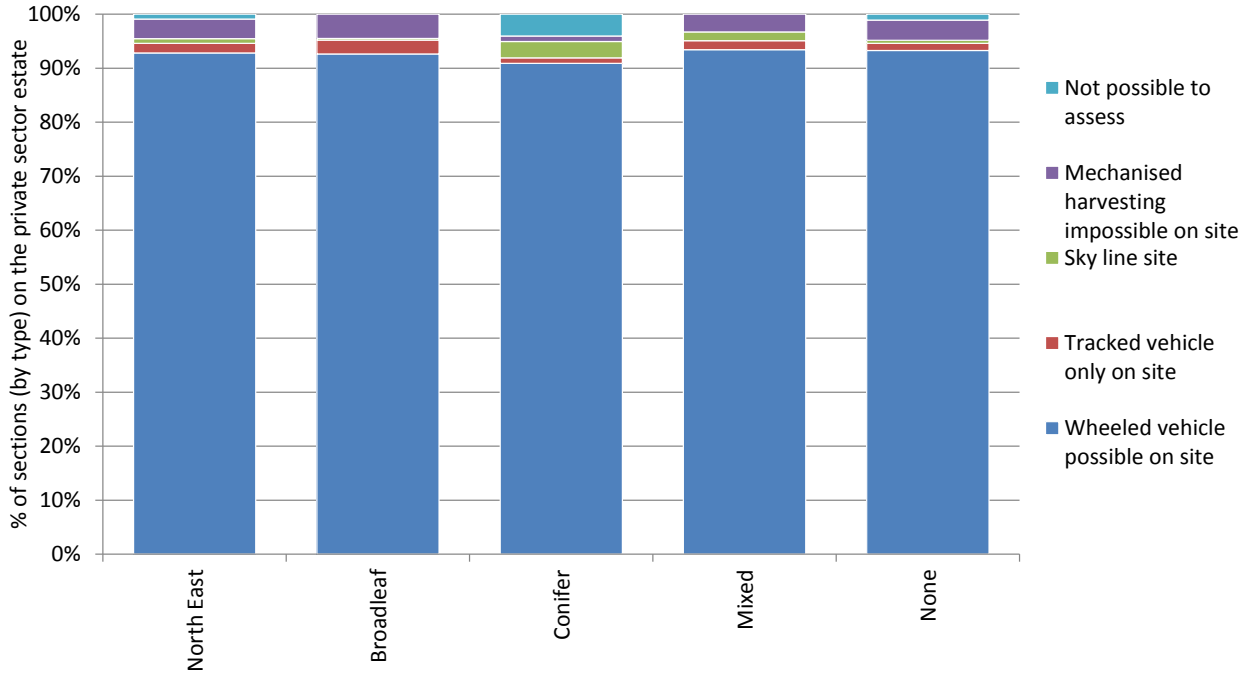
Evidence of thinning

Figure 28 Evidence of thinning



Suitability for harvesting

Figure 29 Suitability for harvesting



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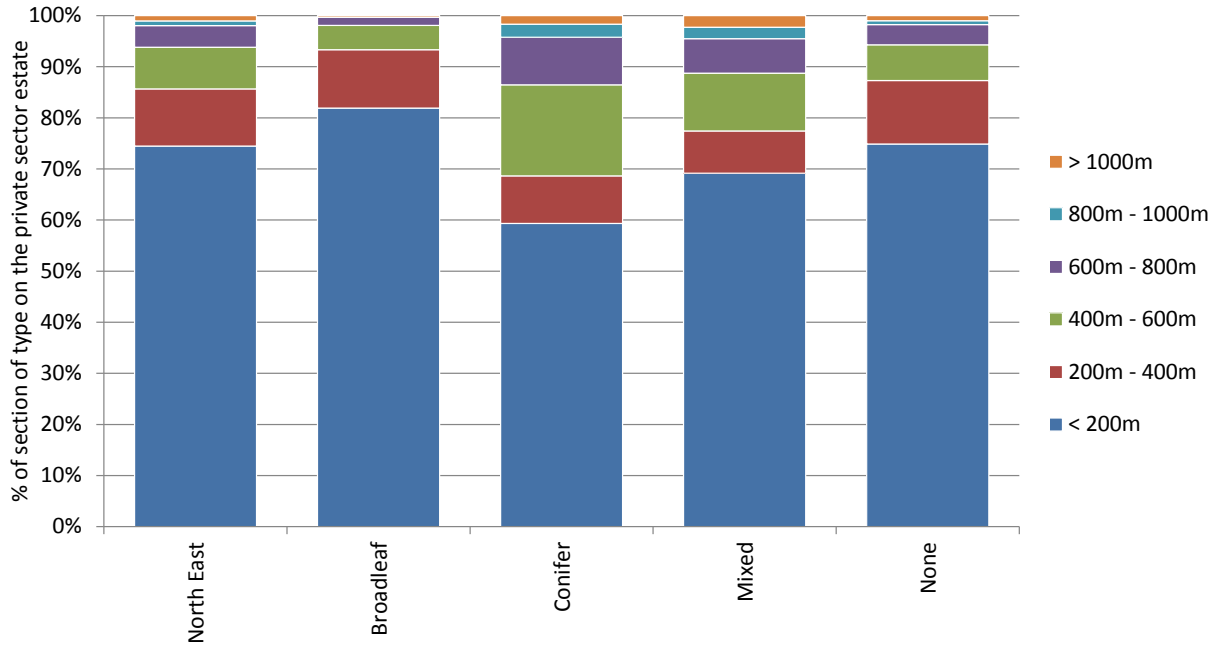
Distance to road

Figure 30 Distance to road



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Type of road or ride

Figure 31 Road or ride in survey square

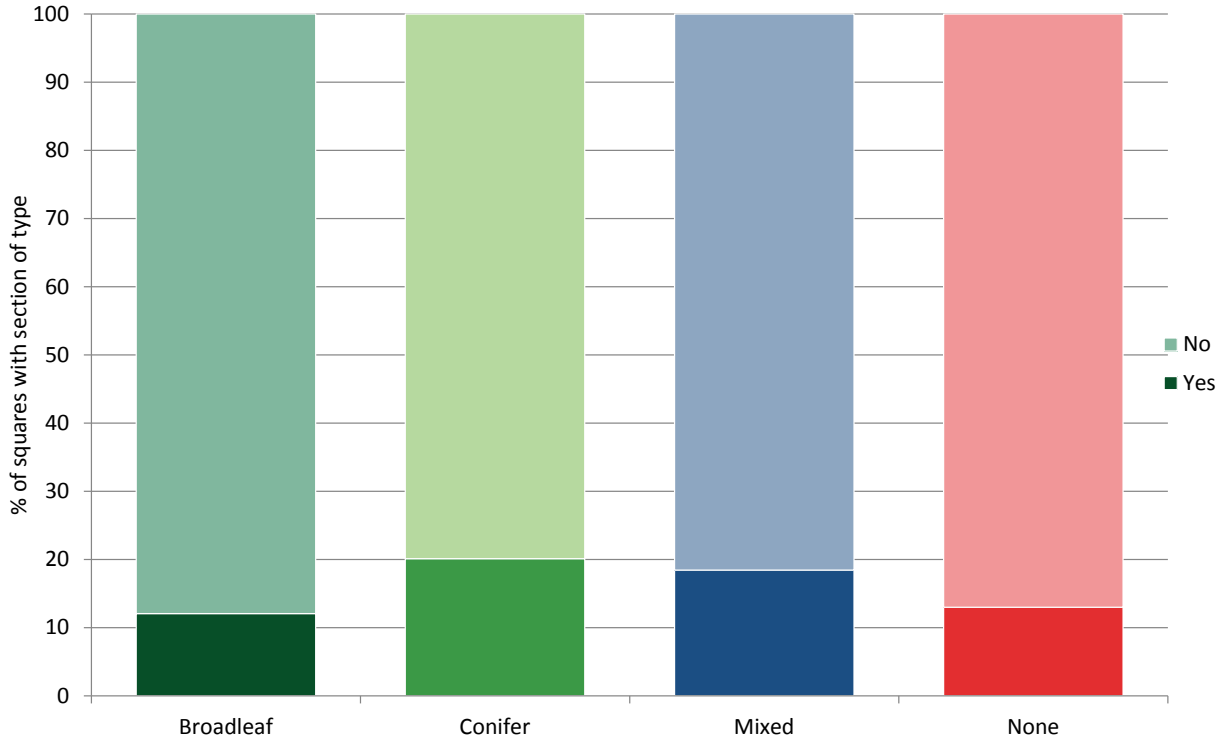
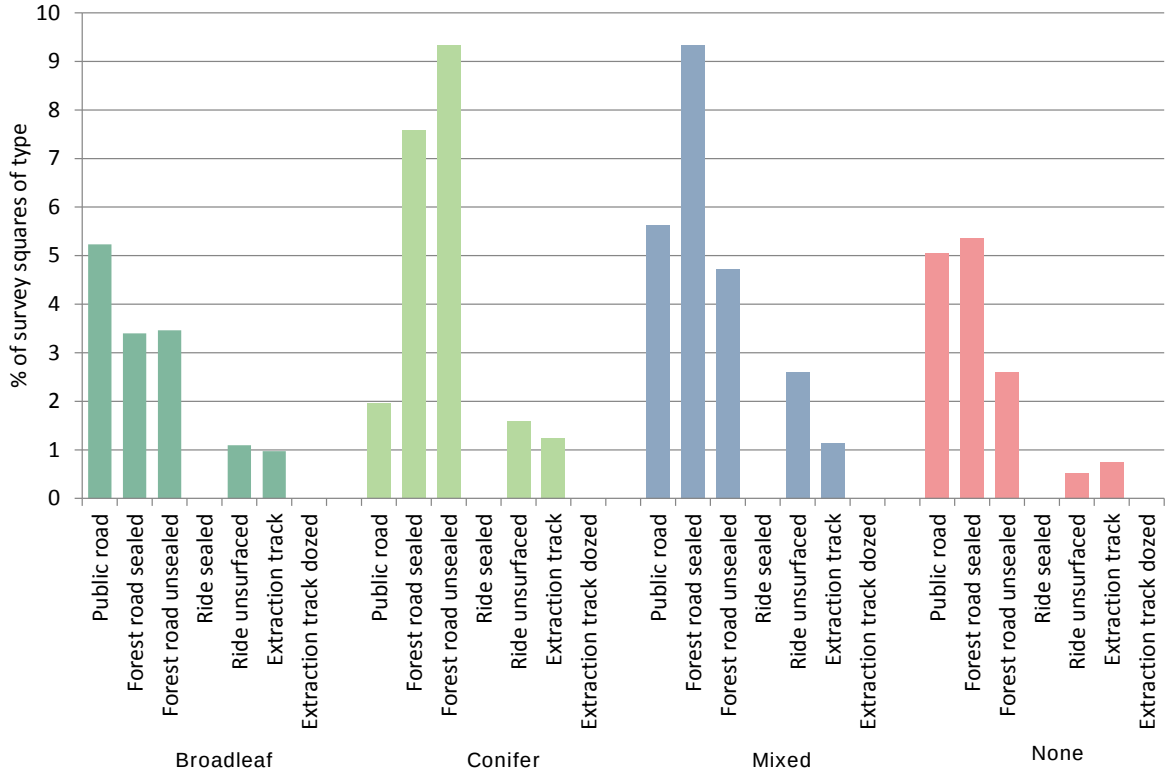


Figure 32 Type of road or ride in survey square



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Mean yield class

Figure 33 Mean yield class by principal tree species (FC and PS)

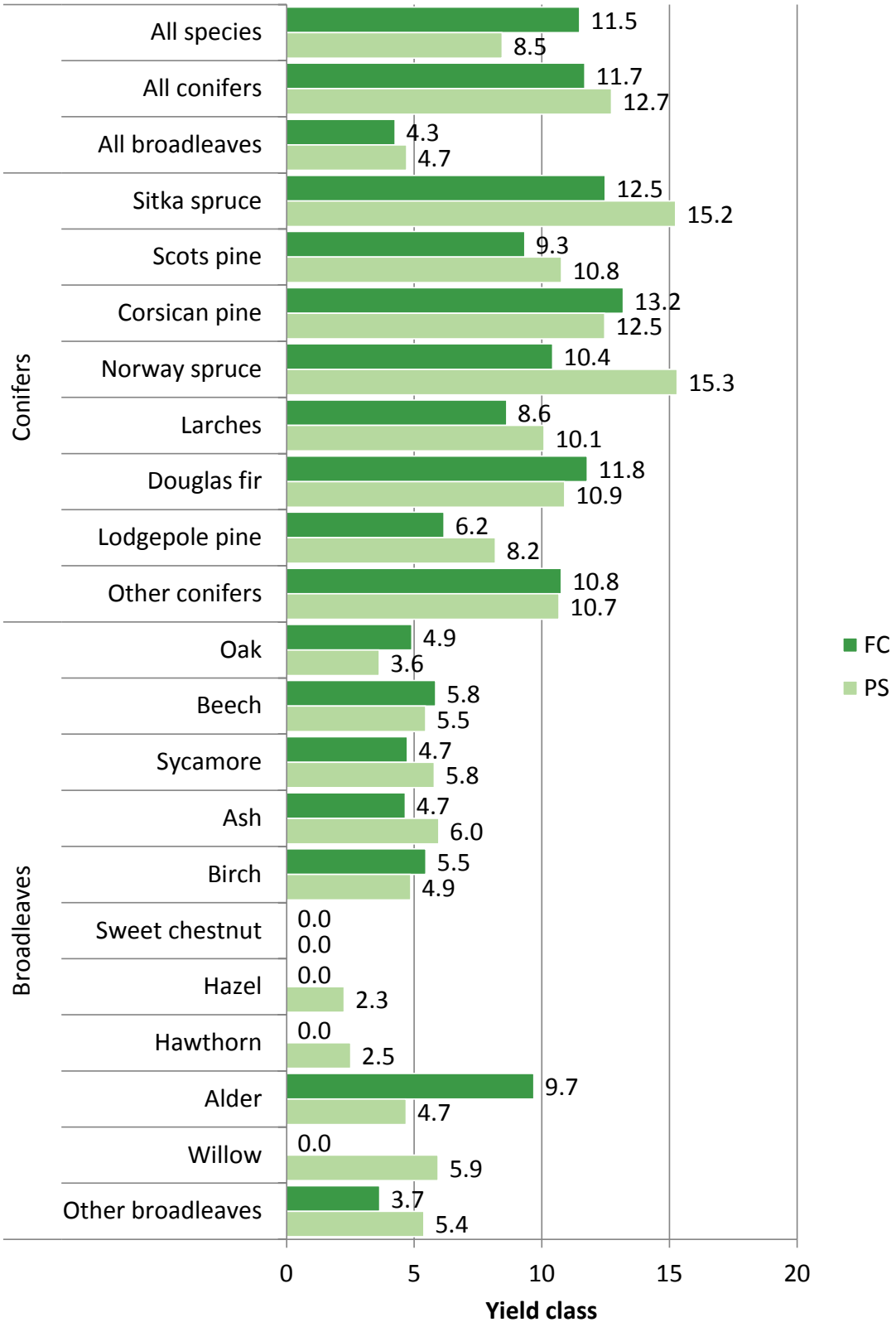

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Table 23 Mean yield class by principal tree species (FC and PS)

Principal species	FC	Private sector
	mean yield class weighted by area	
Conifers		
Sitka spruce	12.5	15.2
Scots pine	9.3	10.8
Corsican pine	13.2	12.5
Norway spruce	10.4	15.3
Larches	8.6	10.1
Douglas fir	11.8	10.9
Lodgepole pine	6.2	8.2
Other conifers	10.8	10.7
All conifers	11.7	12.7
Broadleaves		
Oak	4.9	3.6
Beech	5.8	5.5
Sycamore	4.7	5.8
Ash	4.7	6.0
Birch	5.5	4.9
Sweet chestnut	0.0	0.0
Hazel	0.0	2.3
Hawthorn	0.0	2.5
Alder	9.7	4.7
Willow	0.0	5.9
Other broadleaves	3.7	5.4
All broadleaves	4.3	4.7
All species		
All species	11.5	8.5

Overdue timber stocks

Overdue volume and area

Table 24 Standing volume in overdue timber stocks

	FC	Private sector	
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE %*
North East			
All conifers	229	1,589	*27*
All broadleaves	8	2,452	*13*
All species	**237**	**4,074**	***13***

Table 25 Stocked area of overdue timber stocks

	FC	Private sector	
	area (000 ha)	area (000 ha)	*SE %*
North East			
All conifers	0.6	2.5	*24*
All broadleaves	< 0.1	9.4	*12*
All species	**0.7**	**11.9**	***11***

Part 3 – How our woodlands might change over time

25-year softwood forecast

25-year forecast of softwood timber availability

Figure 34 Summary of 25–year forecast of softwood timber availability; average annual volume within period

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Figure 35 25–year forecast of softwood timber availability; average annual volume within period

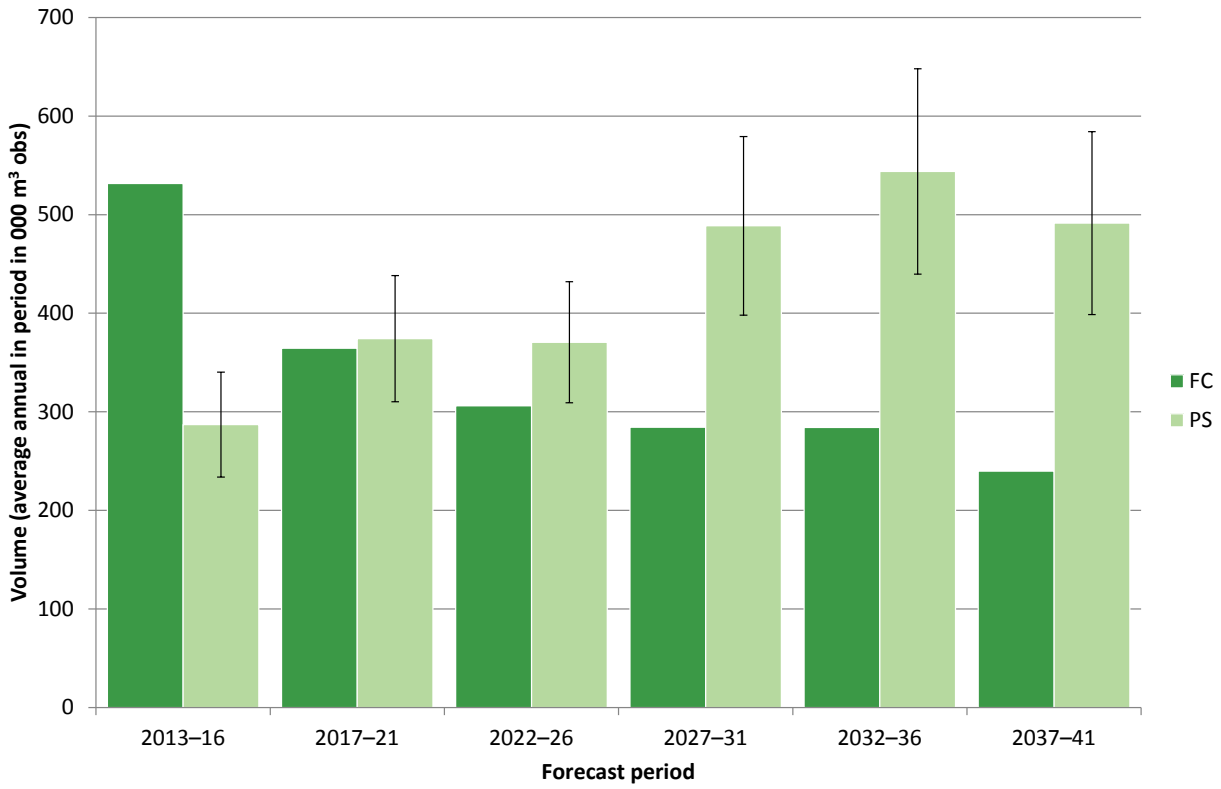

Table 26 25–year forecast of softwood availability; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
2013–16	532	287	*19*	**819**
2017–21	365	374	*17*	**739**
2022–26	306	371	*17*	**677**
2027–31	284	489	*19*	**773**
2032–36	284	544	*19*	**828**
2037–41	240	491	*19*	**731**

25-year forecast of softwood timber availability by principal species

Table 27 25-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2013–16			2017–21		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**532**	**287**	***19***	**365**	**374**	***17***
Sitka spruce	401	121	*41*	294	134	*30*
Scots pine	15	55	*19*	10	84	*33*
Corsican pine	2	1	*91*	< 1	1	*73*
Norway spruce	75	28	*32*	30	59	*60*
Larches	6	50	*26*	6	59	*28*
Douglas fir	2	9	*42*	2	6	*49*
Lodgepole pine	27	6	*53*	19	22	*70*
Other conifers	4	15	*76*	3	7	*62*

Table 27 (cont'd) 25-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2022–26			2027–31		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**306**	**371**	***17***	**284**	**489**	***19***
Sitka spruce	258	206	*29*	248	216	*34*
Scots pine	13	80	*23*	9	171	*33*
Corsican pine	1	1	*80*	< 1	< 1	*96*
Norway spruce	10	15	*29*	10	35	*52*
Larches	6	49	*26*	6	37	*27*
Douglas fir	2	9	*43*	1	7	*53*
Lodgepole pine	12	6	*46*	9	14	*74*
Other conifers	3	3	*73*	2	4	*59*

Table 27 (cont'd) 25-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2032–36			2037–41		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**284**	**544**	***19***	**240**	**491**	***19***
Sitka spruce	254	313	*30*	203	234	*33*
Scots pine	8	127	*31*	8	106	*36*
Corsican pine	< 1	< 1	*96*	1	< 1	*89*
Norway spruce	5	56	*60*	11	39	*47*
Larches	6	33	*28*	7	22	*31*
Douglas fir	2	3	*47*	4	29	*89*
Lodgepole pine	4	2	*56*	< 1	52	*60*
Other conifers	3	5	*52*	5	4	*41*

25-year forecast of softwood timber availability % spruce

Table 28 25-year forecast of softwood timber availability % spruce

North East		Top diameter class (cm)								
		7–14	14–16	16–18	18–24	24–34	34–44	44–54	54+	Total
2013–16	FC (%)	87	90	91	92	90	79	70	86	**90**
	PS (%)	60	57	57	55	50	35	21	54	**52**
2017–21	FC (%)	85	90	91	93	90	81	73	59	**89**
	PS (%)	45	42	42	42	48	55	59	86	**52**
2022–26	FC (%)	89	91	91	91	84	62	46	40	**88**
	PS (%)	70	71	70	64	55	48	47	37	**60**
2027–31	FC (%)	90	92	92	92	88	79	69	78	**90**
	PS (%)	54	56	60	57	53	46	38	49	**51**
2032–36	FC (%)	92	93	93	92	88	81	74	72	**91**
	PS (%)	67	71	71	71	70	68	64	34	**68**
2037–41	FC (%)	89	93	92	91	84	75	71	62	**89**
	PS (%)	67	74	69	60	48	46	46	32	**56**

25-year forecast of softwood timber availability by top diameter class

Table 29 25-year forecast of softwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2013–16			2017–21		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	155	45	*15*	95	38	*16*
14–16	66	21	*14*	41	18	*16*
16–18	65	23	*15*	42	23	*15*
18–24	153	76	*21*	105	81	*15*
24–34	74	84	*30*	61	103	*19*
34–44	12	25	*22*	13	48	*26*
44–54	3	7	*23*	4	21	*32*
54+	4	5	*45*	3	42	*55*
Total	**532**	**287**	***19***	**365**	**374**	***17***

Table 29 (cont'd) 25-year forecast of softwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2022–26			2027–31		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	82	43	*21*	74	43	*17*
14–16	38	21	*24*	35	19	*16*
16–18	37	26	*23*	36	22	*15*
18–24	90	98	*21*	87	86	*16*
24–34	44	119	*17*	42	153	*23*
34–44	8	42	*19*	7	85	*25*
44–54	3	15	*22*	2	42	*28*
54+	3	6	*28*	1	39	*46*
Total	**306**	**371**	***17***	**284**	**489**	***19***

Table 29 (cont'd) 25-year forecast of softwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2032–36			2037–41		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	78	39	*16*	78	58	*27*
14–16	36	20	*17*	30	27	*30*
16–18	36	24	*18*	29	32	*26*
18–24	85	116	*21*	67	126	*23*
24–34	39	208	*23*	29	163	*22*
34–44	6	85	*23*	5	55	*19*
44–54	2	29	*22*	2	19	*23*
54+	< 1	23	*36*	< 1	12	*33*
Total	**284**	**544**	***19***	**240**	**491**	***19***

25-year forecast of standing volume in conifers

Figure 36 25-year forecast of standing volume in conifers

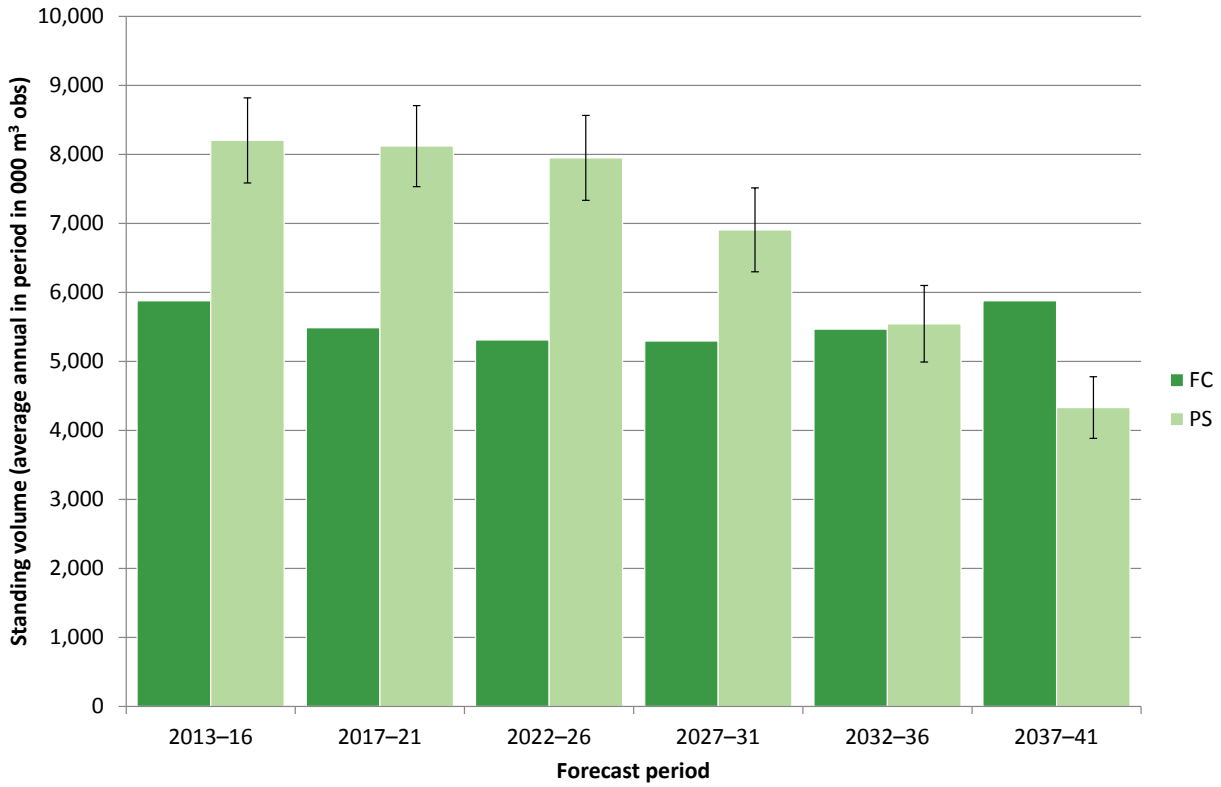

Table 30 25-year forecast of standing volume in conifers; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m³ obs)	volume (000 m³ obs)	*SE%*	volume (000 m³ obs)
North East				
2013–16	5,877	8,203	*8*	**14,081**
2017–21	5,487	8,120	*7*	**13,606**
2022–26	5,310	7,948	*8*	**13,258**
2027–31	5,297	6,906	*9*	**12,202**
2032–36	5,467	5,545	*10*	**11,013**
2037–41	5,877	4,331	*10*	**10,208**

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25-year forecast of net increment in conifers

Figure 37 25-year forecast of net increment in conifers

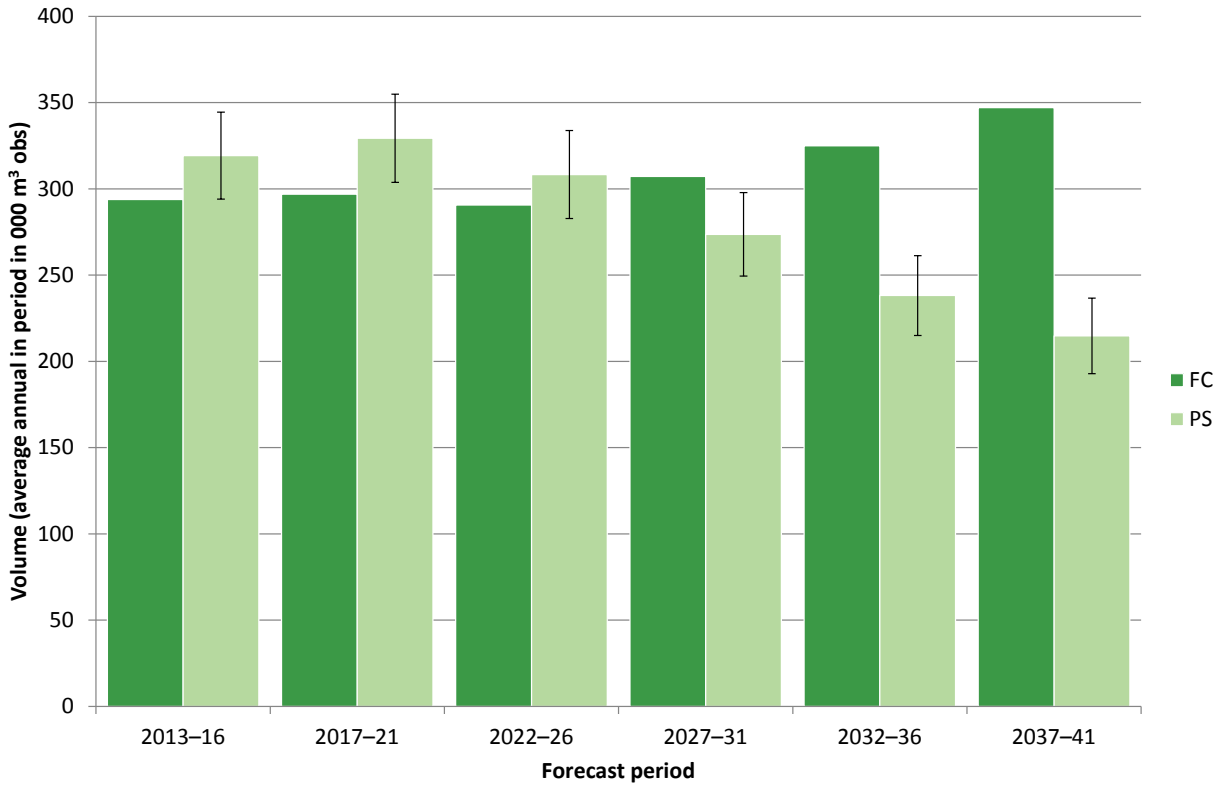
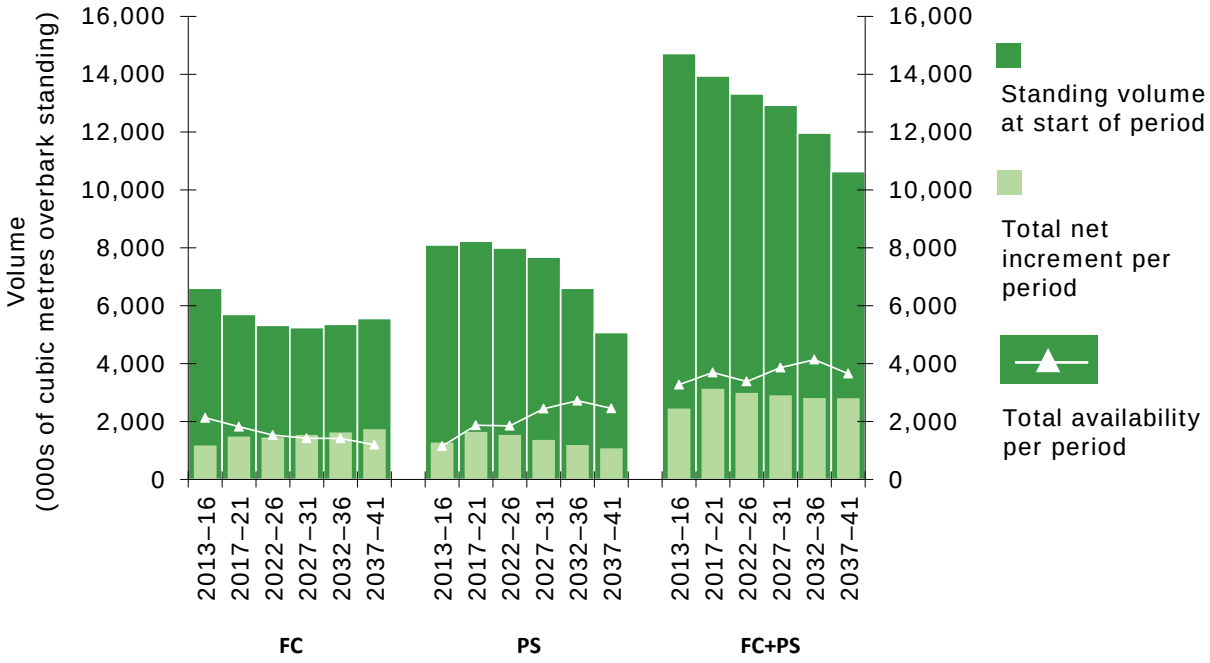


Table 31 25-year forecast of net increment in conifers; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
2013–16	294	319	*8*	**613**
2017–21	297	329	*8*	**626**
2022–26	291	308	*8*	**599**
2027–31	307	274	*9*	**581**
2032–36	325	238	*10*	**563**
2037–41	347	215	*10*	**562**

Combined standing volume, net increment and availability

Figure 38 25-year forecast of standing volume, net increment and softwood availability



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50-year softwood forecast

50-year forecast of softwood timber availability

Figure 39 Summary of 50-year forecast of softwood timber availability; average annual volume within period

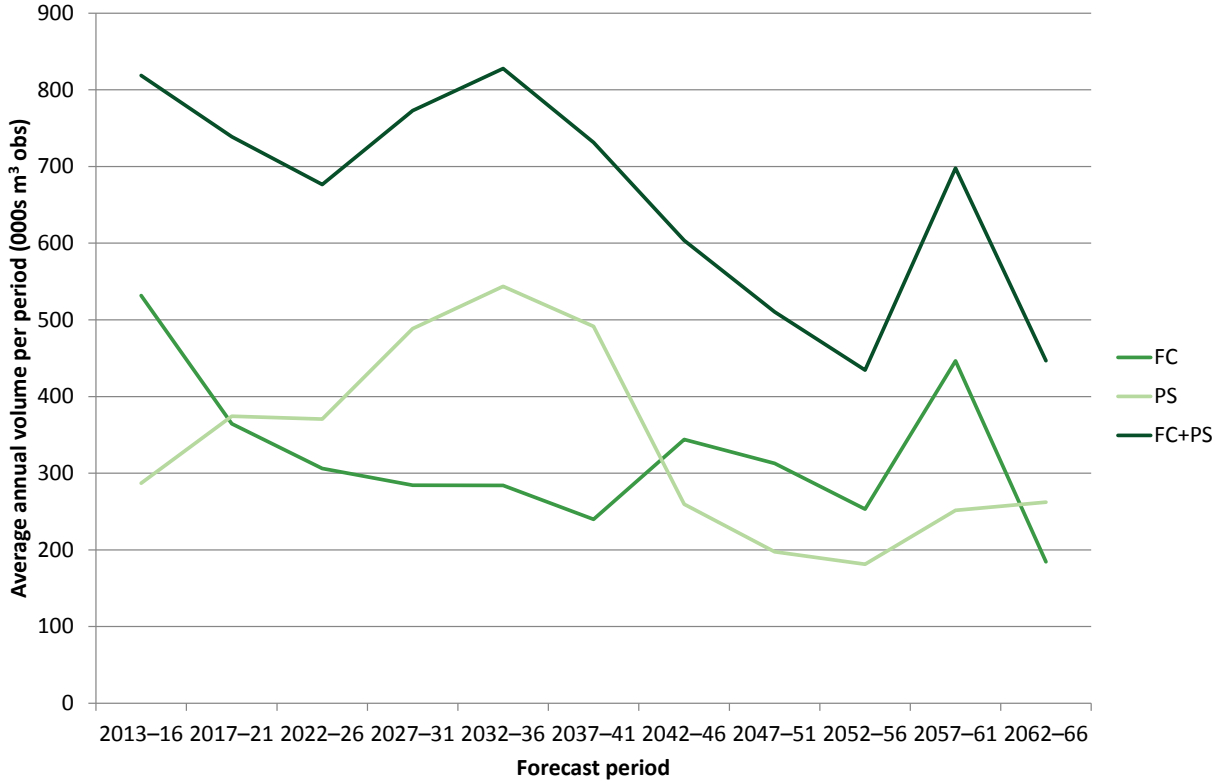

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Figure 40 50–year forecast of softwood timber availability; average annual volume within period

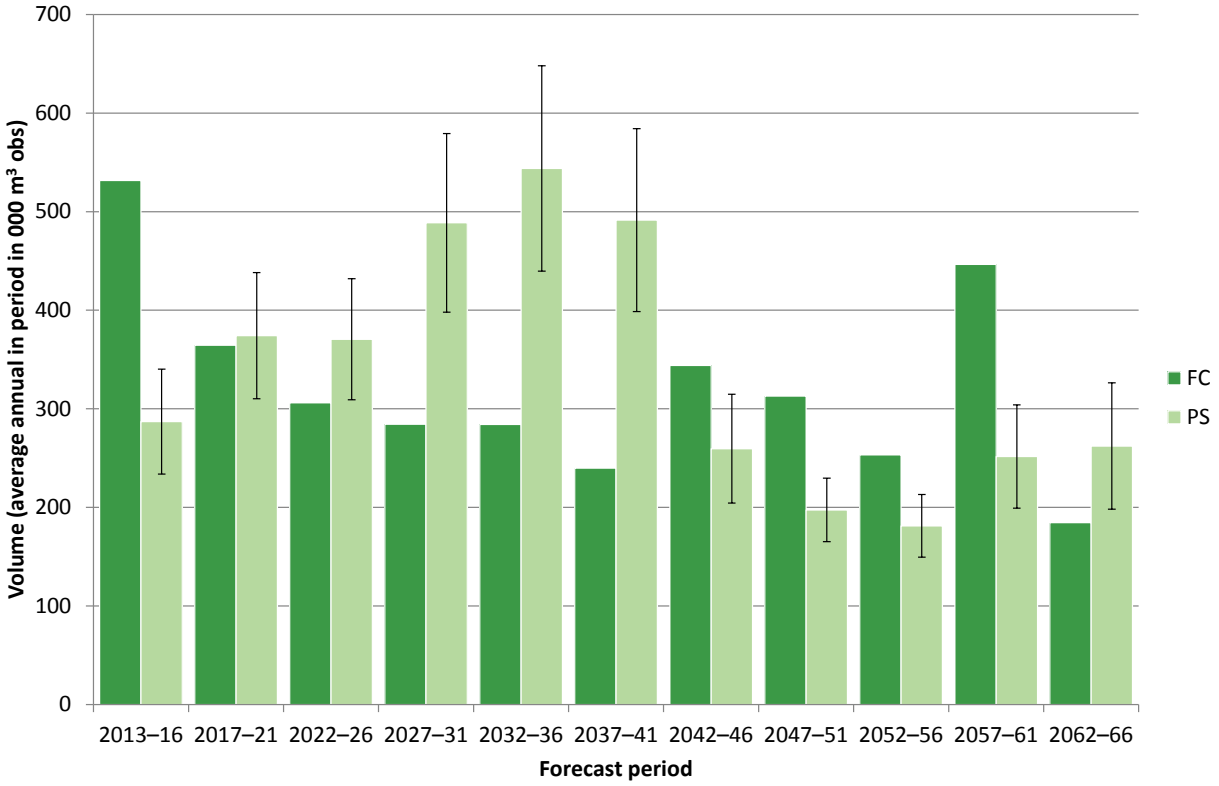

Table 32 Summary of 50–year forecast of softwood timber availability; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
2013–16	532	287	*19*	**819**
2017–21	365	374	*17*	**739**
2022–26	306	371	*17*	**677**
2027–31	284	489	*19*	**773**
2032–36	284	544	*19*	**828**
2037–41	240	491	*19*	**731**
2042–46	344	260	*21*	**604**
2047–51	313	197	*16*	**510**
2052–56	253	181	*18*	**435**
2057–61	446	252	*21*	**698**
2062–66	184	262	*24*	**447**

50-year forecast of softwood timber availability by principal species

Table 33 50-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2013–16			2017–21		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**532**	**287**	*19*	**365**	**374**	*17*
Sitka spruce	401	121	*41*	294	134	*30*
Scots pine	15	55	*19*	10	84	*33*
Corsican pine	2	1	*91*	< 1	1	*73*
Norway spruce	75	28	*32*	30	59	*60*
Larches	6	50	*26*	6	59	*28*
Douglas fir	2	9	*42*	2	6	*49*
Lodgepole pine	27	6	*53*	19	22	*70*
Other conifers	4	15	*76*	3	7	*62*

Table 33 (cont'd) 50-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2022–26			2027–31		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**306**	**371**	*17*	**284**	**489**	*19*
Sitka spruce	258	206	*29*	248	216	*34*
Scots pine	13	80	*23*	9	171	*33*
Corsican pine	1	1	*80*	< 1	< 1	*96*
Norway spruce	10	15	*29*	10	35	*52*
Larches	6	49	*26*	6	37	*27*
Douglas fir	2	9	*43*	1	7	*53*
Lodgepole pine	12	6	*46*	9	14	*74*
Other conifers	3	3	*73*	2	4	*59*

Table 33 (cont'd) 50-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2032–36			2037–41		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**284**	**544**	*19*	**240**	**491**	*19*
Sitka spruce	254	313	*30*	203	234	*33*
Scots pine	8	127	*31*	8	106	*36*
Corsican pine	< 1	< 1	*96*	1	< 1	*89*
Norway spruce	5	56	*60*	11	39	*47*
Larches	6	33	*28*	7	22	*31*
Douglas fir	2	3	*47*	4	29	*89*
Lodgepole pine	4	2	*56*	< 1	52	*60*
Other conifers	3	5	*52*	5	4	*41*

Table 33 (cont'd) 50-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2042–46			2047–51		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**344**	**260**	*21*	**313**	**197**	*16*
Sitka spruce	283	131	*37*	263	75	*26*
Scots pine	11	59	*36*	10	64	*30*
Corsican pine	3	< 1	*87*	4	< 1	*87*
Norway spruce	24	34	*55*	20	19	*79*
Larches	11	19	*33*	4	22	*31*
Douglas fir	6	4	*23*	4	6	*19*
Lodgepole pine	1	3	*90*	3	2	*74*
Other conifers	6	6	*42*	5	10	*39*

Table 33 (cont'd) 50-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2052–56			2057–61		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All conifers	**253**	**181**	*18*	**446**	**252**	*21*
Sitka spruce	202	87	*29*	340	120	*35*
Scots pine	9	51	*35*	20	81	*37*
Corsican pine	2	< 1	*86*	6	< 1	*86*
Norway spruce	19	7	*31*	50	15	*46*
Larches	6	16	*35*	8	17	*35*
Douglas fir	6	9	*21*	7	8	*18*
Lodgepole pine	4	2	*46*	6	< 1	*48*
Other conifers	6	8	*22*	10	10	*20*

Table 33 (cont'd) 50-year forecast of softwood timber availability by principal species; average annual volume within period

Principal species	2062–66		
	FC	Private sector	
	volume (000 m^3 obs)		*SE%*
North East			
All conifers	**184**	**262**	*24*
Sitka spruce	118	153	*36*
Scots pine	10	56	*46*
Corsican pine	2	< 1	*64*
Norway spruce	21	10	*27*
Larches	3	7	*25*
Douglas fir	15	17	*30*
Lodgepole pine	1	< 1	*48*
Other conifers	14	18	*34*

50-year forecast of softwood timber availability % spruce

Table 34 50–year forecast of softwood timber availability % spruce

North East		Top diameter class (cm)								
		7–14	14–16	16–18	18–24	24–34	34–44	44–54	54+	Total
2013–16	FC (%)	87	90	91	92	90	79	70	86	**90**
	PS (%)	60	57	57	55	50	35	21	54	**52**
2017–21	FC (%)	85	90	91	93	90	81	73	59	**89**
	PS (%)	45	42	42	42	48	55	59	86	**52**
2022–26	FC (%)	89	91	91	91	84	62	46	40	**88**
	PS (%)	70	71	70	64	55	48	47	37	**60**
2027–31	FC (%)	90	92	92	92	88	79	69	78	**90**
	PS (%)	54	56	60	57	53	46	38	49	**51**
2032–36	FC (%)	92	93	93	92	88	81	74	72	**91**
	PS (%)	67	71	71	71	70	68	64	34	**68**
2037–41	FC (%)	89	93	92	91	84	75	71	62	**89**
	PS (%)	67	74	69	60	48	46	46	32	**56**
2042–46	FC (%)	92	93	93	91	78	59	56	68	**89**
	PS (%)	71	74	73	73	69	58	43	8	**64**
2047–51	FC (%)	91	93	93	93	88	66	51	24	**91**
	PS (%)	49	50	51	56	49	39	35	33	**47**
2052–56	FC (%)	87	90	90	90	85	70	65	70	**87**
	PS (%)	49	52	51	50	55	55	57	25	**52**
2057–61	FC (%)	85	87	89	89	88	79	71	71	**87**
	PS (%)	54	59	58	48	55	56	58	29	**54**
2062–66	FC (%)	75	76	76	76	77	73	67	56	**75**
	PS (%)	56	63	63	58	64	67	74	48	**62**

50-year forecast of standing volume in conifers

Figure 41 50–year forecast of standing volume in conifers; average annual volume within period

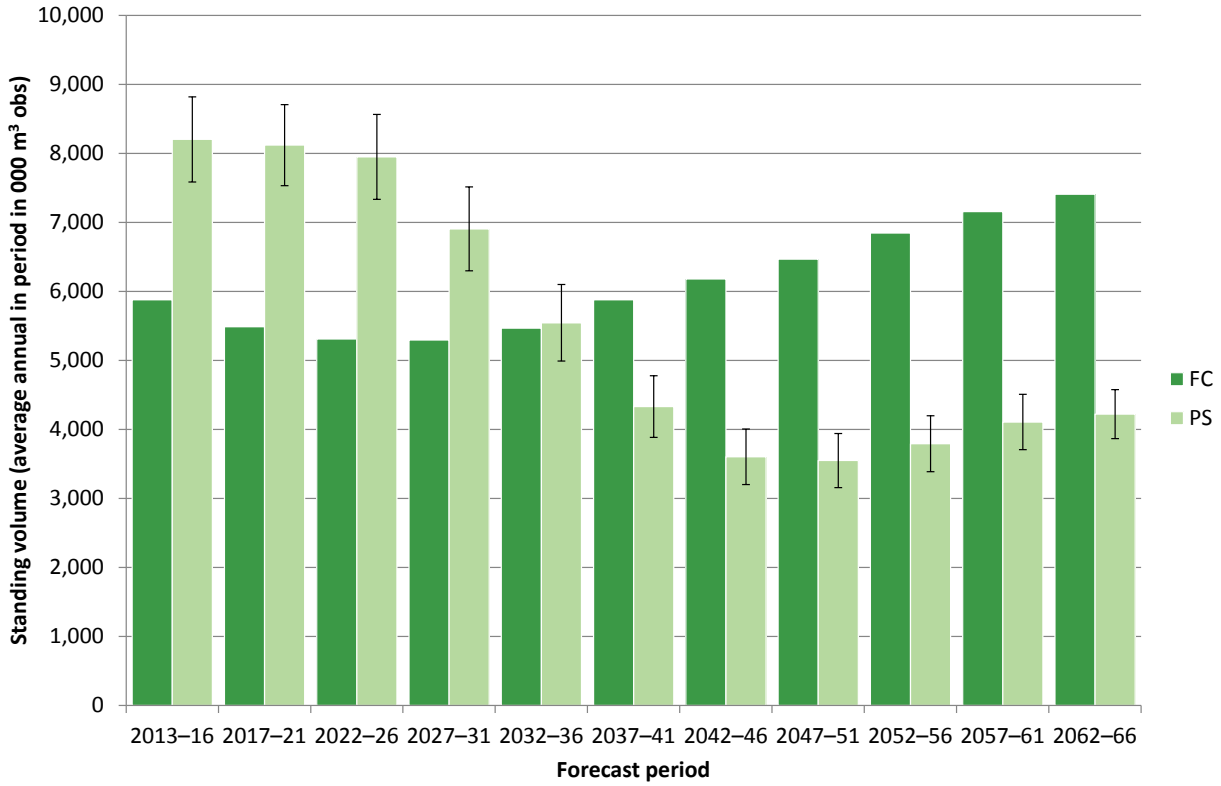

Table 35 50–year forecast of standing volume in conifers; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
2013–16	5,877	8,203	*8*	**14,081**
2017–21	5,487	8,120	*7*	**13,606**
2022–26	5,310	7,948	*8*	**13,258**
2027–31	5,297	6,906	*9*	**12,202**
2032–36	5,467	5,545	*10*	**11,013**
2037–41	5,877	4,331	*10*	**10,208**
2042–46	6,180	3,603	*11*	**9,783**
2047–51	6,467	3,549	*11*	**10,016**
2052–56	6,844	3,791	*11*	**10,636**
2057–61	7,155	4,107	*10*	**11,262**
2062–66	7,409	4,221	*8*	**11,630**

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50-year forecast of net increment in conifers

Figure 42 50-year forecast of net increment in conifers; average annual volume within period

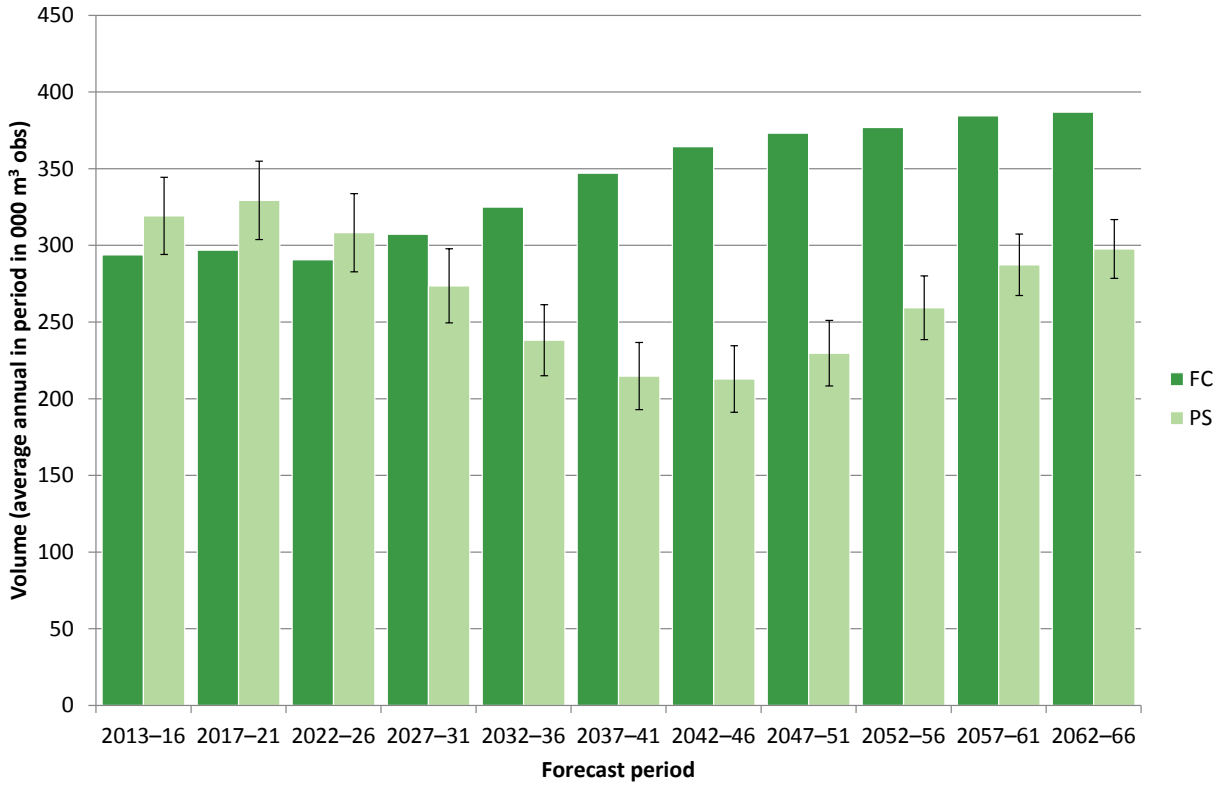

Table 36 50-year forecast of net increment in conifers; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m³ obs)	volume (000 m³ obs)	*SE%*	volume (000m³ obs)
North East				
2013–16	294	319	*8*	**613**
2017–21	297	329	*8*	**626**
2022–26	291	308	*8*	**599**
2027–31	307	274	*9*	**581**
2032–36	325	238	*10*	**563**
3037–41	347	215	*10*	**562**
2042–46	364	213	*10*	**577**
2047–51	373	230	*9*	**603**
2052–56	377	259	*8*	**636**
2057–61	384	287	*7*	**672**
2062–66	387	298	*6*	**685**

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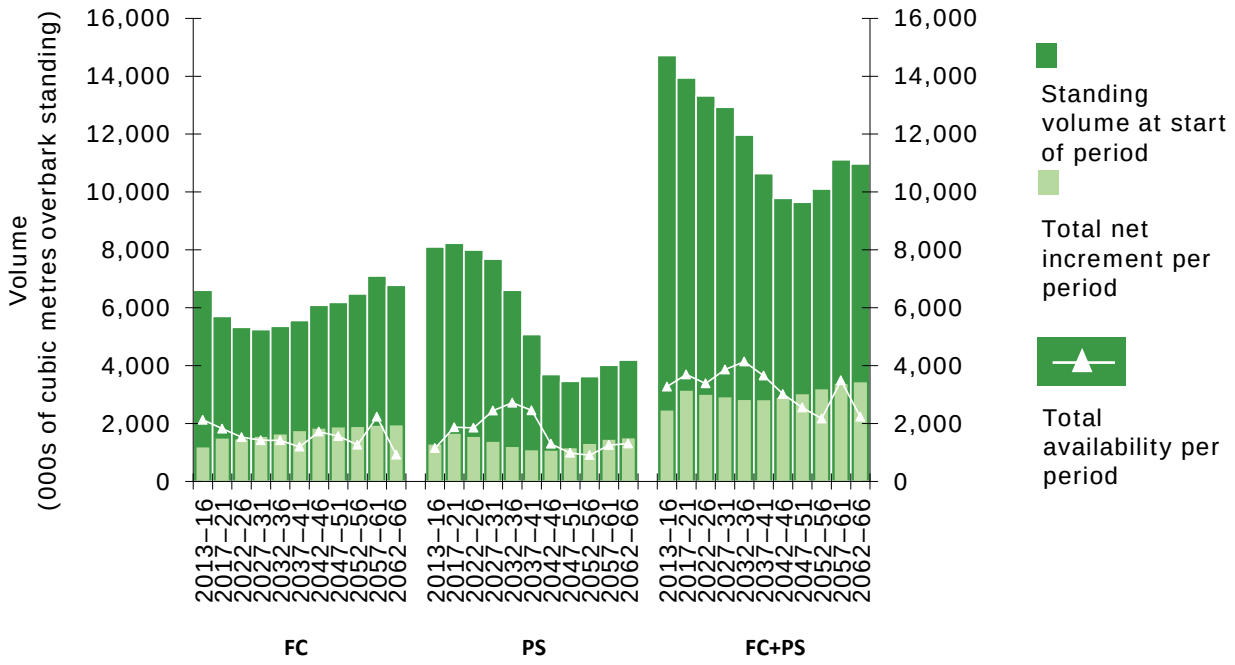
Combined standing volume, net increment and availability

Figure 43 50-year forecast of standing volume, net increment and softwood availability



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50-year hardwood forecast

50-year forecast of hardwood timber availability

Figure 44 Summary of 50-year forecast of hardwood timber availability; average annual volume within period

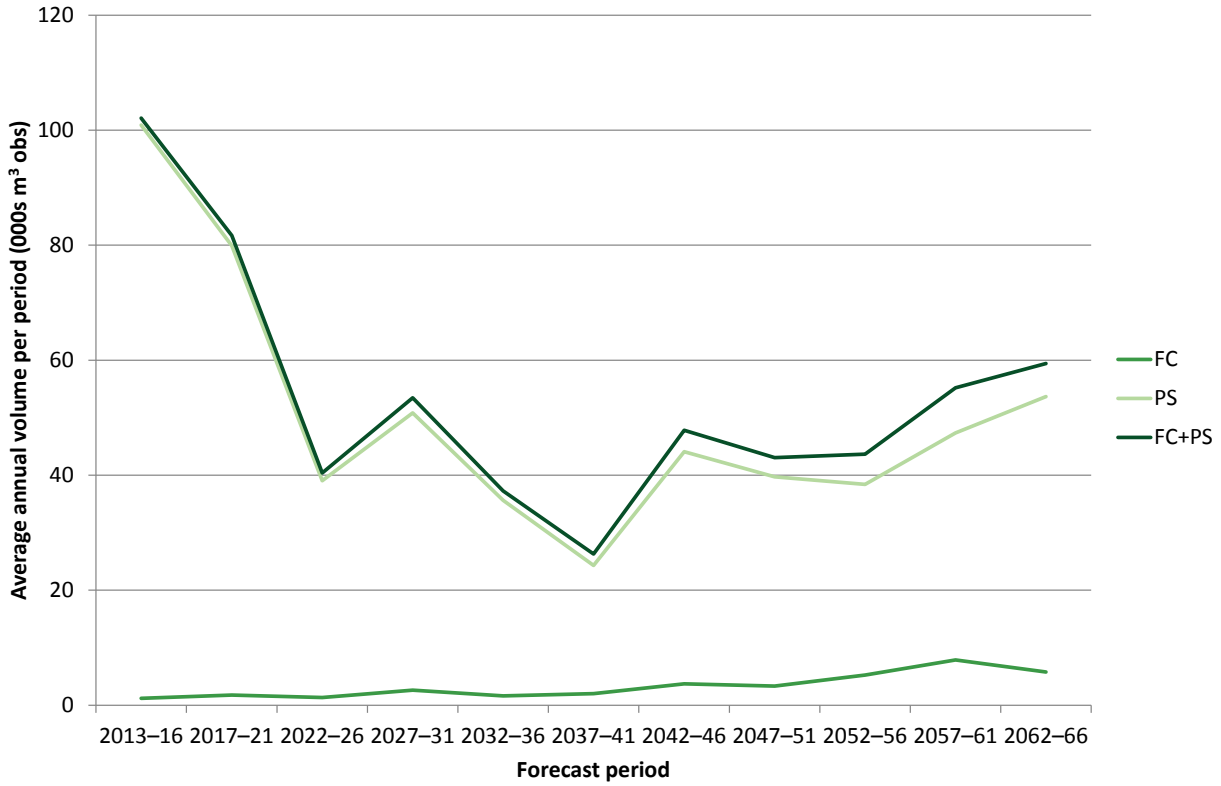

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Figure 45 50–year forecast of hardwood timber availability; average annual volume within period

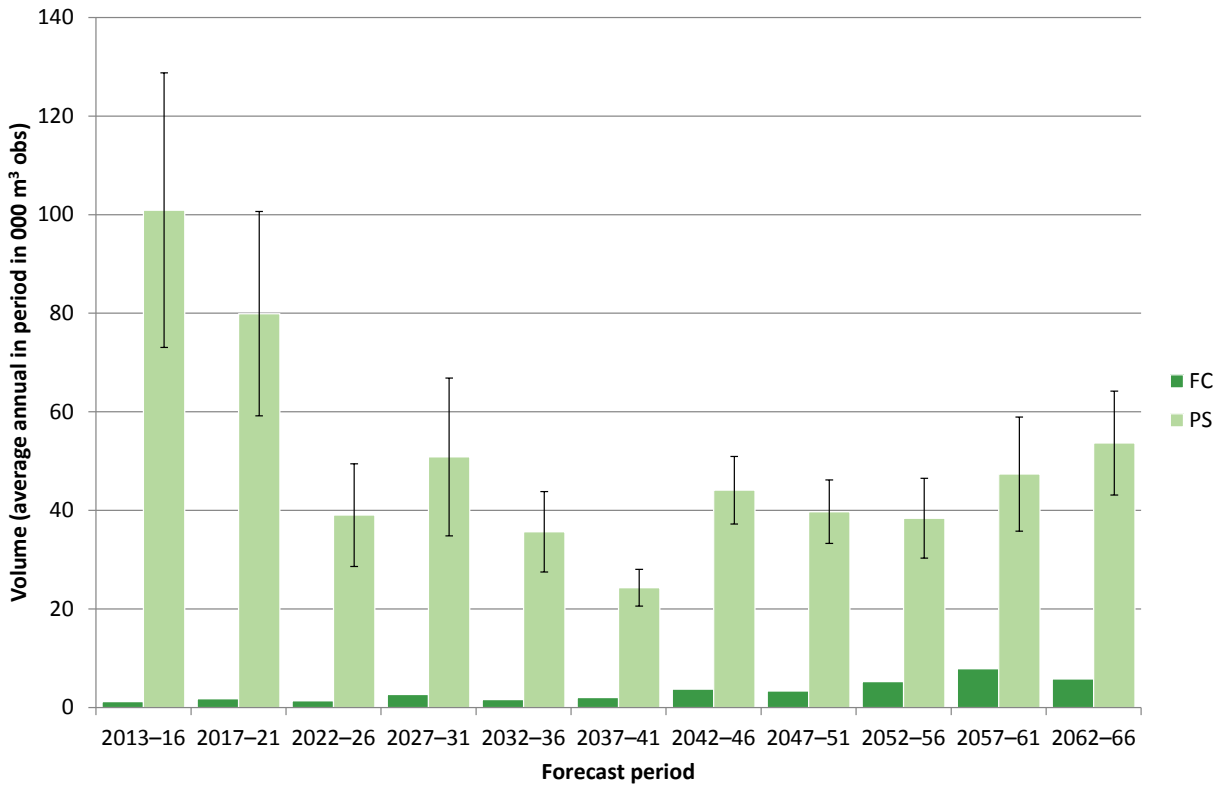

Table 37 50–year forecast of hardwood timber availability; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
2013–16	1	101	*28*	**102**
2017–21	2	80	*26*	**82**
2022–26	1	39	*27*	**40**
2027–31	3	51	*31*	**53**
2032–36	2	36	*23*	**37**
2037–41	2	24	*15*	**26**
2042–46	4	44	*16*	**48**
2047–51	3	40	*16*	**43**
2052–56	5	38	*21*	**44**
2057–61	8	47	*24*	**55**
2062–66	6	54	*20*	**59**

50-year forecast of hardwood timber availability by principal species

Table 38 50-year forecast of hardwood timber availability by principal species; average annual volume within period

Principal species	2013–16			2017–21		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**1**	**101**	***28***	**2**	**80**	***26***
Oak	< 1	17	*85*	< 1	8	*61*
Beech	< 1	2	*66*	< 1	2	*59*
Sycamore	< 1	48	*34*	< 1	44	*36*
Ash	0	20	*34*	< 1	14	*32*
Birch	< 1	5	*40*	< 1	5	*39*
Sweet chestnut	0	0	-	0	0	-
Hazel	0	< 1	*76*	0	< 1	*49*
Hawthorn	0	< 1	*49*	0	< 1	*50*
Alder	< 1	3	*55*	< 1	1	*67*
Willow	0	< 1	*71*	0	< 1	*71*
Other broadleaves	< 1	4	*52*	< 1	3	*38*

Table 38 (cont'd) 50-year forecast of hardwood timber availability by principal species; average annual volume within period

Principal species	2022–26			2027–31		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**1**	**39**	***27***	**3**	**51**	***31***
Oak	< 1	2	*39*	2	23	*58*
Beech	< 1	7	*72*	< 1	1	*35*
Sycamore	< 1	17	*48*	< 1	7	*58*
Ash	< 1	5	*23*	< 1	8	*68*
Birch	< 1	3	*25*	< 1	6	*72*
Sweet chestnut	0	0	-	0	0	-
Hazel	0	< 1	*62*	0	< 1	*52*
Hawthorn	0	< 1	*49*	0	< 1	*45*
Alder	< 1	< 1	*39*	< 1	< 1	*29*
Willow	0	< 1	*60*	0	< 1	*63*
Other broadleaves	< 1	3	*36*	< 1	4	*28*

Table 38 (cont'd) 50-year forecast of hardwood timber availability by principal species; average annual volume within period

Principal species	2032–36			2037–41		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**2**	**36**	***23***	**2**	**24**	***15***
Oak	< 1	1	*26*	< 1	2	*29*
Beech	< 1	9	*66*	< 1	1	*28*
Sycamore	< 1	10	*42*	< 1	8	*30*
Ash	< 1	4	*23*	< 1	5	*22*
Birch	< 1	5	*60*	< 1	2	*24*
Sweet chestnut	0	0	-	0	0	-
Hazel	0	< 1	*49*	0	< 1	*49*
Hawthorn	0	< 1	*29*	0	< 1	*28*
Alder	< 1	< 1	*29*	< 1	< 1	*26*
Willow	0	< 1	*61*	0	< 1	*59*
Other broadleaves	< 1	4	*21*	< 1	4	*24*

Table 38 (cont'd) 50-year forecast of hardwood timber availability by principal species; average annual volume within period

Principal species	2042–46			2047–51		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**4**	**44**	***16***	**3**	**40**	***16***
Oak	< 1	4	*40*	< 1	3	*45*
Beech	< 1	1	*25*	< 1	3	*49*
Sycamore	< 1	16	*28*	< 1	10	*30*
Ash	< 1	10	*27*	< 1	11	*28*
Birch	< 1	5	*30*	< 1	5	*32*
Sweet chestnut	0	0	-	0	0	-
Hazel	0	< 1	*38*	0	2	*61*
Hawthorn	0	< 1	*26*	0	< 1	*26*
Alder	< 1	2	*38*	< 1	1	*48*
Willow	0	< 1	*59*	0	< 1	*59*
Other broadleaves	1	5	*28*	1	3	*23*

Table 38 (cont'd) 50-year forecast of hardwood timber availability by principal species; average annual volume within period

Principal species	2052–56			2057–61		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**5**	**38**	***21***	**8**	**47**	***24***
Oak	< 1	2	*27*	< 1	3	*23*
Beech	< 1	2	*22*	1	3	*41*
Sycamore	< 1	13	*36*	< 1	22	*37*
Ash	< 1	11	*30*	< 1	10	*38*
Birch	3	3	*24*	4	3	*19*
Sweet chestnut	0	0	-	0	0	-
Hazel	0	< 1	*53*	0	< 1	*56*
Hawthorn	0	1	*29*	0	< 1	*26*
Alder	< 1	< 1	*47*	< 1	1	*61*
Willow	0	< 1	*59*	0	< 1	*59*
Other broadleaves	< 1	5	*32*	2	3	*32*

Table 38 (cont'd) 50-year forecast of hardwood timber availability by principal species; average annual volume within period

Principal species	2062–66		
	FC	Private sector	
	volume (000 m^3 obs)		*SE%*
North East			
All broadleaves	**6**	**54**	***20***
Oak	< 1	4	*29*
Beech	1	5	*60*
Sycamore	< 1	22	*28*
Ash	< 1	7	*31*
Birch	3	4	*17*
Sweet chestnut	0	0	-
Hazel	0	< 1	*76*
Hawthorn	0	2	*44*
Alder	< 1	< 1	*66*
Willow	0	< 1	*59*
Other broadleaves	< 1	9	*65*

50-year forecast of hardwood timber availability by top diameter class

Table 39 50-year forecast of hardwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2013–16			2017–21		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	< 1	11	*22*	< 1	11	*16*
14–16	< 1	4	*31*	< 1	2	*22*
16–18	< 1	5	*30*	< 1	2	*25*
18–24	< 1	18	*27*	< 1	12	*24*
24–34	< 1	31	*28*	< 1	26	*29*
34–44	< 1	17	*36*	< 1	15	*34*
44–54	< 1	8	*43*	< 1	7	*38*
54+	< 1	6	*58*	< 1	5	*42*
Total	**1**	**101**	***28***	**2**	**80**	***26***

Table 39 (cont'd) 50-year forecast of hardwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2022–26			2027–31		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	< 1	10	*16*	< 1	12	*12*
14–16	< 1	1	*18*	< 1	2	*24*
16–18	< 1	1	*20*	< 1	2	*31*
18–24	< 1	4	*22*	< 1	7	*43*
24–34	< 1	8	*30*	1	15	*45*
34–44	< 1	6	*39*	< 1	7	*43*
44–54	< 1	3	*43*	< 1	3	*59*
54+	< 1	5	*71*	< 1	3	*68*
Total	**1**	**39**	***27***	**3**	**51**	***31***

Table 39 (cont'd) 50-year forecast of hardwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2032–36			2037–41		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	< 1	15	*16*	< 1	16	*18*
14–16	< 1	2	*26*	< 1	2	*15*
16–18	< 1	2	*35*	< 1	2	*14*
18–24	< 1	6	*39*	< 1	3	*17*
24–34	< 1	4	*41*	< 1	2	*25*
34–44	< 1	2	*71*	< 1	< 1	*38*
44–54	< 1	1	*75*	< 1	< 1	*49*
54+	< 1	2	*76*	< 1	< 1	*66*
Total	**2**	**36**	***23***	**2**	**24**	***15***

Table 39 (cont'd) 50-year forecast of hardwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2042–46			2047–51		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	2	17	*17*	2	13	*16*
14–16	< 1	4	*17*	< 1	3	*17*
16–18	< 1	4	*18*	< 1	3	*19*
18–24	< 1	11	*19*	< 1	10	*20*
24–34	< 1	6	*24*	< 1	8	*26*
34–44	< 1	2	*34*	< 1	2	*32*
44–54	< 1	< 1	*50*	< 1	< 1	*38*
54+	< 1	< 1	*52*	< 1	< 1	*73*
Total	**4**	**44**	***16***	**3**	**40**	***16***

Table 39 (cont'd) 50-year forecast of hardwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2052–56			2057–61		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
7–14	4	11	*16*	4	10	*14*
14–16	< 1	3	*17*	< 1	3	*18*
16–18	< 1	3	*20*	< 1	3	*21*
18–24	< 1	8	*25*	1	11	*27*
24–34	< 1	9	*31*	< 1	13	*35*
34–44	< 1	3	*33*	< 1	5	*35*
44–54	< 1	< 1	*50*	< 1	1	*39*
54+	< 1	< 1	*70*	< 1	< 1	*53*
Total	**5**	**38**	***21***	**8**	**47**	***24***

Table 39 (cont'd) 50-year forecast of hardwood timber availability by top diameter class; average annual volume within period

Top diameter class (cm)	2062–66		
	FC	Private sector	
	volume (000 m^3 obs)		*SE%*
North East			
7–14	3	12	*13*
14–16	< 1	3	*18*
16–18	< 1	3	*20*
18–24	1	12	*21*
24–34	< 1	13	*27*
34–44	< 1	6	*36*
44–54	< 1	2	*50*
54+	< 1	1	*59*
Total	**6**	**54**	***20***

50-year forecast of standing volume in broadleaves

Figure 46 50–year forecast of standing volume in broadleaves; average annual volume within period

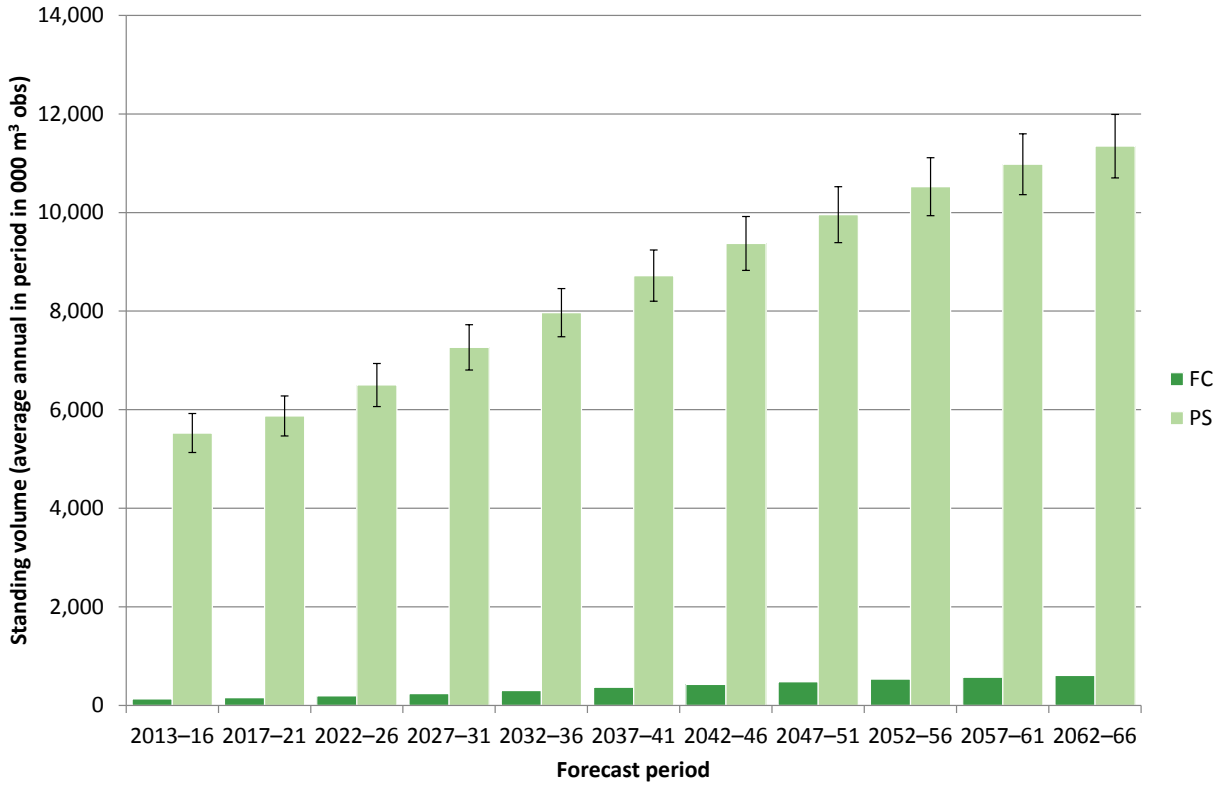

Table 40 50–year forecast of standing volume in broadleaves; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
2013–16	131	5,525	*7*	**5,656**
2017–21	157	5,873	*7*	**6,030**
2022–26	193	6,500	*7*	**6,694**
2027–31	241	7,264	*6*	**7,505**
2032–36	301	7,968	*6*	**8,269**
2037–41	366	8,720	*6*	**9,085**
2042–46	425	9,374	*6*	**9,799**
2047–51	481	9,956	*6*	**10,437**
2052–56	532	10,524	*6*	**11,056**
2057–61	572	10,979	*6*	**11,551**
2062–66	606	11,347	*6*	**11,952**

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Table 41 50-year forecast of standing volume in broadleaves by principal species; average annual volume within period

Principal species	2013–16			2017–21		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**131**	**5,525**	***7***	**157**	**5,873**	***7***
Oak	10	1,177	*23*	9	1,217	*23*
Beech	21	610	*27*	23	669	*26*
Sycamore	6	827	*18*	7	756	*16*
Ash	< 1	756	*18*	< 1	830	*18*
Birch	21	841	*20*	22	946	*19*
Sweet Chestnut	0	0	-	0	0	-
Hazel	< 1	166	*27*	< 1	186	*26*
Hawthorn	0	112	*33*	0	150	*32*
Alder	7	473	*29*	7	503	*28*
Willow	0	222	*46*	0	243	*45*
Other broadleaves	66	345	*19*	88	385	*15*

Table 41 (cont'd) 50-year forecast of standing volume in broadleaves by principal species; average annual volume within period

Principal species	2022–26			2027–31		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**193**	**6,500**	***7***	**241**	**7,264**	***6***
Oak	8	1,306	*22*	7	1,362	*22*
Beech	23	717	*26*	26	785	*25*
Sycamore	7	735	*17*	7	805	*17*
Ash	< 1	973	*17*	1	1,152	*17*
Birch	24	1,080	*19*	27	1,207	*18*
Sweet Chestnut	0	0	-	0	0	-
Hazel	< 1	215	*25*	< 1	242	*24*
Hawthorn	0	198	*30*	0	252	*29*
Alder	8	547	*27*	9	597	*26*
Willow	0	270	*44*	0	299	*43*
Other broadleaves	121	475	*15*	164	580	*15*

Table 41 (cont'd) 50-year forecast of standing volume in broadleaves by principal species; average annual volume within period

Principal species	2032–36			2037–41		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**301**	**7,968**	***6***	**366**	**8,720**	***6***
Oak	9	1,395	*22*	15	1,492	*21*
Beech	29	829	*25*	33	895	*24*
Sycamore	7	876	*16*	8	965	*15*
Ash	2	1,327	*17*	2	1,479	*17*
Birch	31	1,328	*18*	39	1,425	*17*
Sweet Chestnut	0	0	-	0	0	-
Hazel	< 1	268	*24*	< 1	290	*24*
Hawthorn	0	309	*28*	0	365	*27*
Alder	9	641	*26*	9	679	*25*
Willow	0	327	*43*	0	353	*42*
Other broadleaves	213	685	*14*	259	791	*14*

Table 41 (cont'd) 50-year forecast of standing volume in broadleaves by principal species; average annual volume within period

Principal species	2042–46			2047–51		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**425**	**9,374**	***6***	**481**	**9,956**	***6***
Oak	22	1,579	*21*	30	1,673	*20*
Beech	39	969	*24*	48	1,038	*23*
Sycamore	8	1,032	*15*	7	1,097	*14*
Ash	3	1,597	*17*	3	1,676	*17*
Birch	47	1,510	*17*	57	1,574	*17*
Sweet Chestnut	0	0	-	0	0	-
Hazel	< 1	308	*24*	< 1	318	*24*
Hawthorn	0	421	*26*	0	477	*26*
Alder	9	706	*25*	9	728	*25*
Willow	0	379	*42*	0	403	*42*
Other broadleaves	297	886	*14*	327	982	*14*

Table 41 (cont'd) 50-year forecast of standing volume in broadleaves by principal species; average annual volume within period

Principal species	2052–56			2057–61		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**532**	**10,524**	***6***	**572**	**10,979**	***6***
Oak	39	1,769	*20*	49	1,862	*19*
Beech	58	1,115	*22*	70	1,184	*22*
Sycamore	7	1,170	*14*	7	1,183	*14*
Ash	3	1,740	*17*	3	1,789	*17*
Birch	64	1,635	*17*	62	1,694	*17*
Sweet Chestnut	0	0	-	0	0	-
Hazel	< 1	329	*24*	< 1	339	*24*
Hawthorn	0	530	*26*	0	581	*26*
Alder	9	747	*25*	9	764	*25*
Willow	0	426	*41*	0	447	*41*
Other broadleaves	351	1,071	*14*	370	1,144	*14*

Table 41 (cont'd) 50-year forecast of standing volume in broadleaves by principal species; average annual volume within period

Principal species	2062–66		
	FC	Private sector	
	volume (000 m^3 obs)		*SE%*
North East			
All broadleaves	**606**	**11,347**	***6***
Oak	60	1,948	*19*
Beech	84	1,247	*21*
Sycamore	7	1,148	*15*
Ash	3	1,825	*17*
Birch	59	1,748	*17*
Sweet Chestnut	0	0	-
Hazel	< 1	348	*24*
Hawthorn	0	629	*26*
Alder	9	776	*25*
Willow	0	467	*41*
Other broadleaves	383	1,217	*14*

50-year forecast of net increment in broadleaves

Figure 47 50-year forecast of net increment in broadleaves; average annual volume within period

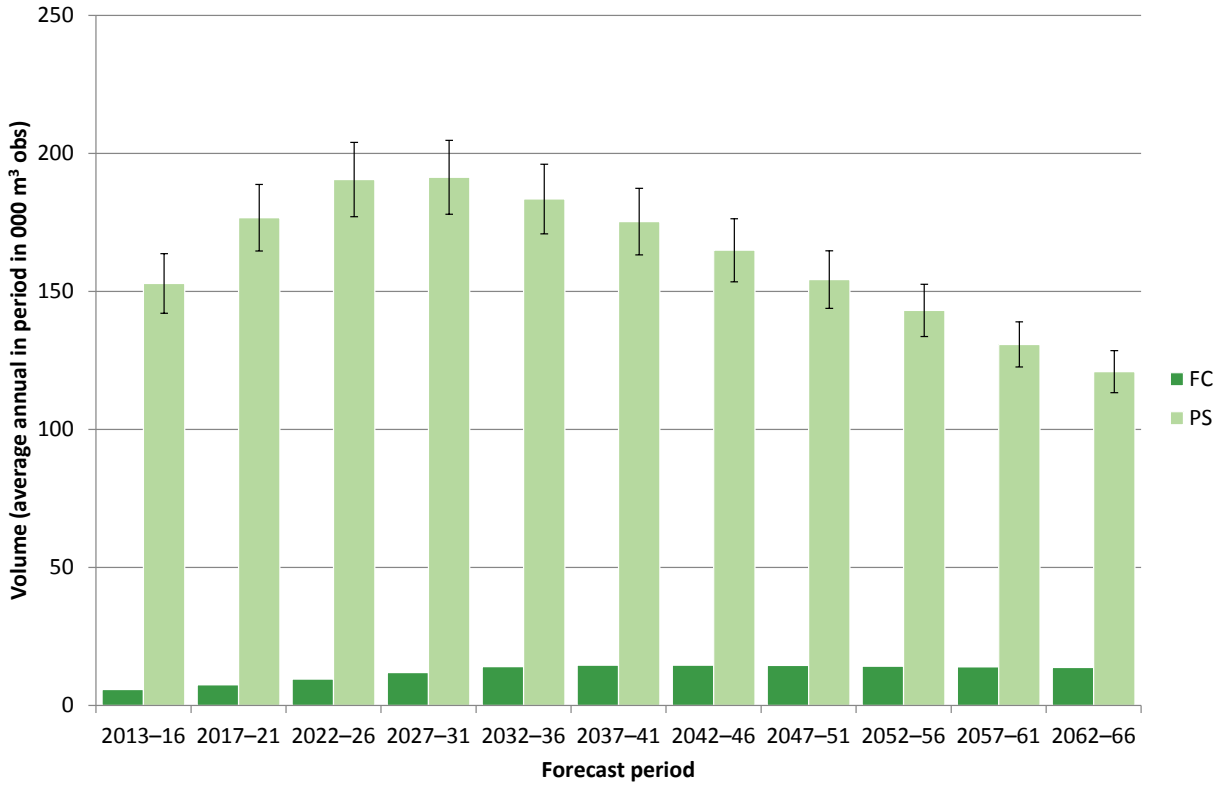

Table 42 50–year forecast of net increment in broadleaves; average annual volume within period

Forecast period	FC	Private sector		Total
	volume (000 m³ obs)	volume (000 m³ obs)	*SE%*	volume (000 m³ obs)
North East				
2013–16	6	153	*7*	**159**
2017–21	7	177	*7*	**184**
2022–26	10	191	*7*	**200**
2027–31	12	191	*7*	**203**
2032–36	14	183	*7*	**198**
3037–41	15	175	*7*	**190**
2042–46	15	165	*7*	**179**
2047–51	14	154	*7*	**169**
2052–56	14	143	*7*	**157**
2057–61	14	131	*6*	**145**
2062–66	14	121	*6*	**135**

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Table 43 50–year forecast of net increment in broadleaves by principal species; average annual volume within period

Principal species	2013–16			2017–21		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**6**	**153**	***7***	**7**	**177**	***7***
Oak	< 1	19	*20*	< 1	20	*18*
Beech	< 1	14	*21*	< 1	15	*19*
Sycamore	< 1	28	*19*	< 1	28	*19*
Ash	< 1	27	*17*	< 1	34	*20*
Birch	< 1	25	*21*	< 1	30	*17*
Sweet Chestnut	0	0	-	0	0	-
Hazel	< 1	4	*31*	< 1	5	*32*
Hawthorn	0	8	*33*	0	9	*28*
Alder	< 1	7	*26*	< 1	9	*23*
Willow	0	4	*32*	0	5	*36*
Other broadleaves	4	18	*15*	6	22	*15*

Table 43 (cont'd) 50–year forecast of net increment in broadleaves by principal species; average annual volume within period

Principal species	2022–26			2027–31		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**10**	**191**	***7***	**12**	**191**	***7***
Oak	< 1	21	*16*	< 1	22	*16*
Beech	< 1	16	*18*	< 1	16	*18*
Sycamore	< 1	25	*20*	< 1	23	*18*
Ash	< 1	41	*22*	< 1	42	*22*
Birch	< 1	31	*16*	< 1	29	*16*
Sweet Chestnut	0	0	-	0	0	-
Hazel	< 1	6	*33*	< 1	6	*33*
Hawthorn	0	10	*26*	0	12	*24*
Alder	< 1	10	*22*	< 1	10	*22*
Willow	0	6	*38*	0	6	*38*
Other broadleaves	8	24	*14*	9	25	*14*

Table 43 (cont'd) 50–year forecast of net increment in broadleaves by principal species; average annual volume within period

Principal species	2032–36			2037–41		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**14**	**183**	***7***	**15**	**175**	***7***
Oak	< 1	21	*16*	1	21	*16*
Beech	1	16	*18*	2	16	*17*
Sycamore	< 1	25	*18*	< 1	27	*20*
Ash	< 1	38	*21*	< 1	34	*20*
Birch	1	26	*15*	2	23	*15*
Sweet Chestnut	0	0	-	0	0	-
Hazel	0	5	*32*	0	4	*32*
Hawthorn	0	12	*24*	0	12	*24*
Alder	< 1	9	*21*	< 1	8	*21*
Willow	0	6	*38*	0	5	*38*
Other broadleaves	10	25	*14*	9	25	*14*

Table 43 (cont'd) 50–year forecast of net increment in broadleaves by principal species; average annual volume within period

Principal species	2042–46			2047–51		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**15**	**165**	***7***	**14**	**154**	***7***
Oak	2	22	*15*	2	22	*15*
Beech	2	16	*17*	3	17	*17*
Sycamore	< 1	26	*21*	< 1	25	*22*
Ash	< 1	30	*19*	< 1	26	*18*
Birch	2	20	*14*	3	17	*14*
Sweet Chestnut	0	0	-	0	0	-
Hazel	0	4	*30*	0	3	*28*
Hawthorn	0	12	*24*	0	12	*24*
Alder	< 1	6	*21*	< 1	5	*21*
Willow	0	5	*37*	0	5	*37*
Other broadleaves	8	23	*14*	7	22	*14*

Table 43 (cont'd) 50–year forecast of net increment in broadleaves by principal species; average annual volume within period

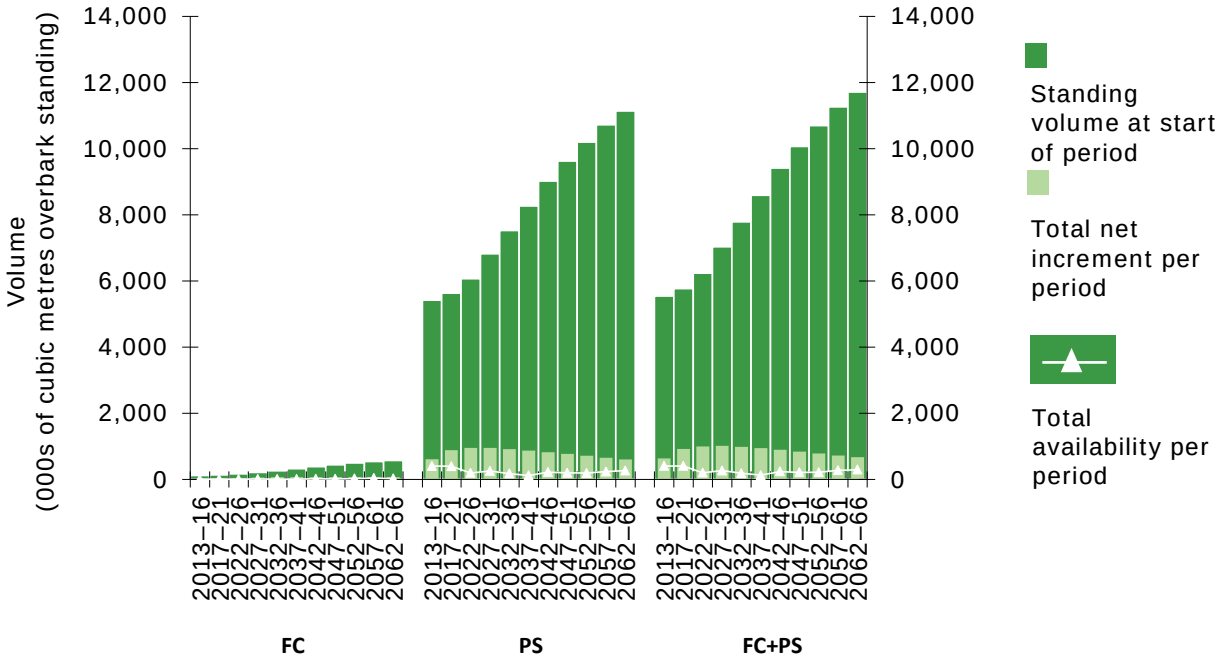
Principal species	2052–56			2057–61		
	FC	Private sector		FC	Private sector	
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)		*SE%*
North East						
All broadleaves	**14**	**143**	***7***	**14**	**131**	***6***
Oak	3	21	*15*	3	21	*14*
Beech	3	17	*17*	4	17	*16*
Sycamore	< 1	24	*22*	< 1	20	*21*
Ash	< 1	22	*18*	< 1	18	*18*
Birch	3	16	*13*	3	15	*13*
Sweet Chestnut	0	0	-	0	0	-
Hazel	0	2	*27*	0	2	*27*
Hawthorn	0	11	*24*	0	11	*25*
Alder	< 1	4	*20*	< 1	4	*20*
Willow	0	5	*37*	0	4	*37*
Other broadleaves	5	20	*14*	5	19	*14*

Table 43 (cont'd) 50–year forecast of net increment in broadleaves by principal species; average annual volume within period

Principal species	2062–66		
	FC	Private sector	
	volume (000 m^3 obs)		*SE%*
North East			
All broadleaves	**14**	**121**	***6***
Oak	3	21	*14*
Beech	4	17	*17*
Sycamore	< 1	15	*22*
Ash	< 1	16	*19*
Birch	2	14	*13*
Sweet Chestnut	0	0	-
Hazel	0	2	*28*
Hawthorn	0	11	*25*
Alder	< 1	3	*21*
Willow	0	4	*37*
Other broadleaves	4	18	*14*

Combined standing volume, net increment and availability

Figure 48 combined hardwood standing volume, net increment and availability



Go to Part 3

Part 4 – Tree health

Go to Part 4

Ash

Figure 49 Stocked area of ash by age class

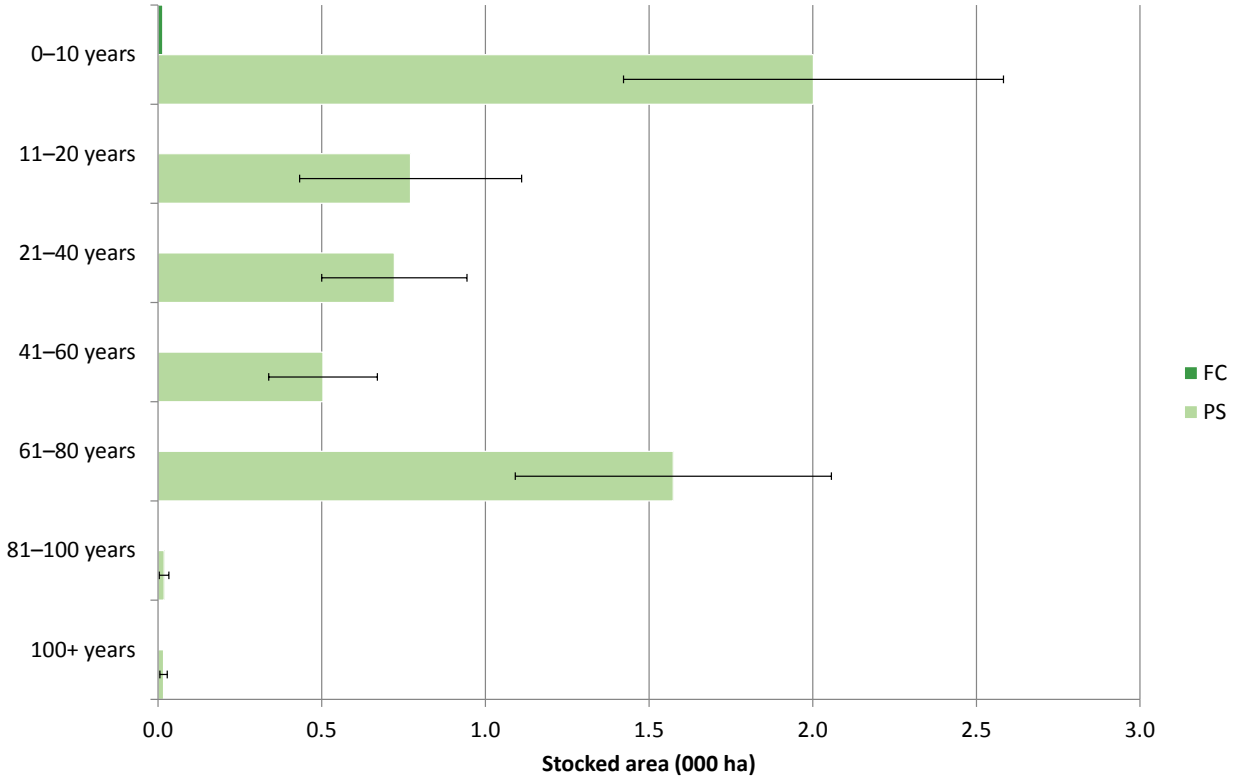


Table 44 Stocked area of ash by age class

Age class (years)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East				
0–10	< 0.1	2.0	*29*	**2.0**
11–20	< 0.1	0.8	*44*	**0.8**
21–40	< 0.1	0.7	*31*	**0.7**
41–60	< 0.1	0.5	*33*	**0.5**
61–80	0.0	1.6	*31*	**1.6**
81–100	0.0	< 0.1	*79*	**< 0.1**
100+	< 0.1	< 0.1	*69*	**< 0.1**
Total	**< 0.1**	**5.6**	***16***	**5.6**

Go to Part 4

Figure 50 Stocked area of ash by mean stand dbh class

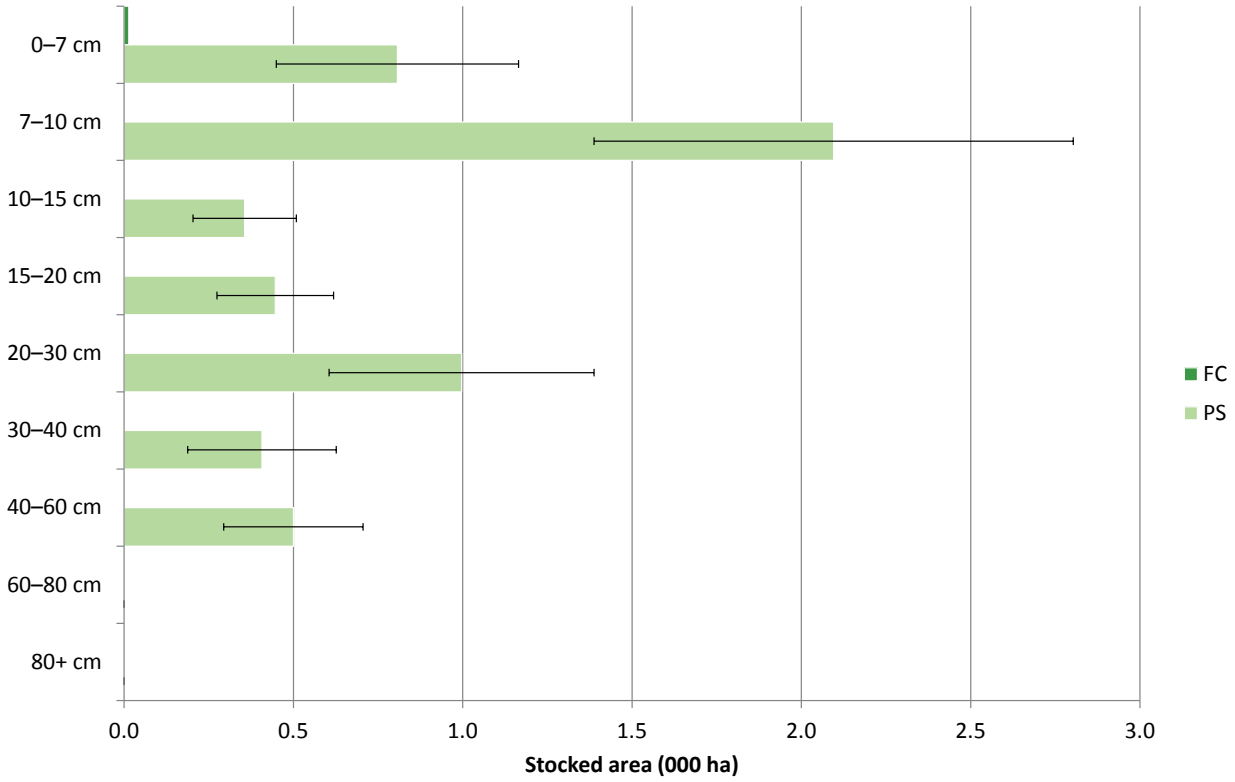


Table 45 Stocked area of ash by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East				
0–7	< 0.1	0.8	*44*	**0.8**
7–10	< 0.1	2.1	*34*	**2.1**
10–15	0.0	0.4	*43*	**0.4**
15–20	< 0.1	0.4	*39*	**0.4**
20–30	< 0.1	1.0	*39*	**1.0**
30–40	< 0.1	0.4	*54*	**0.4**
40–60	0.0	0.5	*41*	**0.5**
60–80	0.0	0.0	-	**0.0**
80+	0.0	0.0	-	**0.0**
Total	**< 0.1**	**5.6**	***16***	**5.6**

Figure 51 Standing volume of ash by age class

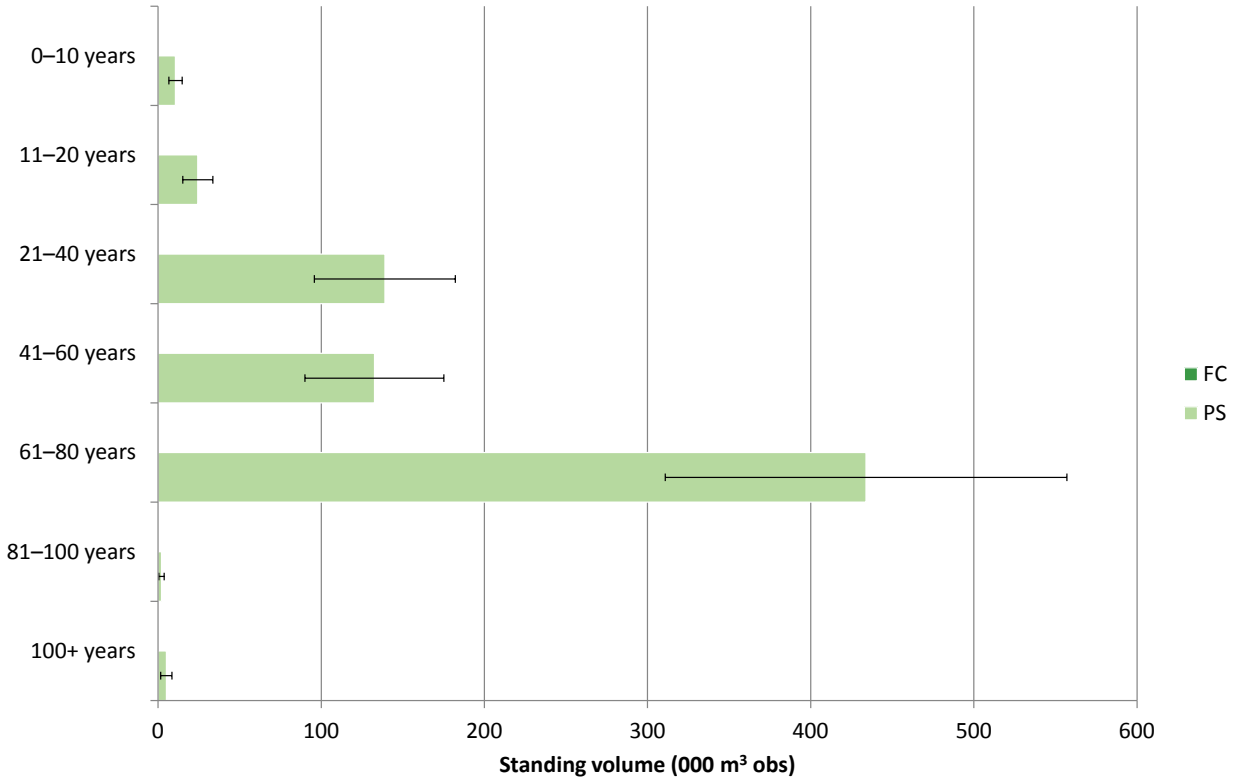


Table 46 Standing volume of ash by age class

Age class (years)	FC volume (000 m^3 obs)	Private sector volume (000 m^3 obs)	Private sector *SE%*	Total volume (000 m^3 obs)
North East				
0–10	0	11	*39*	**11**
11–20	< 1	24	*38*	**24**
21–40	0	139	*31*	**139**
41–60	< 1	133	*32*	**133**
61–80	< 1	434	*28*	**434**
81–100	0	2	*79*	**2**
100+	0	5	*68*	**5**
Total	**< 1**	**748**	***18***	**748**

Figure 52 Standing volume of ash by mean stand dbh class

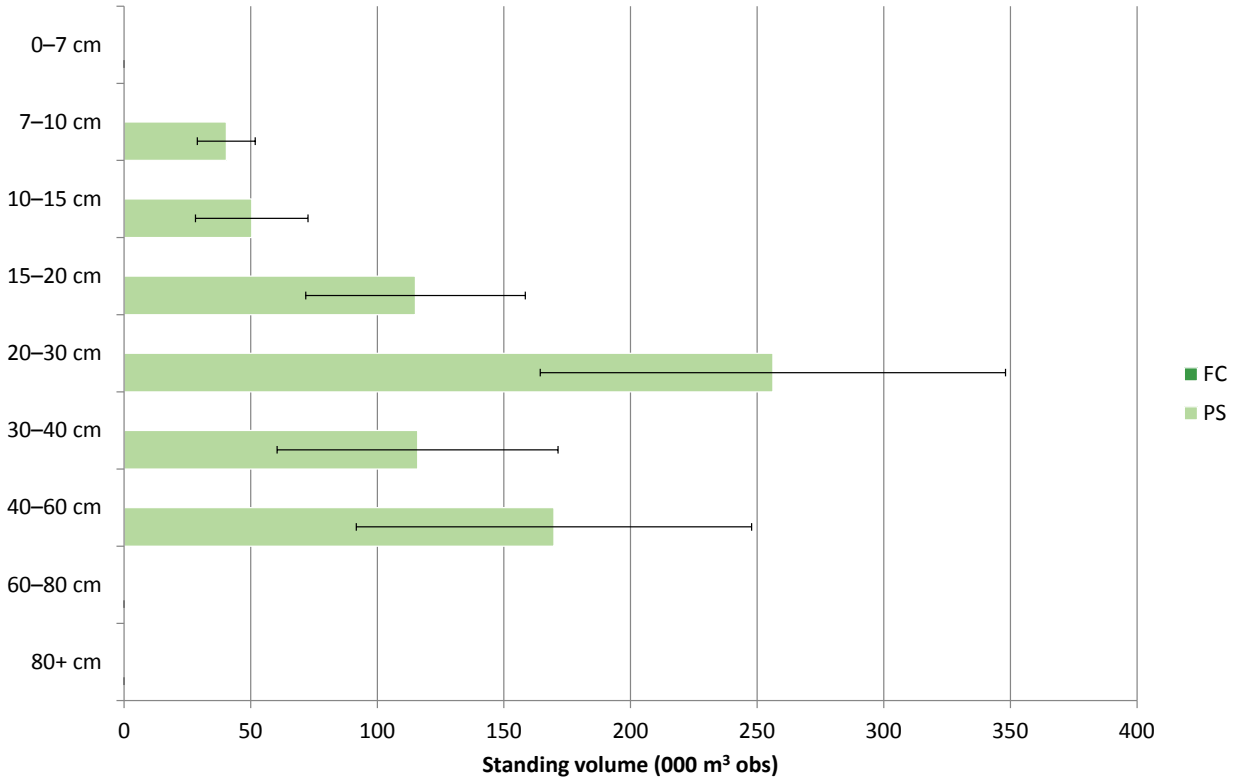


Table 47 Standing volume of ash by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
0–7	0	0	-	**0**
7–10	< 1	40	*28*	**40**
10–15	0	50	*44*	**50**
15–20	< 1	115	*38*	**115**
20–30	< 1	256	*36*	**256**
30–40	< 1	116	*48*	**116**
40–60	0	170	*46*	**170**
60–80	0	0	-	**0**
80+	0	0	-	**0**
Total	**< 1**	**748**	***18***	**748**

Figure 53 Number of ash trees by age class

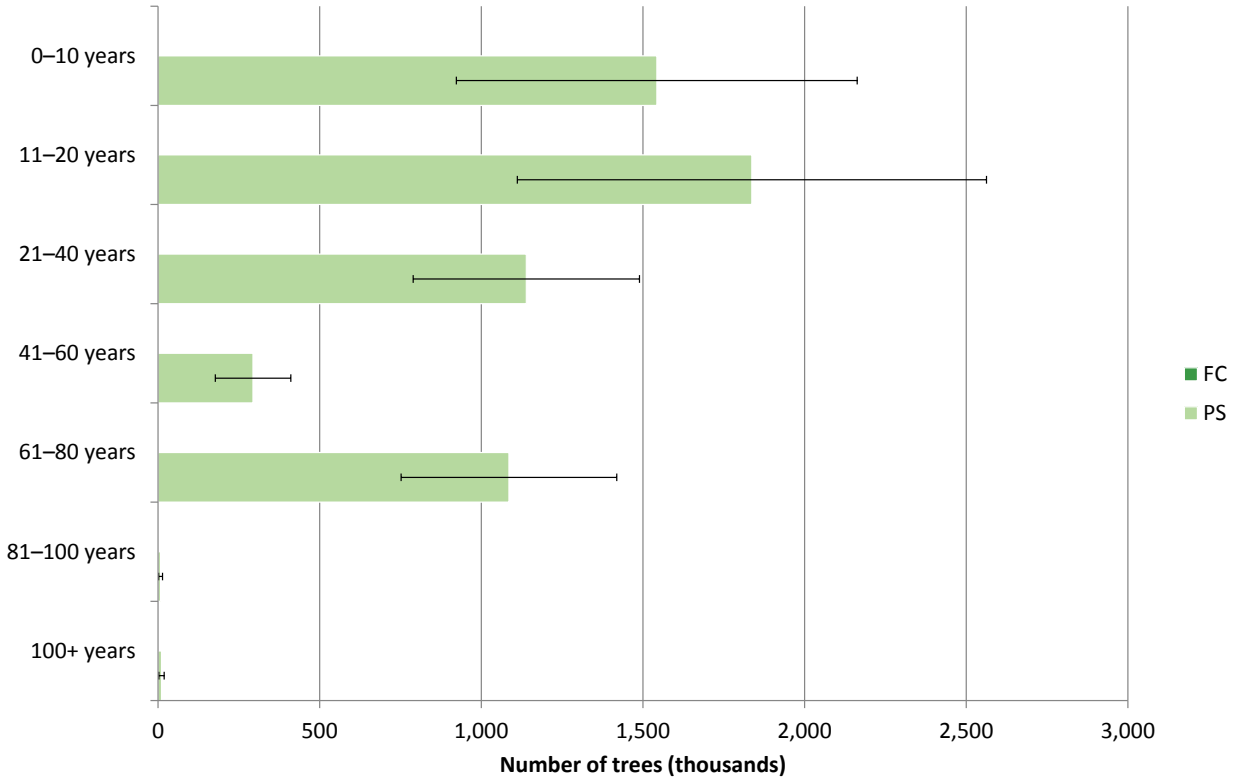


Table 48 Number of ash trees by age class

Age class (years)	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East				
0–10	0	1,543	*40*	**1,543**
11–20	2	1,837	*40*	**1,839**
21–40	0	1,139	*31*	**1,139**
41–60	< 1	294	*40*	**294**
61–80	< 1	1,085	*31*	**1,086**
81–100	0	8	*79*	**8**
100+	0	11	*78*	**11**
Total	**3**	**5,916**	***22***	**5,919**

Figure 54 Number of ash trees by mean stand dbh class

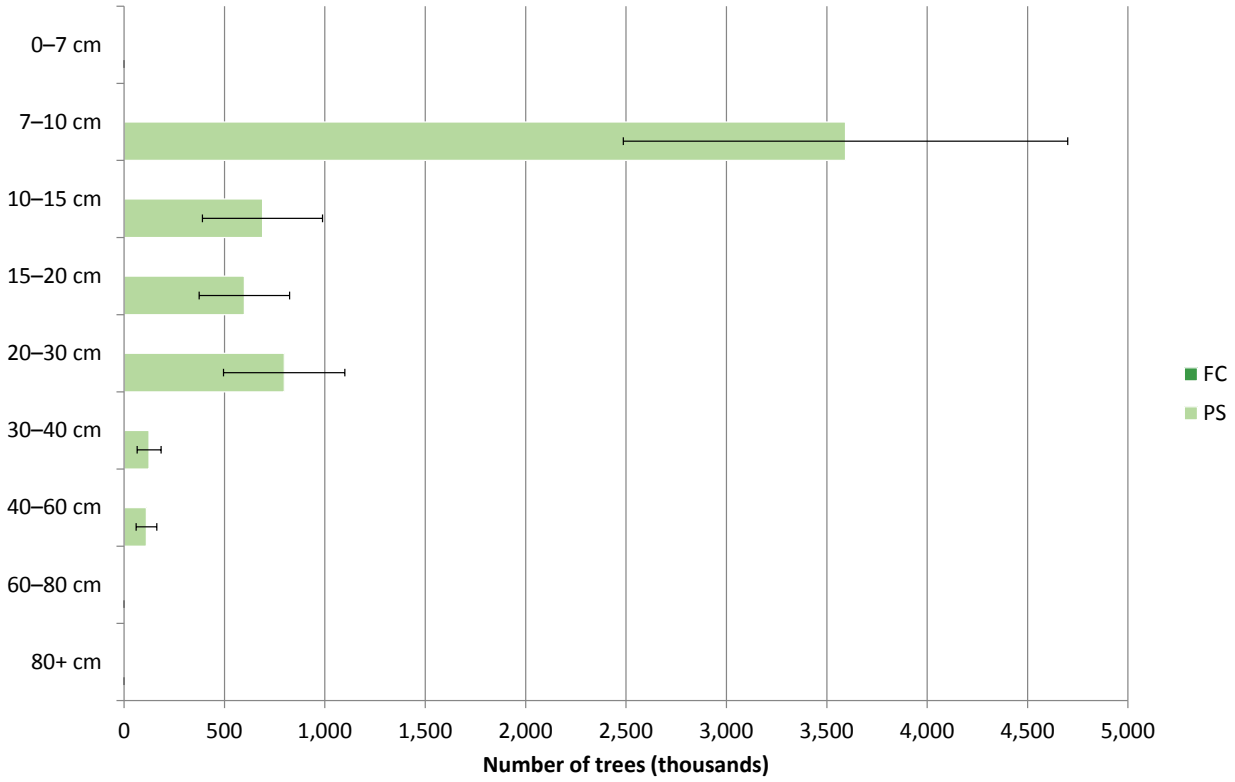
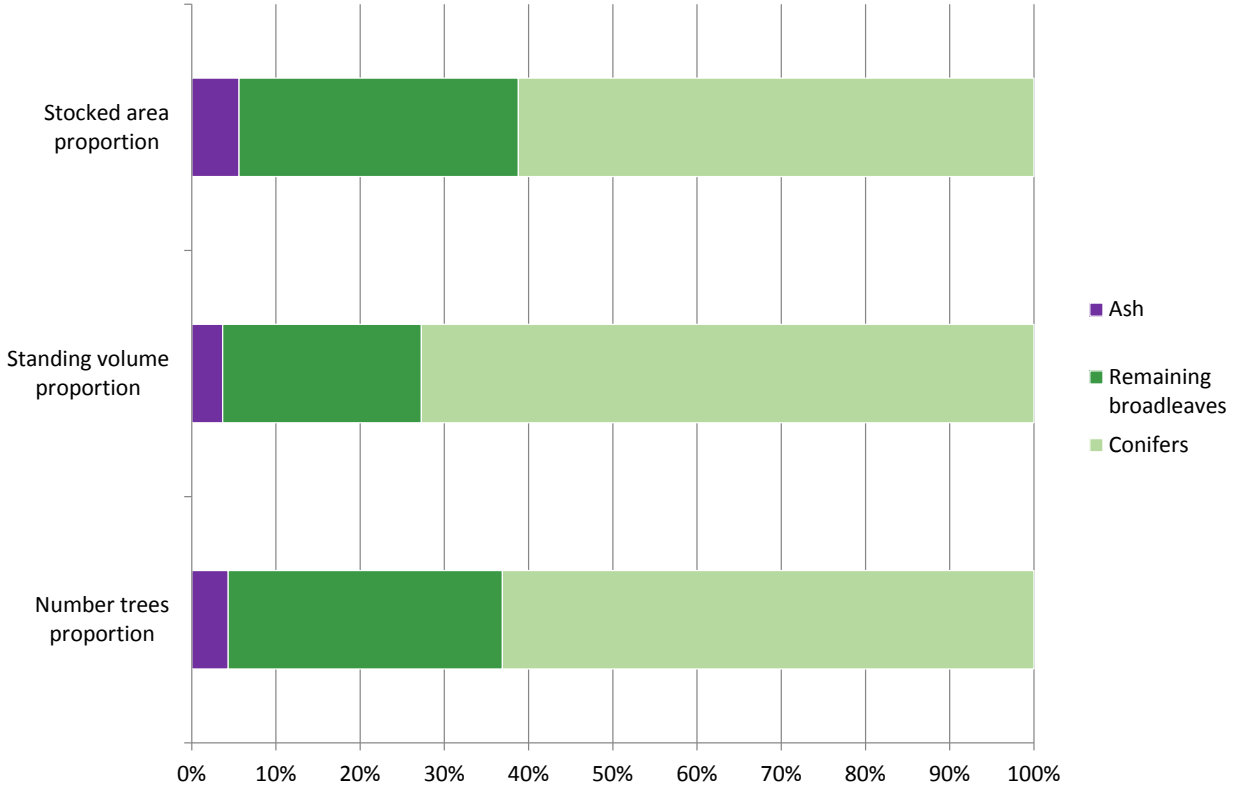


Table 49 Number of ash trees by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East				
0–7	0	0	-	**0**
7–10	2	3,593	*31*	**3,596**
10–15	0	690	*43*	**690**
15–20	< 1	599	*38*	**600**
20–30	< 1	797	*38*	**798**
30–40	< 1	125	*48*	**125**
40–60	0	112	*46*	**112**
60–80	0	0	-	**0**
80+	0	0	-	**0**
Total	**3**	**5,916**	***22***	**5,919**

Figure 55 Ash as a proportion of woodland



Go to Part 4

Part 4 – Tree health

Table 50 Stocked area of ash as a proportion of woodland

Aligned area	Stocked area of ash			
	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East	< 0.1	5.6	*16*	**5.6**

Table 50 (cont'd) Stocked area of ash as a proportion of woodland

Aligned area	Stocked area of all broadleaves and all species			
	Total of all broadleaves	Total of all species	Percentage of ash in all broadleaves	Percentage of ash in all species
	area (000 ha)	area (000 ha)	(percent)	(percent)
North East	38.9	100.3	14	6

Table 51 Standing volume of ash as a proportion of woodland

Aligned area	Standing volume of ash			
	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East	< 1	748	*18*	**748**

Table 51 (cont'd) Standing volume of ash as a proportion of woodland

Aligned area	Standing volume of all broadleaves and all species			
	Total of all broadleaves	Total of all species	Percentage of ash in all broadleaves	Percentage of ash in all species
	volume (000 m^3 obs)	volume (000 m^3 obs)	(percent)	(percent)
North East	5,557	20,395	13	4

Table 52 Number of ash trees as a proportion of woodland

Aligned Area	Numbers of trees of ash			
	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East	3	5,916	*22*	**5,919**

Table 52 (cont'd) Number of ash trees as a proportion of woodland

Aligned Area	Number of trees of all broadleaves and all species			
	Total of all broadleaves	Total of all species	Percentage of ash in all broadleaves	Percentage of ash in all species
	number of trees (thousands)	number of trees (thousands)	(percent)	(percent)
North East	50,374	136,669	12	4

Go to Part 4

Oak

Figure 56 Stocked area of oak by age class

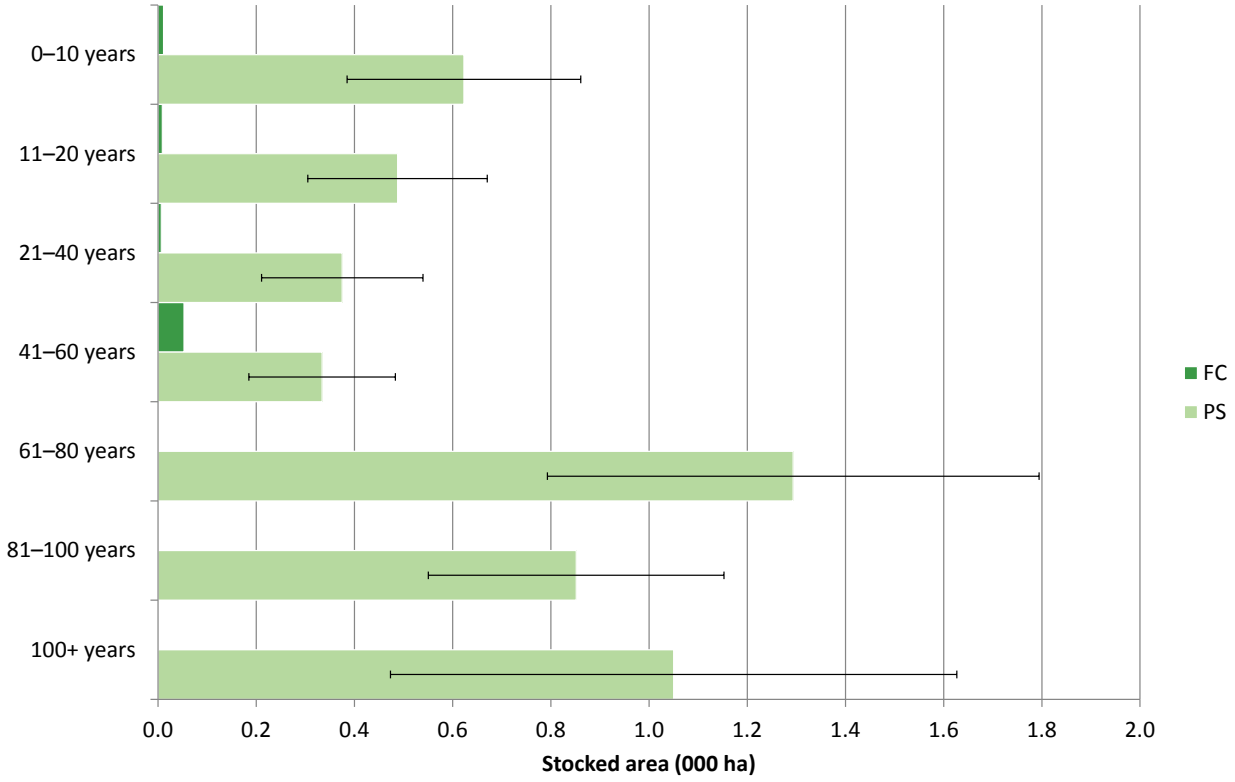


Table 53 Stocked area of oak by age class

Age class (years)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East				
0–10	< 0.1	0.6	*38*	**0.6**
11–20	< 0.1	0.5	*37*	**0.5**
21–40	< 0.1	0.4	*44*	**0.4**
41–60	< 0.1	0.3	*45*	**0.4**
61–80	0.0	1.3	*39*	**1.3**
81–100	< 0.1	0.9	*35*	**0.9**
100+	0.0	1.0	*55*	**1.0**
Total	**< 0.1**	**5.0**	***17***	**5.1**

Go to Part 4

Figure 57 Stocked area of oak by mean stand dbh class

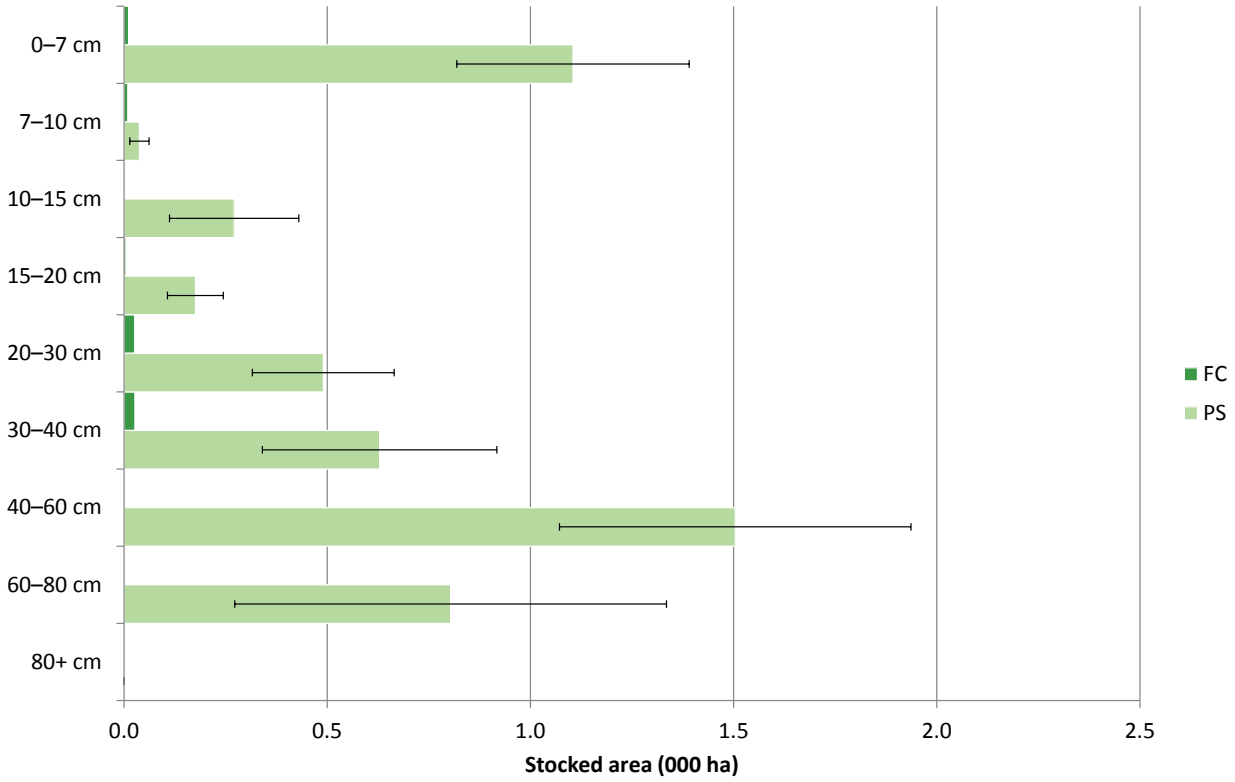


Table 54 Stocked area of oak by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East				
0–7	< 0.1	1.1	*26*	**1.1**
7–10	< 0.1	< 0.1	*62*	**< 0.1**
10–15	< 0.1	0.3	*59*	**0.3**
15–20	< 0.1	0.2	*39*	**0.2**
20–30	< 0.1	0.5	*36*	**0.5**
30–40	< 0.1	0.6	*46*	**0.7**
40–60	0.0	1.5	*29*	**1.5**
60–80	< 0.1	0.8	*66*	**0.8**
80+	0.0	0.0	-	**0.0**
Total	**< 0.1**	**5.0**	***17***	**5.1**

Figure 58 Standing volume of oak by age class

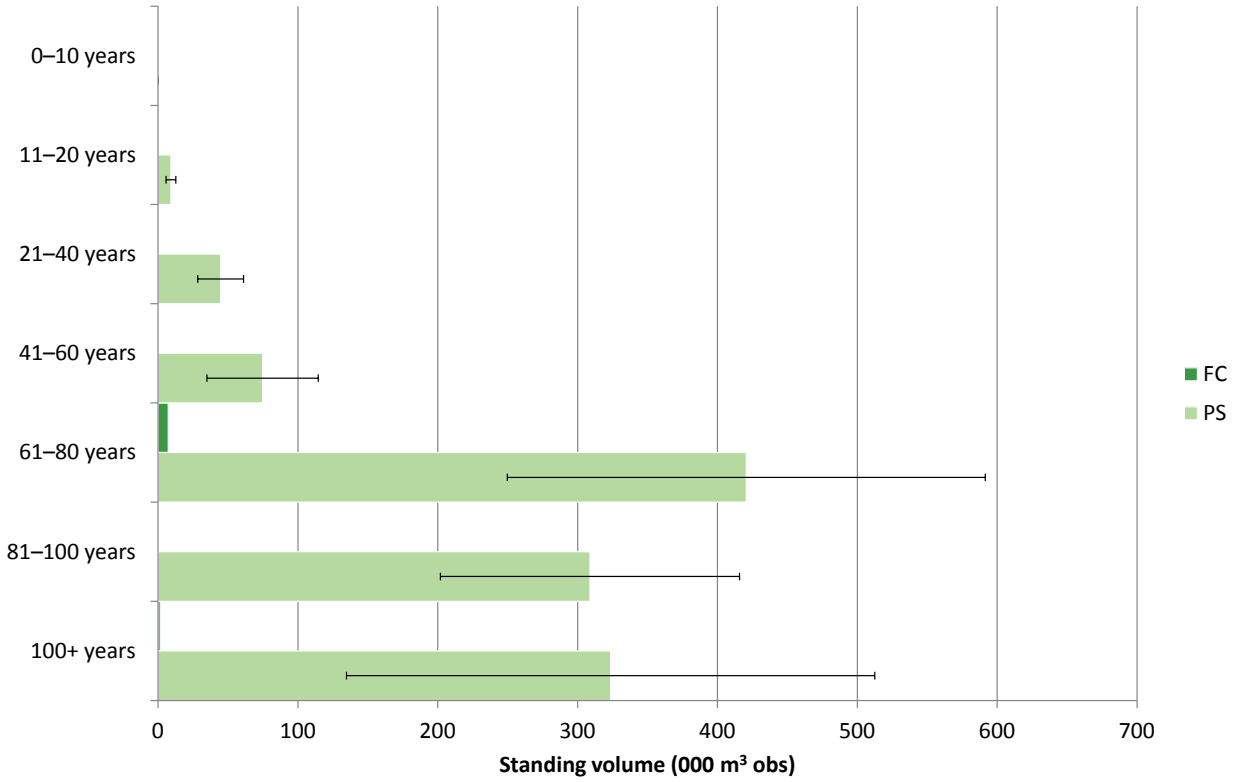


Table 55 Standing volume of oak by age class

Age class (years)	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
0–10	0	0	-	**0**
11–20	< 1	9	*39*	**9**
21–40	< 1	45	*37*	**45**
41–60	< 1	75	*53*	**75**
61–80	7	421	*41*	**428**
81–100	< 1	309	*35*	**309**
100+	2	324	*58*	**325**
Total	**9**	**1,182**	***23***	**1,191**

Figure 59 Standing volume of oak by mean stand dbh class

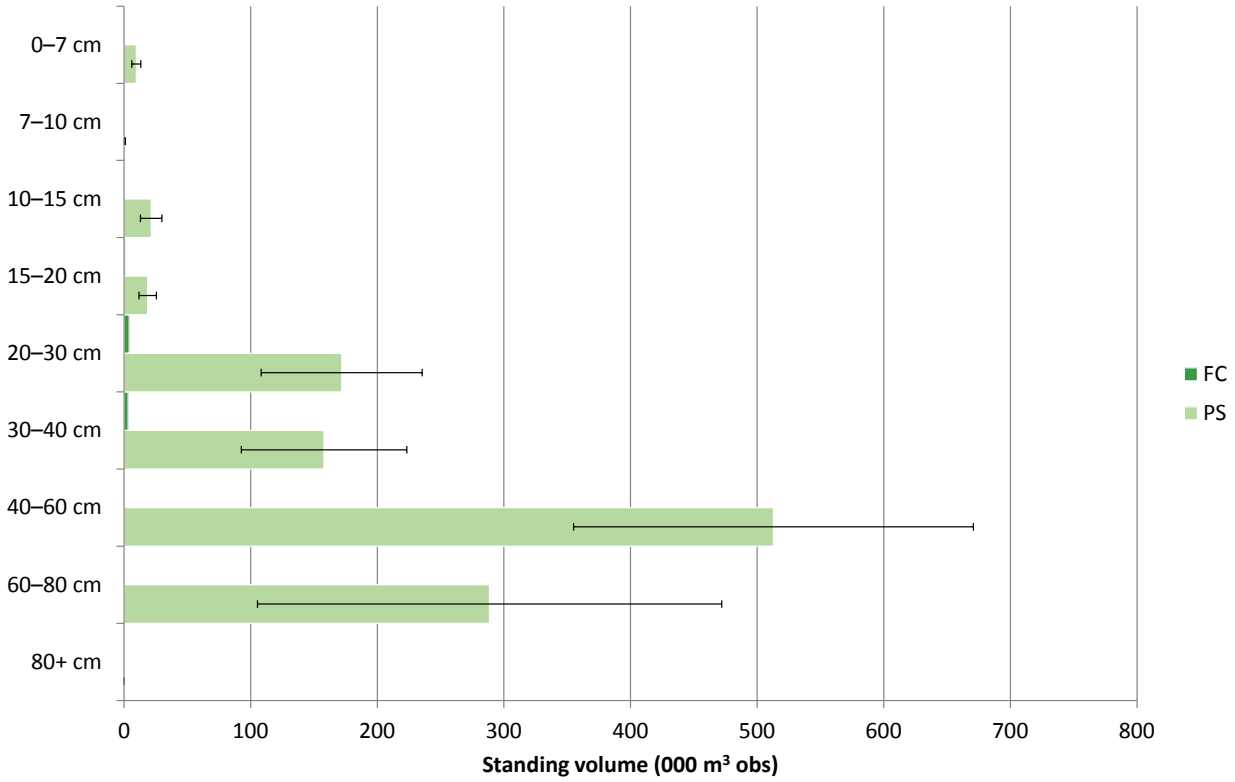


Table 56 Standing volume of oak by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
0–7	< 1	10	*37*	**10**
7–10	< 1	< 1	*46*	**< 1**
10–15	< 1	21	*39*	**22**
15–20	1	19	*37*	**20**
20–30	4	172	*37*	**176**
30–40	3	158	*41*	**161**
40–60	0	513	*31*	**513**
60–80	< 1	289	*64*	**289**
80+	0	0	-	**0**
Total	**9**	**1,182**	***23***	**1,191**

Figure 60 Number of oak trees by age class

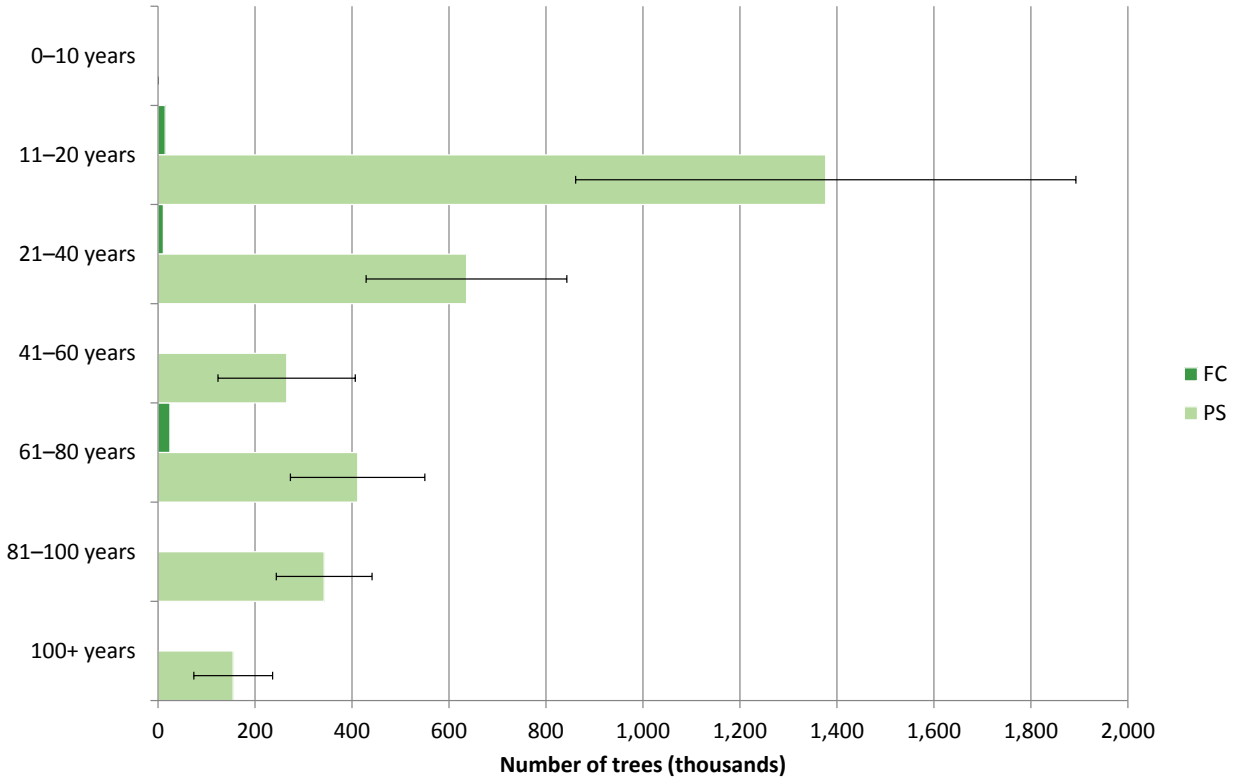


Table 57 Number of oak trees by age class

Age class (years)	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East				
0–10	0	0	-	**0**
11–20	15	1,377	*37*	**1,392**
21–40	11	636	*33*	**647**
41–60	3	265	*53*	**268**
61–80	24	412	*34*	**436**
81–100	< 1	343	*29*	**343**
100+	3	155	*52*	**158**
Total	**57**	**3,187**	***18***	**3,244**

Go to Part 4

Figure 61 Number of oak trees by mean stand dbh class

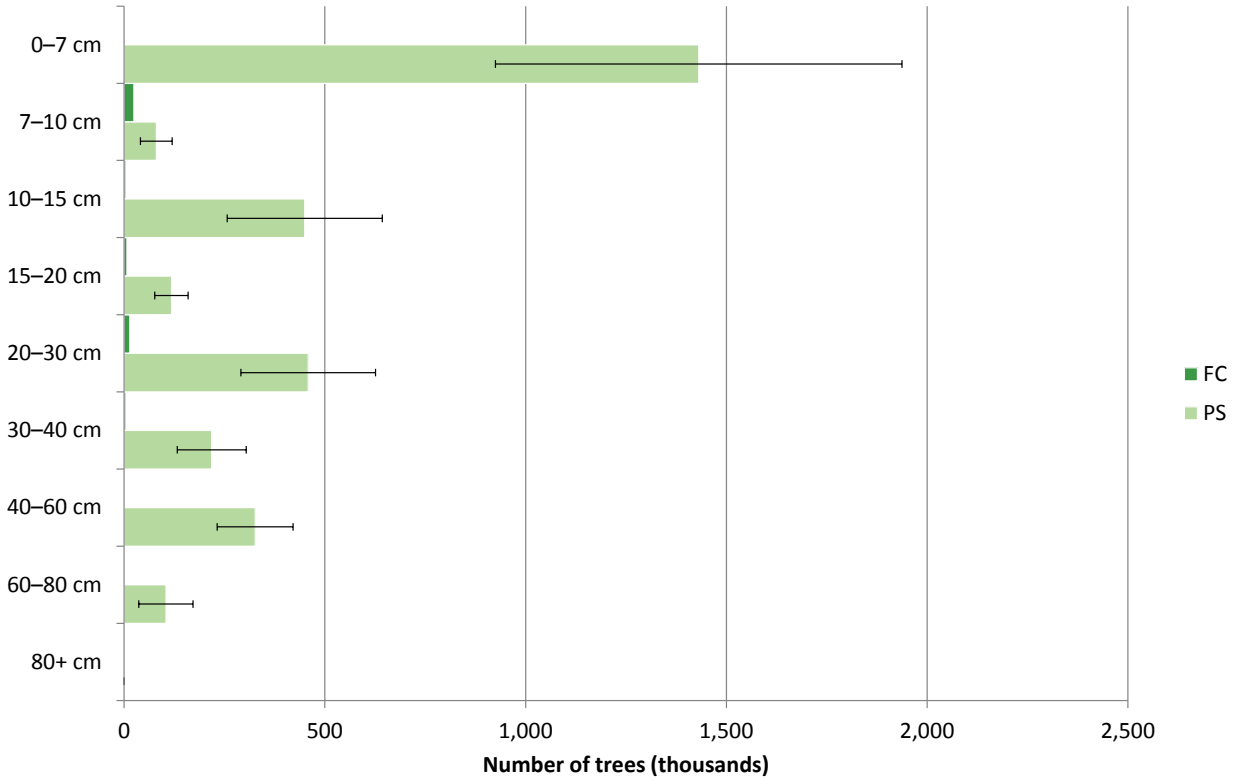
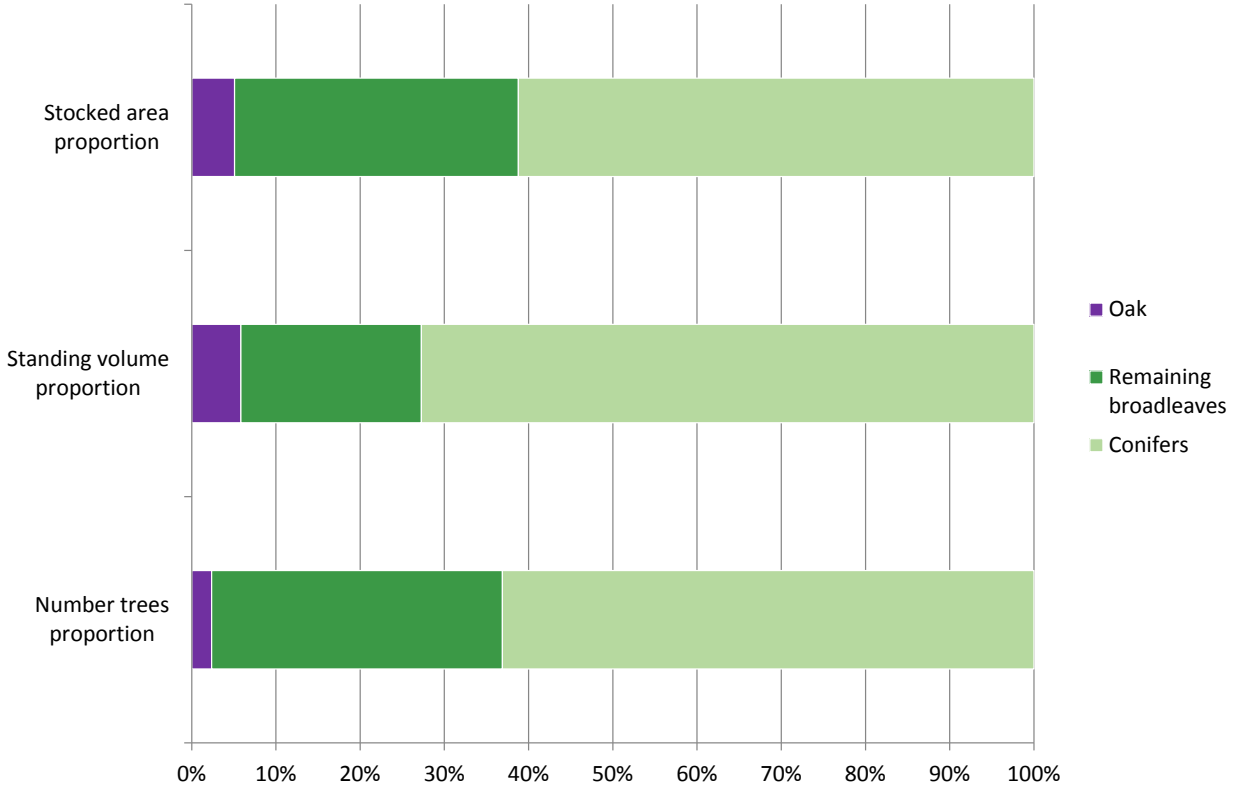


Table 58 Number of oak trees by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East				
0–7	1	1,431	*35*	**1,433**
7–10	24	80	*49*	**105**
10–15	5	450	*43*	**455**
15–20	7	118	*35*	**125**
20–30	14	459	*37*	**473**
30–40	5	218	*39*	**223**
40–60	0	327	*29*	**327**
60–80	< 1	104	*65*	**104**
80+	0	0	-	**0**
Total	**57**	**3,187**	***18***	**3,244**

Figure 62 Oak as a proportion of woodland



Go to Part 4

Part 4 – Tree health

Table 59 Stocked area of oak as a proportion of woodland

Aligned area	Stocked area of oak			
	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East	< 0.1	5.0	*17*	**5.1**

Table 59 (cont'd) Stocked area of oak as a proportion of woodland

Aligned area	Stocked area of all broadleaves and all species			
	Total of all broadleaves	Total of all species	Percentage of oak in all broadleaves	Percentage of oak in all species
	area (000 ha)	area (000 ha)	(percent)	(percent)
North East	38.9	100.3	13	5

Table 60 Standing volume of oak as a proportion of woodland

Aligned area	Standing volume of oak			
	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East	9	1,182	*23*	**1,191**

Table 60 (cont'd) Standing volume of oak as a proportion of woodland

Aligned area	Standing volume of all broadleaves and all species			
	Total of all broadleaves	Total of all species	Percentage of oak in all broadleaves	Percentage of oak in all species
	volume (000 m^3 obs)	volume (000 m^3 obs)	(percent)	(percent)
North East	5,557	20,395	21	6

Table 61 Number of oak trees as a proportion of woodland

Aligned Area	Numbers of trees of oak			
	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East	57	3,187	*18*	**3,244**

Table 61 (cont'd) Number of oak trees as a proportion of woodland

Aligned Area	Number of trees of all broadleaves and all species			
	Total of all broadleaves	Total of all species	Percentage of oak in all broadleaves	Percentage of oak in all species
	number of trees (thousands)	number of trees (thousands)	(percent)	(percent)
North East	50,374	136,669	6	2

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Sweet chestnut

Sweet chestnut is not recorded in the woodland under Forestry Commission ownership or management. Sweet chestnut was not found in any of the National Forest Inventory field sample assessments.

As a consequence, Figures 63-69 and Tables 62-70 have been omitted from this report.

Larch

Figure 70 Stocked area of larch by age class

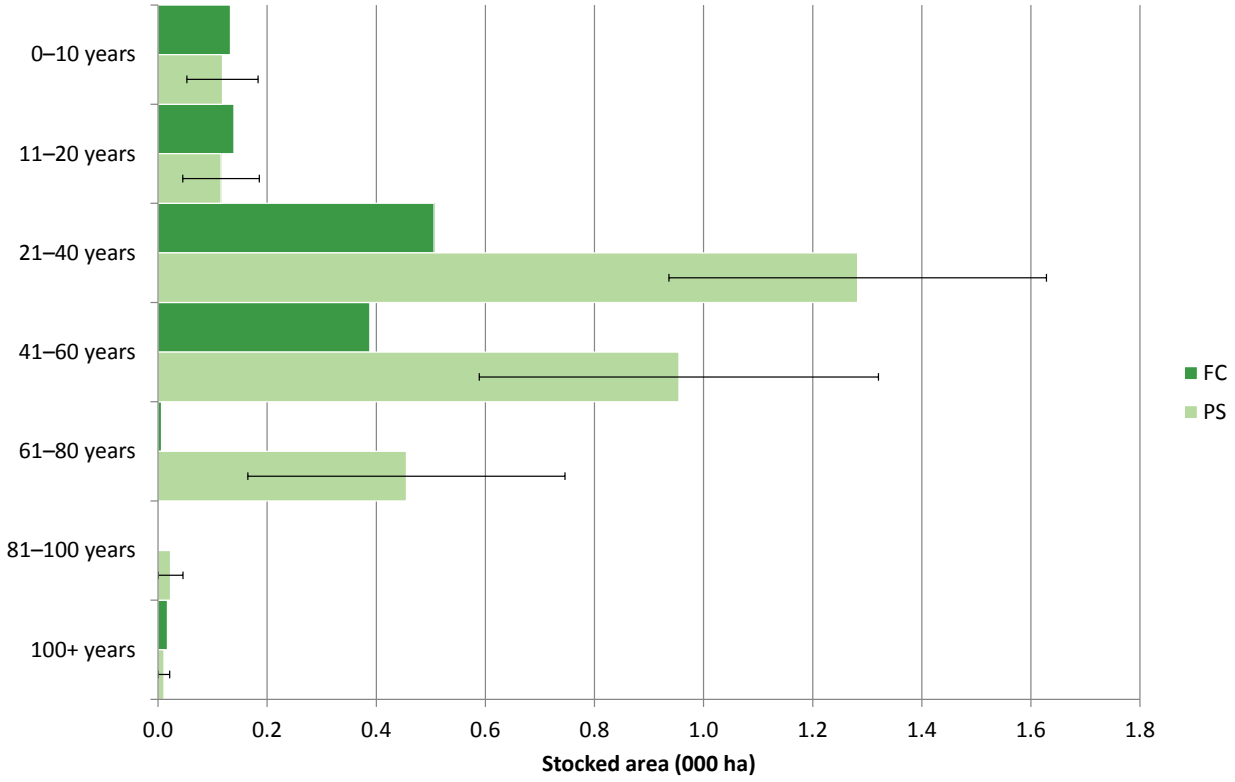

Table 71 Stocked area of larch by age class

Age class (years)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East				
0–10	0.1	0.1	*55*	**0.3**
11–20	0.1	0.1	*61*	**0.3**
21–40	0.5	1.3	*27*	**1.8**
41–60	0.4	1.0	*38*	**1.3**
61–80	< 0.1	0.5	*64*	**0.5**
81–100	0.0	< 0.1	*99*	**< 0.1**
100+	< 0.1	< 0.1	*99*	**< 0.1**
Total	**1.2**	**3.0**	***19***	**4.1**

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Figure 71 Stocked area of larch by mean stand dbh class

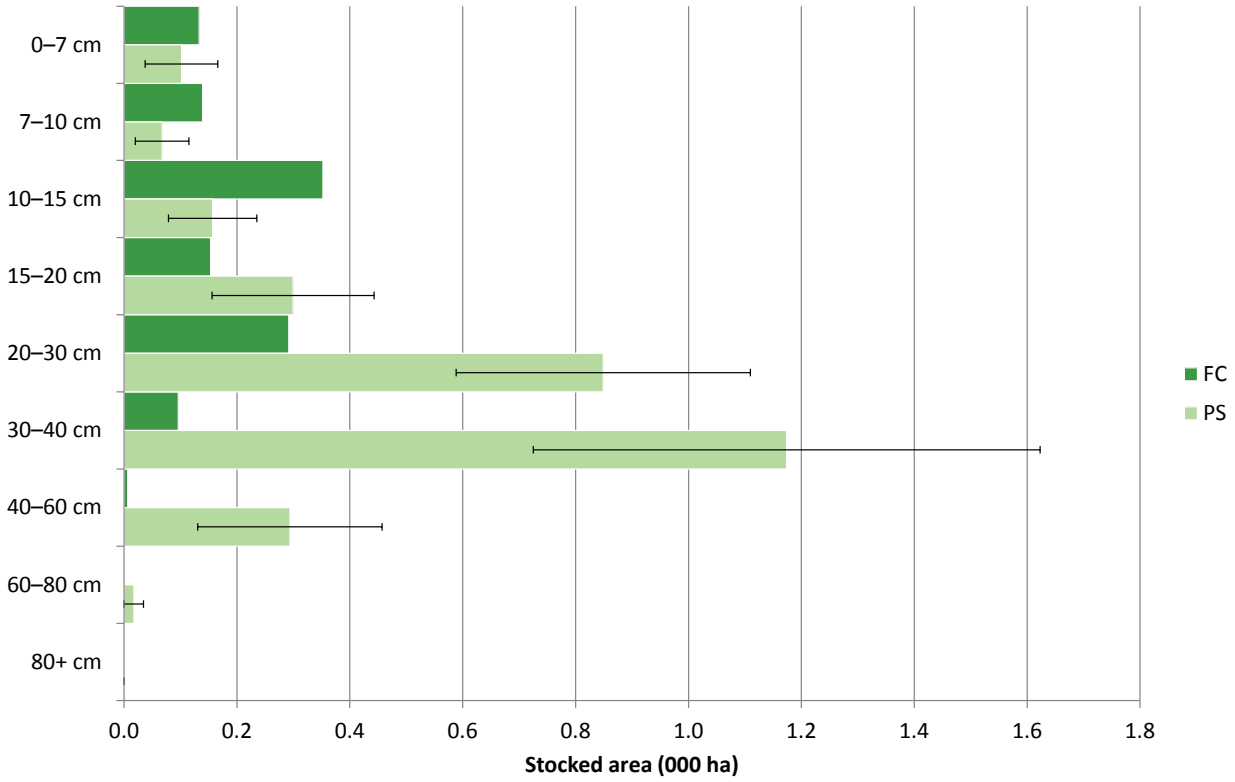

Table 72 Stocked area of larch by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East				
0–7	0.1	0.1	*63*	**0.2**
7–10	0.1	< 0.1	*70*	**0.2**
10–15	0.4	0.2	*50*	**0.5**
15–20	0.2	0.3	*48*	**0.5**
20–30	0.3	0.8	*31*	**1.1**
30–40	< 0.1	1.2	*38*	**1.3**
40–60	< 0.1	0.3	*56*	**0.3**
60–80	0.0	< 0.1	*99*	**< 0.1**
80+	< 0.1	0.0	-	**< 0.1**
Total	**1.2**	**3.0**	***19***	**4.1**

Figure 72 Standing volume of larch by age class

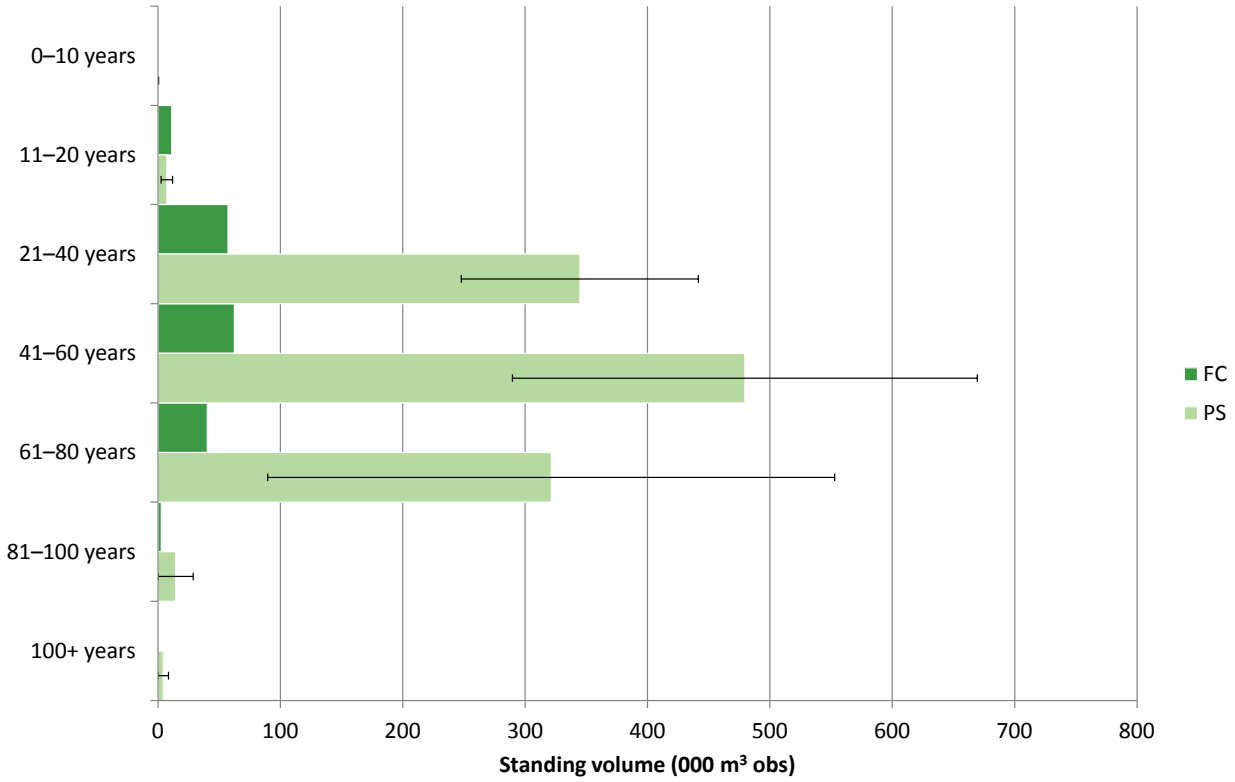

Table 73 Standing volume of larch by age class

Age class (years)	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
0–10	< 1	< 1	*61*	**< 1**
11–20	11	7	*65*	**18**
21–40	57	345	*28*	**402**
41–60	62	480	*40*	**542**
61–80	40	321	*72*	**362**
81–100	3	14	*99*	**17**
100+	< 1	4	*99*	**4**
Total	**174**	**1,172**	***27***	**1,345**

Figure 73 Standing volume of larch by mean stand dbh class

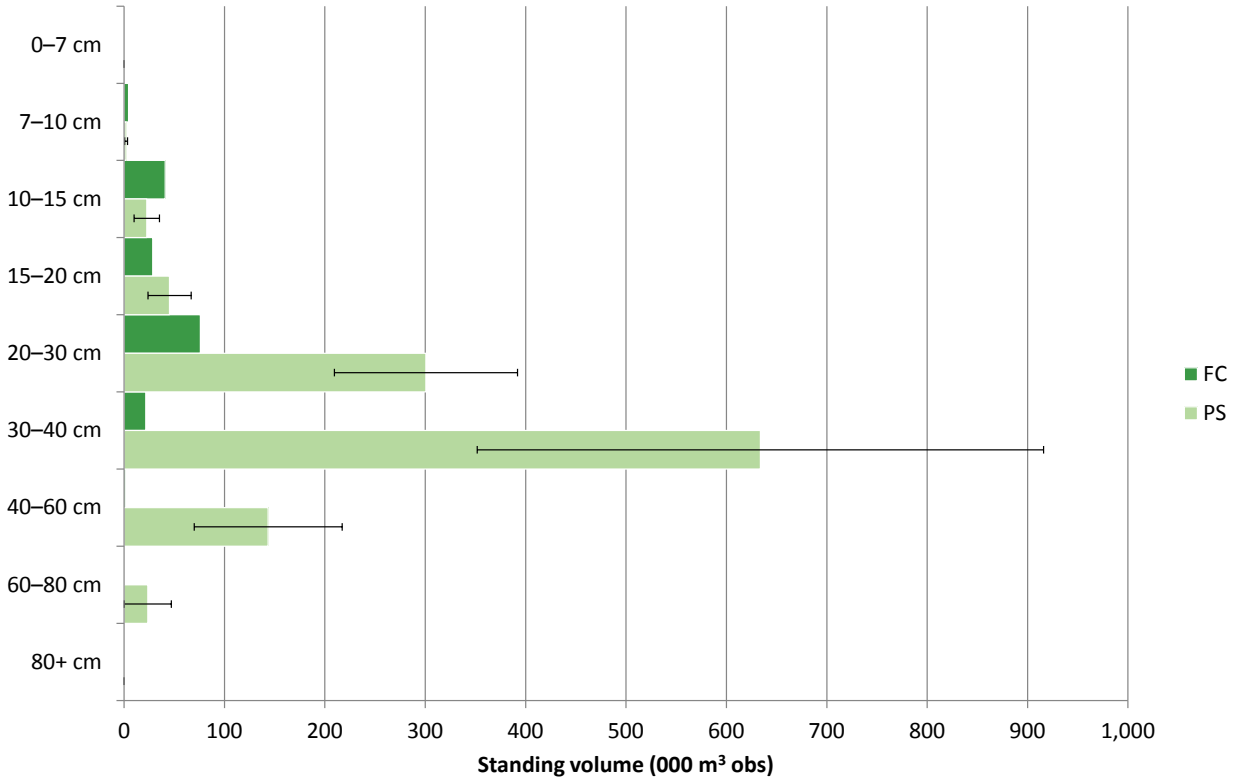

Table 74 Standing volume of larch by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East				
0–7	< 1	0	-	**< 1**
7–10	5	2	*70*	**7**
10–15	41	23	*56*	**64**
15–20	29	45	*47*	**74**
20–30	76	301	*30*	**377**
30–40	22	634	*45*	**656**
40–60	2	144	*51*	**145**
60–80	0	24	*99*	**24**
80+	< 1	0	-	**< 1**
Total	**174**	**1,172**	***27***	**1,345**

Figure 74 Number of larch trees by age class

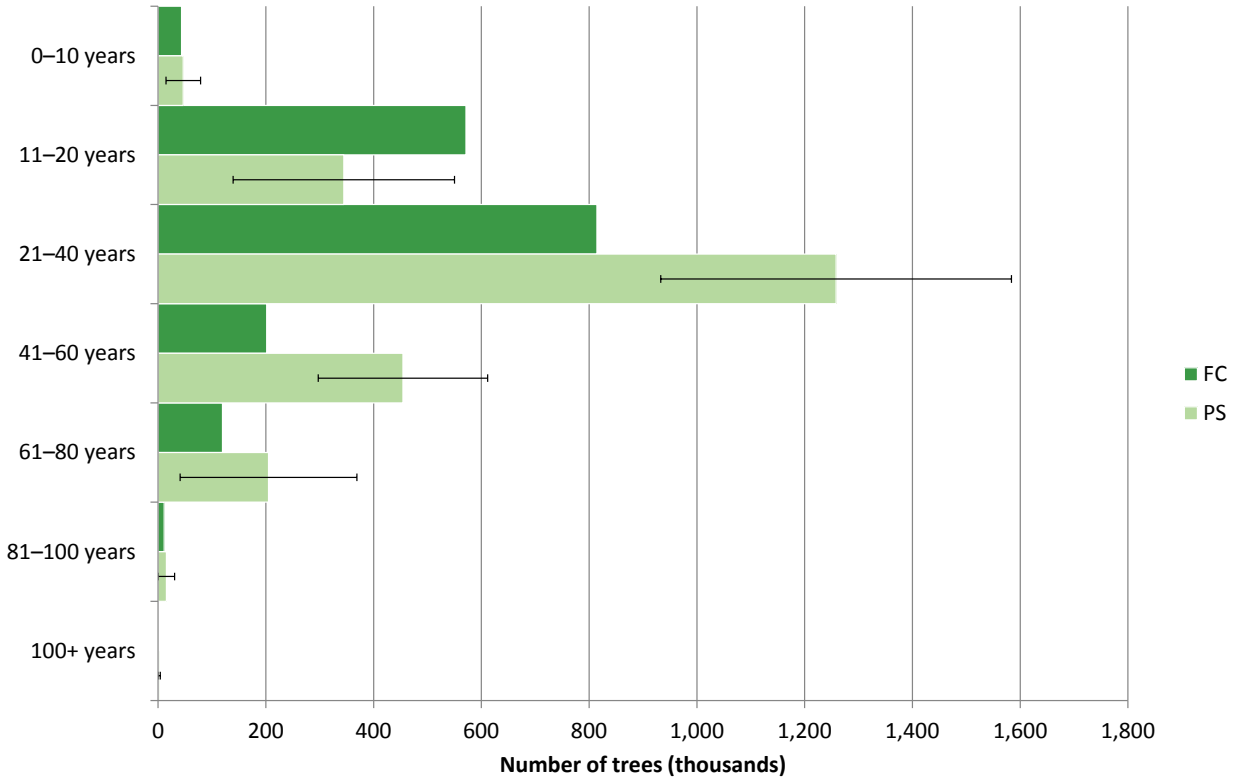

Table 75 Number of larch trees by age class

Age class (years)	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East				
0–10	44	47	*69*	**90**
11–20	572	345	*60*	**916**
21–40	815	1,258	*26*	**2,073**
41–60	202	455	*35*	**656**
61–80	120	205	*80*	**325**
81–100	11	15	*99*	**27**
100+	< 1	2	*99*	**2**
Total	**1,762**	**2,327**	***19***	**4,089**

Go to Part 4

Figure 75 Number of larch trees by mean stand dbh class

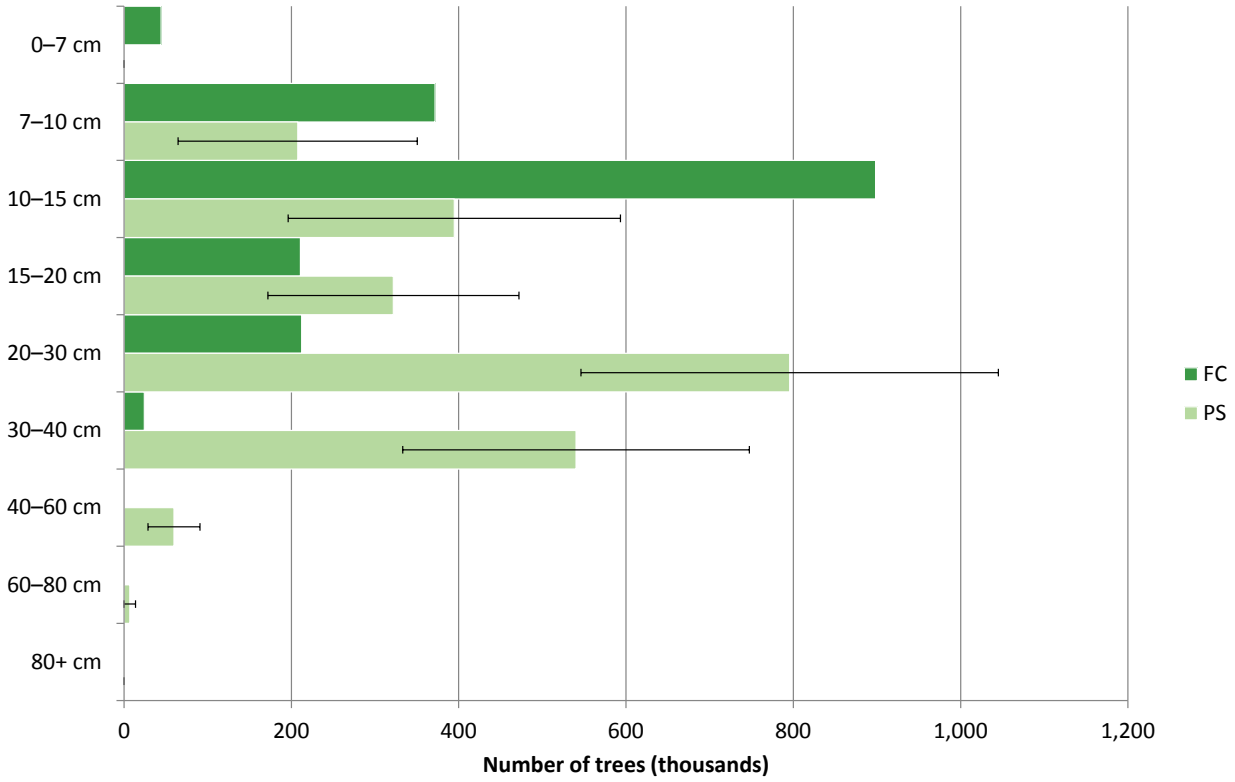

Table 76 Number of larch trees by mean stand dbh class

Mean stand DBH (cm)	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East				
0–7	44	0	-	**44**
7–10	372	208	*69*	**579**
10–15	898	395	*50*	**1,293**
15–20	211	322	*47*	**533**
20–30	212	796	*31*	**1,008**
30–40	24	540	*38*	**565**
40–60	1	60	*52*	**61**
60–80	0	7	*99*	**7**
80+	< 1	0	-	**< 1**
Total	**1,762**	**2,327**	***19***	**4,089**

Figure 76 Larch as a proportion of woodland

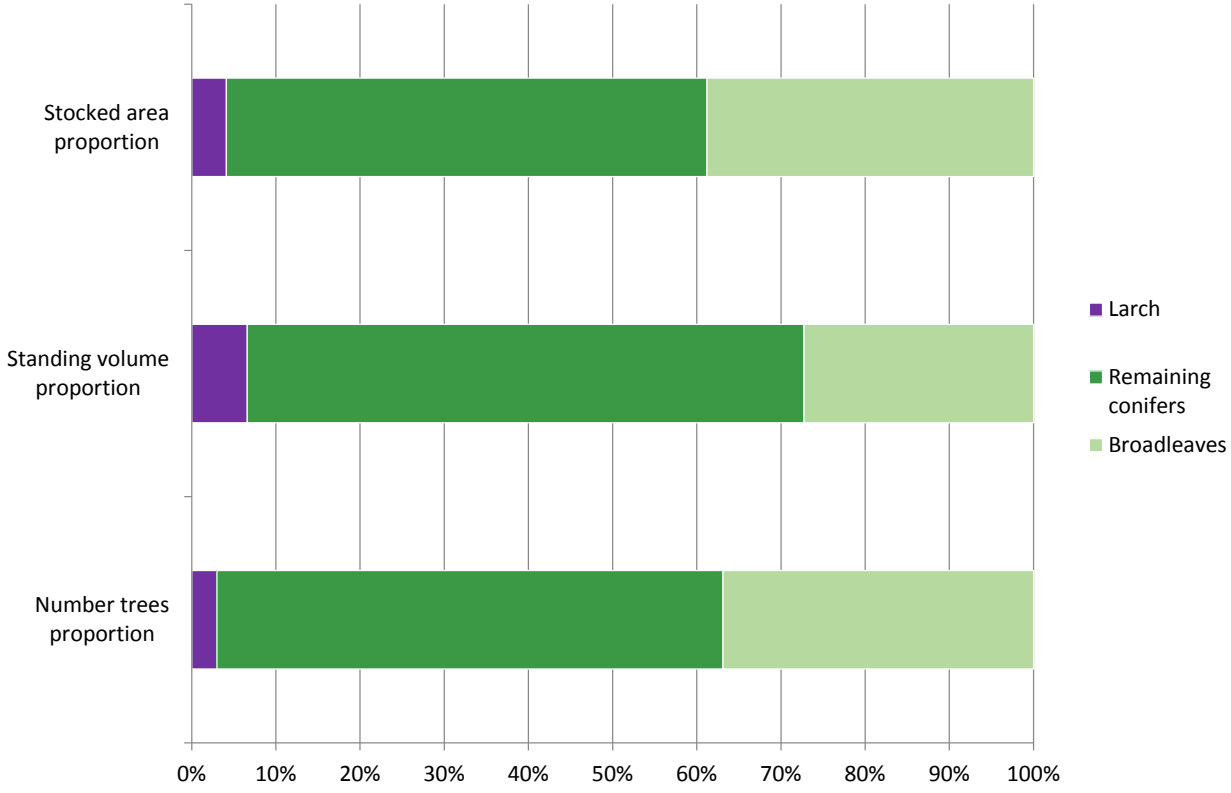

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Table 77 Stocked area of larch as a proportion of woodland

Aligned area	Stocked area of larch			
	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
North East	1.2	3.0	*19*	**4.1**

Table 77 (cont'd) Stocked area of larch as a proportion of woodland

Aligned area	Stocked area of all conifers and all species			
	Total of all conifers	Total of all species	Percentage of larch in all conifers	Percentage of larch in all species
	area (000 ha)	area (000 ha)	(percent)	(percent)
North East	61.3	100.3	7	4

Table 78 Standing volume of larch as a proportion of woodland

Aligned area	Standing volume of larch			
	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
North East	174	1,172	*27*	**1,345**

Table 78 (cont'd) Standing volume of larch as a proportion of woodland

Aligned area	Standing volume of all conifers and all species			
	Total of all conifers	Total of all species	Percentage of larch in all conifers	Percentage of larch in all species
	volume (000 m^3 obs)	volume (000 m^3 obs)	(percent)	(percent)
North East	14,822	20,395	*9*	**7**

Table 79 Number of larch trees as a proportion of woodland

Aligned Area	Numbers of trees of larch			
	FC	Private sector		Total
	number of trees (thousands)	number of trees (thousands)	*SE%*	number of trees (thousands)
North East	1,762	2,327	*19*	**4,089**

Table 79 (cont'd) Number of larch trees as a proportion of woodland

Aligned Area	Number of trees of all conifers and all species			
	Total of all conifers	Total of all species	Percentage of larch in all conifers	Percentage of larch in all species
	number of trees (thousands)	number of trees (thousands)	(percent)	(percent)
North East	86,177	136,669	5	3

Appendix A – Aligned area nomenclature

Table 62 Aligned area long and short names

Long name	Short name	Abbreviation
Cumbria and Lancashire	Cumbria and Lancashire	CLA
Devon Cornwall and the Isles of Scilly	Devon and Cornwall	DCS
East Anglia	East Anglia	EAN
East Midlands	East Midlands	EMD
Greater Manchester Merseyside and Cheshire	Gtr Mancs Mersey and Ches	GMC
Hertfordshire and North London	Herts and North London	HNL
Kent South London and East Sussex	Kent S London and E Sussex	KSL
Lincolnshire and Northamptonshire	Lincs and Northants	LNA
North East	North East	NEA
Solent and South Downs	Solent and South Downs	SSD
Thames	Thames	THS
Wessex	Wessex	WSX
West Midlands	West Midlands	WMD
Yorkshire	Yorkshire	YOR

Glossary

Actual production	Timber reported as having been felled and removed from the forest. The Forestry Commission keeps records of actual production for its estate, while estimates for the Private sector come from surveys of harvesting companies and timber processors. These figures are available from Forestry Commission Statistics.
Aerial photograph	Photograph of the ground taken from an elevated/direct–down position, with a camera that is not supported by a ground-based structure.
Age class	A grouping of trees into specific age ranges for classification purposes.
Area (forest/woodland)	Forest and woodland area can be defined in net or gross terms. Net area is the land actually covered by trees (in the National Forest Inventory that is to the drip line of the canopy). Gross area includes both the area covered by trees and the open spaces (<0.5 hectare) within (e.g. rides, glades, ponds).
Availability	A term to describe what timber could potentially be available for harvesting within a forest area.
Biological potential	A term applied to forecast scenarios with the objective of maximising timber production. It typically involves felling stands in the year of maximum MAI and management table thinning. It may not take account of factors that constrain thinning and felling (e.g. wind risk or pest attack). The forecast results set out in this report involve constraints on thinning and times of felling to take account of wind risk.
Broadleaves	Trees and shrubs that belong to the angiosperm division of the plant kingdom (as distinct from the gymnosperm division that includes conifers). Most in the UK have laminar leaves and are deciduous. Sometimes referred to as ‘hardwoods’.
Canopy cover	Area covered by a mass of foliage and branches formed collectively by the crowns of trees.
Clearfell area	Area here all the trees have been felled at once. In non-clearfell areas, only some of the trees are felled at any one time.
Clearfelling	Cutting down of an area of woodland (if it is within a larger area of woodland it is typically a felling greater than 0.25 hectare). Sometimes a scatter or small clumps of trees may be left standing within the felled area.
Conifers	Trees and shrubs that belong to the gymnosperm division of the plant kingdom (as distinct from the angiosperm division that includes broadleaves). Conifers mostly have needles or scale-like leaves and are usually evergreen. Sometimes referred to as ‘softwoods’.
Cumulative volume production	The total volume of timber that is forecast to be produced over the entire forecast period, including any overdue timber.
DAMS (Detailed Aspect Methodology Score)	A measure of exposure at a particular location. Can be used as a proxy indicator of the risk of catastrophic wind damage to a stand of trees. May be used to influence decisions on thinning and timing of clearfelling where wind is a risk factor.
DBH (diameter at breast height)	The diameter on the stem of a tree at ‘breast height’, defined as 1.3 m from ground level.
Dothistroma needle blight	A disease of conifers (especially pine) which causes defoliation, losses in yield and, in severe cases, tree death. Also known as red band needle blight.

Felling plan	A spatial and temporal plan of harvesting activities within a forest or woodland.
Forest (or woodland)	Land predominately covered in trees (defined as land under stands of trees with a canopy cover of at least 20%, or the ability to achieve this, and with a minimum area of 0.5 hectare and minimum width of 20 m), whether in large tracts (generally called forests) or smaller areas known by a variety of terms (including woods, copses, spinneys or shelterbelts).
Forest management plan	A holistic spatial and temporal plan stating the objectives of management together with details of forestry proposals over a period of five years and outlining intentions over a minimum total of 10 years. Such plans allow managers to communicate proposals and demonstrate sustainable forest management. They can be used to authorise thinning, felling and other management operations.
Forest Service	An agency within the Department of Agriculture and Rural Development (DARD) in Northern Ireland responsible for the regulation of forestry and the management of state forests in Northern Ireland.
Forestry Commission	The government department responsible for regulating forestry, implementing forestry policy and managing state forests in England and Scotland. Forestry policy is devolved, with the exception of common issues addressed on a GB or UK basis, such as international forestry, plant health and forestry standards.
Forestry Commission (FC) estate	Forests, woodlands, open land and other property managed by the Forestry Commission.
Great Britain (GB)	England, Scotland and Wales.
Hardwood	The wood of broadleaved trees or the broadleaves themselves.
High forest	Woodland which is not managed as coppice or pollards and which may or may not be managed for timber.
Increment	The increase in volume of a tree or a stand over a year or annualised over a specified period measured either in m^3 per year or in m^3 per hectare per year. See also Mean Annual Increment (MAI).
Interpreted forest type (IFT)	Interpreted forest type is a classification of woodland into woodland types as identified from aerial photography and satellite imagery.
Interpreted open area (IOA)	Interpreted open are is a classification of open spaces within woodlands as identified from aerial photography and satellite imagery.
Like-for-like (restocking)	The restocking of areas of felled trees with trees of the same species and yield class.
Maximising productivity	The management of woodland to maximise volume production by thinning at the MTI.
Mean annual increment (MAI)	The average annual rate of volume production from year of planting to a given year, expressed in m^3 obs per hectare per year. In even-aged stands it is calculated by dividing cumulative volume production by age.
MTT (management table thinning)	A sequence of thinnings prescribed by Forestry Commission yield tables over the life of a forest stand. Management table thinning refers to the pattern of thinning recommended in these yield tables. In standard yield tables the thinnings are set to an intensity which aims to maximise diameter increment whilst also maintaining maximum cumulative volume production
MTI (marginal thinning intensity)	The maximum sustainable intensity of thinning defined as 70% of yield class per hectare per year (m^3 obs/ha/year).

Maximum MAI (maximum mean annual increment) (MMAI)	The age at which a stand reaches the maximum average rate of volume increment which it can achieve. Felling the stand at this age will ensure that the stand reaches its highest average production per annum for its lifespan, thus optimising the stand in terms of volume production over the long term.
Mean annual increment (MAI)	The average rate of volume production up to a given year, expressed in m^3 per hectare per year. In even-aged stands it is calculated by dividing cumulative volume production by age.
Mensuration	The study of the measurement of lengths, areas, volumes and related quantities. Forest mensuration is concerned with the measurement of trees, woodlands and forests, including standing and felled timber.
National Forest Inventory (NFI)	An inventory run by the Forestry Commission, set up in 2009, to provide a record of key information about GB forests and woodlands.
National Inventory of Woodland and Trees (NIWT)	An inventory run by the Forestry Commission, set up in 1995 and completed in 2002, to provide a record of key information about GB forests and woodlands.
Natural Resources Wales (NRW)	Natural Resources Wales is the largest Welsh Government Sponsored Body - employing 1,900 staff across Wales with a budget of £180 million. NRW was formed in April 2013, largely taking over the functions of the Countryside Council for Wales, Forestry Commission Wales and the Environment Agency in Wales, as well as certain Welsh Government functions.
Overbark	Used as a qualification when the diameter or volume of wood includes the bark.
Overbark standing (OBS)	Timber is defined in this report as the volume of stemwood to 7 cm top diameter in m^3 overbark standing (obs), including stump (above ground) and usable branchwood (of minimum 3 m in length and 7 cm top diameter).
Overdue	Timber contained in stands that are beyond the felling age prescribed by the harvesting scenario at the start of the forecast.
Phytophthora	Fungus-like pathogens that can cause extensive damage and mortality to trees and other plants.
Planned production	The volumes and assortments published in the removals forecast, reflecting the cumulative impact of managing the FC estate (as of 31 March 2012) in accordance with approved forest design and thinning plans.
Potential production	A forecast which will not necessarily transpire. As the private sector estate forecast makes assumptions about future levels of harvest, and the assumptions may not transpire, this forecast is one of potential production.
Private sector estate	Forests and woodlands in the UK not managed by the Forestry Commission, Natural Resources Wales or Forest Service. In the context of the National Forest Inventory, 'Private sector' is used for convenience although it includes land owned or managed by bodies such as local authorities and charities.
Production forecast	A forecast of softwood volume production based on a firm plan of harvesting.
Restocking plan	A spatial and temporal plan describing how felled areas are to be replanted or regenerated.
Satellite imagery	Imagery of the earth taken from space from a satellite.
Softwood	The wood of coniferous trees or the conifers themselves.

Stand	A distinct area of woodland, generally composed of a uniform group of trees in terms of species composition and spatial distribution, and age and size class distribution.
Standard error (SE)	The measure of the margin of error associated with an estimate as a result of sampling from a population with statistical variability. Larger standard errors indicate less precision in the estimate. Standard errors in this report are quoted in relative terms (i.e. as percentages of the value of the estimate).
Standing volume	The live stemwood and usable branchwood of trees (up to 7 cm top diameter). It excludes roots, below ground stump material, small branches, foliage and deadwood. For Private sector woodland only, it also excludes trees in woodlands of less than 0.5 hectare. Usually expressed as m^3 overbark standing (m^3 obs).
Stemwood	The woody material forming the above ground main growing shoot(s) of a tree or stand of trees. The stem includes all woody volume above ground with a diameter greater than 7 cm overbark. Stemwood includes wood in major branches where there is at least 3 m of straight length to 7 cm top diameter.
Stocked area	The area stocked with living trees. The stocked areas in this report are quoted in gross terms for the FC/NRW estate and in net terms for the private sector estate (see the definition of area abve).
Sub-compartment database (SCDB)	A database owned and maintained by the Forestry Commission that holds an inventory of all stands of trees managed by the Forestry Commission (including that formerly managed by Forestry Commission Wales which is now managed by Natural Resources Wales).
Sustainable forest management	The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity and vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions at local, national and global levels, and that does not cause damage to other ecosystems.
Terminal height	The top height of a stand at which wind damage is expected to reach a level necessitating clearfelling.
Thinning	The periodic harvesting of trees in a woodland, involving the removal of some trees for commercial use and the retention of others for future production or long-term retention.
Thinning plan	A spatial and temporal plan of harvesting activities within a forest or woodland.
Top diameter	The diameter of the smaller (top) end of a length of stemwood, branchwood or log, often used to define different categories of wood products (e.g. sawlogs, roundwood, pulp) and merchantable timber.
Top height	The mean total height of the 100 largest dbh trees per hectare.
UK (United Kingdom)	Great Britain and Northern Ireland.
Windthrow	Uprooting of trees by the wind. Windthrow can be endemic – i.e. that caused by frequently recurring peak winds – or catastrophic – an infrequent occurrence associated with exceptionally strong winds where large areas/numbers of trees are blown down.
Woodland	see Forest.
Yield class (YC)	An index used in the UK of the potential productivity of even-aged stands of trees based on maximum MAI. It reflects the potential productivity of the site for the tree species growing on it.

Aligned area reports in this series

This report is one in a series of reports describing the current stocks in woodland, the economic viability data, timber availability forecasts and estimates of the current stocks within woodland of four species currently at risk from pests and diseases.

Reports are available for:

- England
- Cumbria and Lancashire
- Devon Cornwall and the Isles of Scilly
- East Anglia
- East Midlands
- Greater Manchester Merseyside and Cheshire
- Hertfordshire and North London
- Kent South London and East Sussex
- Lincolnshire and Northamptonshire
- **North East**
- Solent and South Downs
- Thames
- Wessex
- West Midlands
- Yorkshire

The methodology, data sources and assumptions are described in the England report. It is important that the estimates presented in this report are interpreted in the light of the information provided in the England report.

NFI national reports and papers

This series of reports is part of the wider suite of publications from the National Forest Inventory (NFI). NFI reports that contain information relating to this series of reports are:

- NFI woodland area statistics, Great Britain, England, Scotland, Wales (2011)
- Standing timber volume for coniferous trees in Britain (2012)
- 25-year forecast of softwood availability (2012)
- 25-year forecast of standing coniferous volume and increment (2012)
- Preliminary estimates of broadleaved species in British woodlands, with special focus on ash (2012)
- Biomass in live woodland trees in Britain (2014)
- Carbon in live woodland trees in Britain (2014)
- 50-year forecast of softwood availability (2014)
- 50-year forecast of hardwood availability (2014)
- 25-year forecast of softwood availability (2016)

Each theme has a series of associated reports, papers and data, tailored for different audiences and uses.

This report is a supporting document for the Official Statistics report *National Forest Inventory statistics for England and aligned areas* (2017) and provides more detailed results for North East.

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