

NFI provisional estimates for woodland within 25 miles of Southampton

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Summary

This report provides a detailed picture of the stocked area in woodland, the standing volume of timber and the associated live biomass and carbon stocks for woodland within a 25-mile radius of Southampton. These estimates are a subset of those published as part of the 2012 growing stock information presented in the National Forest Inventory (NFI) *50-year forecast of softwood timber availability (2014)* and *50-year forecast of hardwood timber availability (2014)*. NFI reports are published at www.forestry.gov.uk/inventory.

In addition, the report provides forecasts of timber availability, standing volume and increment for softwoods and hardwoods arising from the stocked area and standing volume. Forecasts are based on the 'headline' harvesting scenario described in the 50-year forecasts NFI reports. An alternative forecast is provided using a harvesting scenario which brings all Private sector broadleaved woodland into production.

The estimates provided in this report are provisional in nature.



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Approach

The approach taken in the derivation of these results and to be used in their interpretation is described in the full suite of forecast reports which can be found at www.forestry.gov.uk/forecast. Refer to the *Standing timber volume for coniferous trees in Britain* (2012) and the *NFI preliminary estimates of quantities of broadleaved species in British woodlands with special focus on ash* (2012) reports for a description of the underlying methodologies and interpretation, and also for the England and Great Britain (GB) context. Refer to the *NFI forecasts methodology* (2012) overview report for a detailed description and discussion of forecasting future availability of timber from NFI field survey data and from information in the Forestry Commission's sub-compartment database (SCDB). The wider context of forecasts of timber production from woodland in GB and its constituent countries under a range of harvesting scenarios can be found in the *50-year forecast of softwood timber availability* (2014) and the *50-year forecast of hardwood timber availability* (2014).

The estimates reported here are based upon field samples assessed between October 2009 and August 2013, the results of which have been subjected to rigorous data quality assurance procedures. These field samples constitute approximately two-thirds of the sites to be sampled within the first cycle of NFI field sampling. As a consequence, the estimates in this report are classed as provisional.

Results

The results presented in this report are estimates of standing volumes and stocked areas at 31 March 2012, and 50-year forecasts of softwood and hardwood availability under the 'headline' harvesting scenario and also under a scenario assuming all hardwoods are harvested in Private sector woodland within 25 miles of Southampton. The data sources used for the compilation of these estimates are the same as described in the NFI reports *Standing timber volume for coniferous trees in Britain* (2012), the *50-year forecast of softwood availability* (2014) and the *50-year forecast of hardwood availability* (2014). Estimates for the Forestry Commission (FC) estate are derived from the FC's SCDB, while those for the Private sector (i.e. non-FC) estate are derived from information collected in the NFI field survey. A fuller description of these data sources and how they are used in the production of estimates, including sampling standard errors (SEs) attached to the Private sector estimates, is provided in the earlier documents.

Results are provided for stocked area at 31 March 2012 (**Figures 1–1a** and **Tables 1–3**), felled area (**Table 4**), standing volume at 31 March 2012 (**Figures 2–2a** and **Tables 5–7**), biomass and carbon stocks at 31 March 2012 (**Tables 8–9**), evidence of thinning in Private sector stands from the NFI field survey (**Figure 3**), the 'headline' 50-year forecast (**Figures 4–8** and **Tables 10–12**) and the 'unrestricted' 50-year forecast

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(**Figures 9–13** and **Tables 13–15**). **Figures 14–15** and **Table 16** compare the hardwood production under the two scenarios.

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 SEs attached to Private sector estimates are expressed in relative terms (%) to the right of the relevant estimate. Percentages in the pie charts may also not sum to 100 due to rounding.

Stocked area at 31 March 2012

Figure 1 Principal tree species composition by stocked area at 31 March 2012

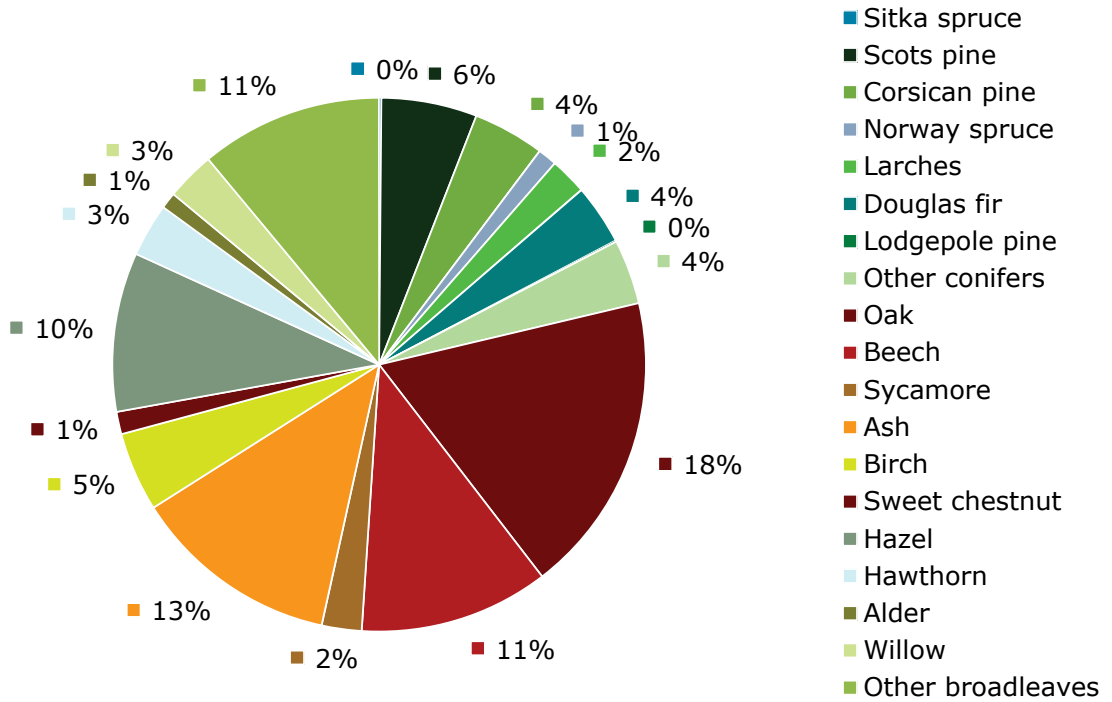
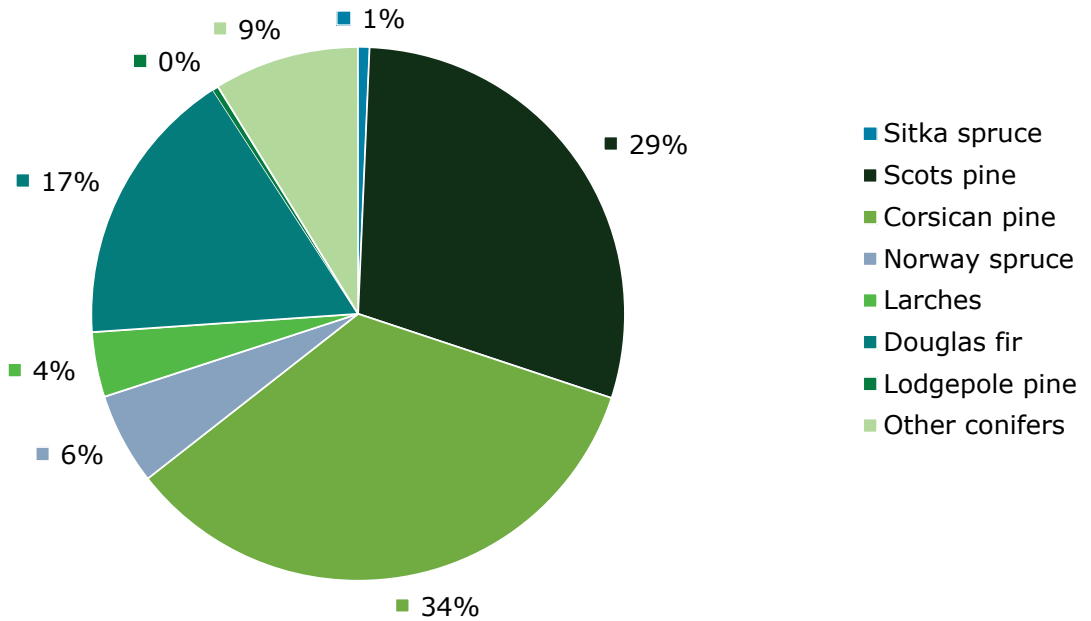


Figure 1a Principal conifer tree species composition by stocked area at 31 March 2012



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Table 1 Stocked area by principal tree species at 31 March 2012

Principal species	FC	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
Conifers				
Sitka spruce	0.0	0.0	64	0.1
Scots pine	2.1	1.8	23	3.8
Corsican pine	2.4	0.5	42	2.9
Norway spruce	0.4	0.4	37	0.8
Larches	0.3	1.2	27	1.5
Douglas fir	1.2	1.2	28	2.4
Lodgepole pine	0.0	0.0	100	0.0
Other conifers	0.6	2.0	20	2.6
All conifers	7.0	7.1	8	14.1
Broadleaves				
Oak	4.9	7.2	10	12.1
Beech	3.6	4.0	16	7.6
Sycamore	0.1	1.5	19	1.6
Ash	0.2	8.1	9	8.3
Birch	0.5	2.7	12	3.2
Sweet chestnut	0.1	0.8	31	0.9
Hazel	0.0	6.4	11	6.4
Hawthorn	0.0	2.1	17	2.1
Alder	0.1	0.6	27	0.7
Willow	0.0	2.0	19	2.0
Other broadleaves	1.1	6.2	9	7.3
All broadleaves	10.6	41.4	2	51.9
All species				
All species	17.5	48.5	1	66.0

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Table 2 Stocked area by age class at 31 March 2012

Age class	FC	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
All conifers				
0–10 years	0.4	0.4	27	0.7
11–20 years	0.6	0.0	43	0.6
21–40 years	1.1	0.8	30	1.9
41–60 years	2.7	4.1	13	6.8
61–80 years	1.5	1.3	26	2.7
81–100 years	0.5	0.3	54	0.8
100+ years	0.3	0.3	57	0.6
Total	7.0	7.1	8	14.1
All broadleaves				
0–10 years	0.2	5.9	10	6.1
11–20 years	0.1	4.9	10	5.0
21–40 years	0.3	9.0	9	9.3
41–60 years	1.4	5.3	11	6.7
61–80 years	1.7	4.8	13	6.6
81–100 years	0.6	7.0	10	7.6
100+ years	6.2	4.4	13	10.6
Total	10.6	41.4	2	51.9
All species				
0–10 years	0.6	6.3	10	6.8
11–20 years	0.7	4.9	10	5.6
21–40 years	1.4	9.8	8	11.2
41–60 years	4.1	9.4	9	13.5
61–80 years	3.2	6.1	12	9.3
81–100 years	1.1	7.3	10	8.4
100+ years	6.5	4.7	13	11.2
Total	17.5	48.5	1	66.0

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Table 3 Stocked area by mean stand DBH class at 31 March 2012

Mean stand DBH	FC	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
All conifers				
0-7 cm	0.4	0.4	27	0.8
7-10 cm	0.2	0.0	47	0.2
10-15 cm	0.5	0.1	43	0.7
15-20 cm	0.6	0.6	25	1.2
20-30 cm	1.4	1.9	20	3.3
30-40 cm	1.9	1.4	23	3.3
40-60 cm	1.6	2.1	18	3.7
60-80 cm	0.3	0.4	32	0.6
80+ cm	0.1	0.2	97	0.2
Total	7.0	7.1	8	14.1
All broadleaves				
0-7 cm	0.3	7.3	9	7.6
7-10 cm	0.3	7.7	9	8.0
10-15 cm	0.6	4.2	12	4.9
15-20 cm	0.9	3.3	12	4.2
20-30 cm	4.4	5.2	8	9.6
30-40 cm	2.6	4.8	13	7.3
40-60 cm	1.2	4.4	12	5.6
60-80 cm	0.3	3.3	14	3.5
80+ cm	0.1	1.1	26	1.2
Total	10.6	41.4	2	51.9
All species				
0-7 cm	0.7	7.7	8	8.4
7-10 cm	0.4	7.8	9	8.2
10-15 cm	1.2	4.4	12	5.6
15-20 cm	1.5	4.0	10	5.5
20-30 cm	5.8	7.1	8	12.9
30-40 cm	4.4	6.2	11	10.6
40-60 cm	2.8	6.5	10	9.3
60-80 cm	0.5	3.6	13	4.1
80+ cm	0.2	1.3	25	1.5
Total	17.5	48.5	1	66.0

Table 4 Felled area at 31 March 2012

Clearfelled area	FC	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
	0.4	0.2	42	0.6

Standing volume at 31 March 2012

Figure 2 Principal tree species composition by standing volume at 31 March 2012

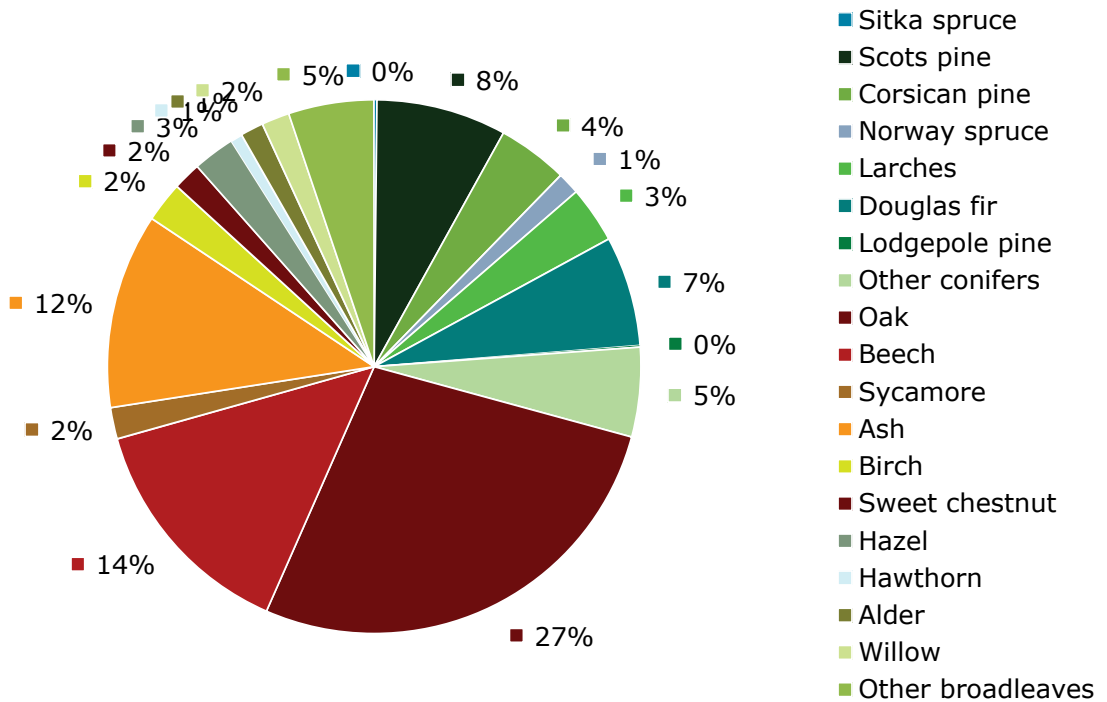
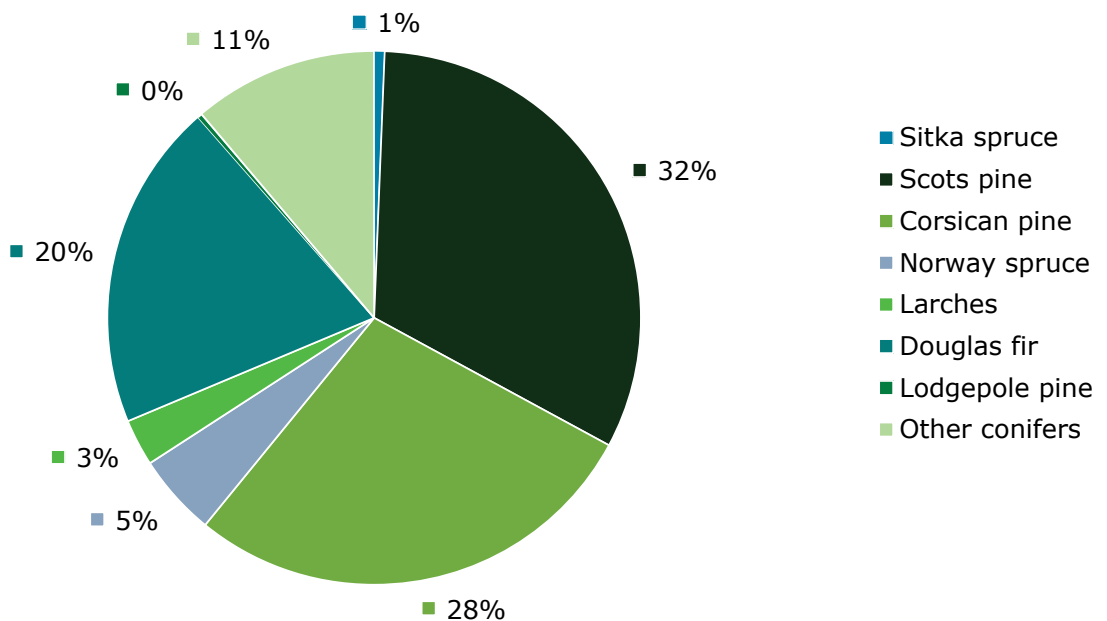


Figure 2a Principal conifer tree species composition by standing volume at 31 March 2012



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Table 5 Standing volume by principal tree species at 31 March 2012

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	13	17	63	31
Scots pine	668	763	24	1,431
Corsican pine	580	194	43	774
Norway spruce	102	141	33	244
Larches	59	563	28	622
Douglas fir	411	799	29	1,210
Lodgepole pine	6	15	100	21
Other conifers	232	751	23	983
All conifers	2,071	3,244	9	5,315
Broadleaves				
Oak	1,597	3,378	12	4,975
Beech	1,139	1,410	17	2,550
Sycamore	7	340	25	347
Ash	25	2,119	14	2,145
Birch	59	384	14	442
Sweet chestnut	30	279	27	309
Hazel	2	460	15	462
Hawthorn	0	129	25	129
Alder	16	239	38	255
Willow	0	308	32	308
Other broadleaves	195	746	17	940
All broadleaves	3,068	9,716	5	12,784
All species				
All species	5,139	12,956	4	18,095

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Table 6 Standing volume by age class at 31 March 2012

Age class	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
0–10 years	0	0	49	0
11–20 years	30	2	44	31
21–40 years	194	265	34	459
41–60 years	875	1,877	14	2,752
61–80 years	581	677	29	1,259
81–100 years	223	206	50	430
100+ years	168	216	54	384
Total	2,071	3,244	9	5,315
All broadleaves				
0–10 years	0	8	55	8
11–20 years	2	218	29	220
21–40 years	20	1,209	10	1,229
41–60 years	218	1,340	13	1,558
61–80 years	360	1,316	14	1,676
81–100 years	139	3,152	12	3,291
100+ years	2,330	2,473	15	4,803
Total	3,068	9,716	5	12,784
All species				
0–10 years	0	8	54	8
11–20 years	31	220	29	251
21–40 years	213	1,476	10	1,689
41–60 years	1,093	3,208	10	4,301
61–80 years	941	1,994	15	2,936
81–100 years	362	3,360	11	3,722
100+ years	2,498	2,689	14	5,187
Total	5,139	12,956	4	18,095

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Table 7 Standing volume by mean stand DBH class at 31 March 2012

Mean stand DBH	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
0-7 cm	0	0	78	0
7-10 cm	4	2	58	6
10-15 cm	52	18	38	70
15-20 cm	127	183	28	309
20-30 cm	487	698	20	1,185
30-40 cm	707	675	24	1,382
40-60 cm	548	1,390	20	1,937
60-80 cm	108	217	33	325
80+ cm	39	62	97	101
Total	2,071	3,244	9	5,315
All broadleaves				
0-7 cm	1	19	22	20
7-10 cm	9	300	11	309
10-15 cm	99	458	11	557
15-20 cm	200	627	13	827
20-30 cm	1,520	1,437	9	2,957
30-40 cm	860	1,761	14	2,622
40-60 cm	296	2,034	12	2,329
60-80 cm	57	2,202	16	2,258
80+ cm	27	878	24	905
Total	3,068	9,716	5	12,784
All species				
0-7 cm	1	19	22	20
7-10 cm	13	301	11	315
10-15 cm	151	476	11	627
15-20 cm	326	811	11	1,137
20-30 cm	2,007	2,124	9	4,130
30-40 cm	1,567	2,439	12	4,006
40-60 cm	843	3,427	11	4,270
60-80 cm	164	2,420	15	2,584
80+ cm	66	940	23	1,006
Total	5,139	12,956	4	18,095

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Biomass and carbon stocks at 31 March 2012

Table 8 Standing biomass by principal tree species at 31 March 2012

Principal species	FC	Private sector		Total
	biomass (000 odt)	biomass (000 odt)	SE%	biomass (000 odt)
Conifers				
Sitka spruce	8	9	63	17
Scots pine	461	518	24	979
Corsican pine	346	111	44	458
Norway spruce	56	73	33	129
Larches	37	334	27	370
Douglas fir	270	492	29	761
Lodgepole pine	4	9	100	13
Other conifers	127	432	22	559
All conifers	1,309	1,978	9	3,288
Broadleaves				
Oak	1,402	2,847	12	4,248
Beech	1,081	1,240	17	2,321
Sycamore	6	278	25	284
Ash	23	1,726	13	1,749
Birch	56	360	14	416
Sweet chestnut	24	213	27	237
Hazel	2	455	13	457
Hawthorn	0	150	23	150
Alder	13	172	38	185
Willow	0	317	31	317
Other broadleaves	173	687	15	860
All broadleaves	2,780	8,378	5	11,158
All species				
All species	4,089	10,355	4	14,444

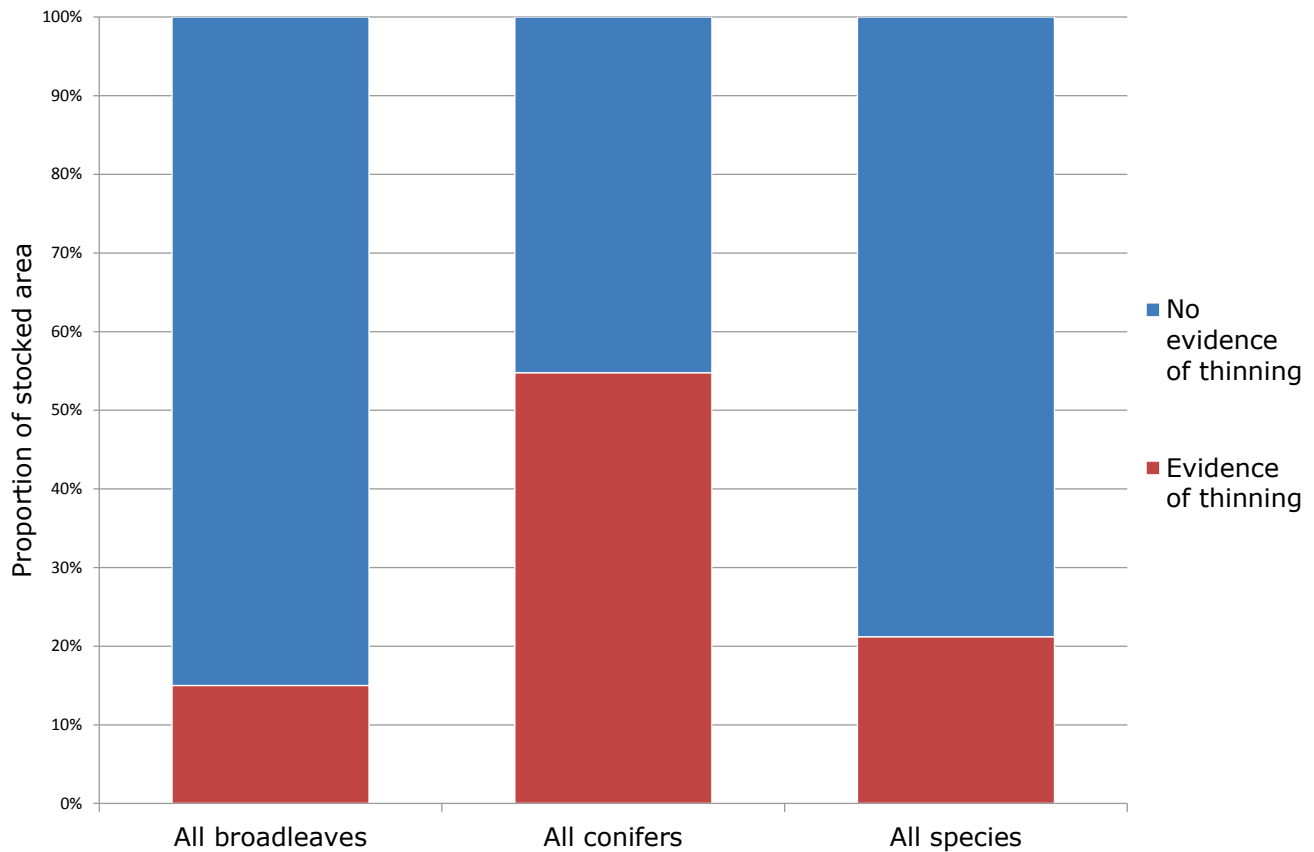
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Table 9 Total carbon stocks in principal tree species at 31 March 2012

Principal species	FC	Private sector		Total
	carbon (000 t)	carbon (000 t)	SE%	carbon (000 t)
Conifers				
Sitka spruce	4	5	63	9
Scots pine	230	259	24	490
Corsican pine	173	56	44	229
Norway spruce	28	36	33	65
Larches	18	167	27	185
Douglas fir	135	246	29	381
Lodgepole pine	2	5	100	7
Other conifers	63	216	22	279
All conifers	655	989	9	1,644
Broadleaves				
Oak	701	1,423	12	2,124
Beech	540	620	17	1,161
Sycamore	3	139	25	142
Ash	12	863	13	875
Birch	28	180	14	208
Sweet chestnut	12	106	27	118
Hazel	1	228	13	229
Hawthorn	0	75	23	75
Alder	6	86	38	92
Willow	0	158	31	158
Other broadleaves	86	344	15	430
All broadleaves	1,390	4,189	5	5,579
All species				
All species	2,045	5,178	4	7,222

Evidence of thinning

Figure 3 Evidence of thinning in Private sector sites



50-year forecast of timber availability

Refer to the NFI report *50-year forecast of softwood timber availability (2014)* for a description of the underlying methodology and interpretation of the softwood forecast, and also for the England and GB context.

Refer to the NFI report *50-year forecast of hardwood timber availability (2014)* for a description of the underlying methodology and interpretation of the hardwood forecast, and also for the England and GB context.

In **Figures 4–8 and Tables 10–12** the estimates for the Forestry Commission are based on harvesting regimes derived from Forestry Commission felling and thinning plans as of 31 March 2012.

For the Private sector, information for **Figures 4–8 and Tables 10–12** is based on a scenario which assumes felling at age of maximum mean annual increment with moderate wind risk measures for conifers. For broadleaves, however, only those areas where there is evidence of thinning are assumed to be managed in future. This is a highly conservative assumption but better reflects current practice than assuming all stands will be managed. In turn it is assumed that these broadleaved stands are managed to felling at age of maximum mean annual increment with moderate wind risk measures.

Restocking assumptions for conifer stands clearfelled during the forecast period have been implemented that assume:

- a 10% reduction in the area of conifers on the subsequent rotation
- restocking of currently clearfelled land
- a change in the composition of conifer species on restocking

Restocking assumptions for broadleaved stands clearfelled during the forecast period have been included that assume:

- no reduction in stocked area
- like-for-like species choices are used for broadleaves
- 50% of the land associated with the reduction in conifer stocked area arising from the assumption above is stocked with broadleaves

A full description of the restocking assumptions is to be found in Table D3 of the *50-year forecast of softwood timber availability (2014)*. The same restocking assumptions have been applied to both the Forestry Commission and Private sector forecasts.

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Woodland that is classed as currently clearfelled will be restocked according to the restock prescription.

In **Figures 9–13** and **Tables 13–15** the management assumptions for the Private sector hardwoods have been changed to assume all hardwoods are thinned and felled rather than only those in areas that have evidence of thinning. In this report, the tables and figures for estimates under this management scenario will be labelled as 'unrestricted'.

Figures 14–15 and **Table 16** compare the Private sector hardwood timber availability under the two scenarios. Figure 14 shows the Private sector hardwood availability for the two scenarios during the 50-year forecast. Figure 15 and Table 16 compare the hardwood availability in first 15 years of the forecast under the two scenarios.

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50-year forecast of timber availability under the 'headline' harvesting scenario

Table 10 50-year forecast of timber availability by time period and principal species

Principal species	2013-16			2017-21			2022-26			2027-31						
	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total				
	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)				
All conifers	75	136	19	211	70	169	16	239	55	105	18	160	49	121	15	170
Sitka spruce	0	0	91	1	0	2	77	2	0	0	91	0	0	0	91	0
Scots pine	17	18	25	35	17	27	24	43	11	15	27	26	12	24	32	36
Corsican pine	28	8	40	36	28	15	47	44	24	8	47	32	17	5	49	23
Norway spruce	5	4	41	8	4	12	43	16	3	1	36	4	2	17	50	20
Larches	2	23	27	26	2	36	34	38	2	16	33	17	1	13	36	14
Douglas fir	15	42	33	57	12	31	35	42	9	41	42	50	10	21	36	31
Lodgepole pine	0	0	100	1	0	0	-	0	0	3	100	4	0	0	-	0
Other conifers	8	41	53	49	7	47	51	53	5	21	35	26	5	41	37	46
All broadleaves	25	104	22	129	5	87	26	92	21	40	25	61	5	29	21	35
Oak	6	21	53	27	1	25	66	25	5	5	24	9	1	10	53	11
Beech	16	17	60	33	2	11	49	14	13	14	60	27	3	7	25	9
Sycamore	0	12	48	12	0	8	53	8	0	2	46	2	0	1	52	1
Ash	1	18	28	19	0	20	27	21	1	7	34	8	0	4	35	4
Birch	1	5	47	6	0	6	44	7	0	6	43	6	0	1	37	2
Sweet chestnut	0	1	54	2	0	1	51	1	0	1	51	1	0	2	56	2
Hazel	0	5	76	5	0	5	75	5	0	2	47	2	0	1	32	1
Hawthorn	0	0	50	0	0	0	53	0	0	0	56	0	0	0	56	0
Alder	0	0	70	0	0	0	68	0	0	0	66	0	0	0	65	0
Willow	0	0	47	0	0	0	40	0	0	0	37	0	0	1	31	1
Other broadleaves	2	23	53	24	1	10	75	10	1	3	52	4	1	2	19	2
All species	101	239	15	340	74	256	13	331	76	144	15	220	54	151	15	205

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Table 10 (cont'd) 50-year forecast of timber availability by time period and principal species

Principal species	2032-36			2037-41			2042-46			2047-51						
	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total				
	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)				
All conifers	45	107	17	152	42	73	29	114	72	56	13	128	44	66	26	110
Sitka spruce	1	1	37	2	1	1	31	2	3	2	23	5	1	3	20	4
Scots pine	9	39	35	47	9	23	28	31	15	19	29	34	9	25	64	34
Corsican pine	19	3	57	23	15	20	98	35	30	4	98	34	11	0	30	11
Norway spruce	2	3	80	5	3	2	51	5	3	2	56	5	4	1	26	5
Larches	1	12	38	13	1	9	41	10	3	8	43	11	2	8	43	10
Douglas fir	9	20	38	29	9	10	31	19	12	13	26	24	10	11	25	21
Lodgepole pine	0	0	-	0	0	0	35	0	0	0	35	0	0	0	82	0
Other conifers	4	29	42	33	4	8	29	12	7	8	19	15	6	18	27	24
All broadleaves	17	35	26	52	25	41	20	66	34	61	32	95	15	37	11	51
Oak	4	4	25	8	2	4	24	6	14	10	53	24	7	5	45	12
Beech	10	13	56	24	21	17	43	38	14	26	71	40	5	6	28	10
Sycamore	0	1	44	1	0	2	41	2	0	2	38	2	0	3	31	3
Ash	1	4	21	5	0	6	22	7	1	7	22	8	1	10	22	11
Birch	0	1	32	2	0	3	50	3	1	4	47	5	1	3	21	3
Sweet chestnut	0	7	71	7	0	1	61	1	0	1	57	2	0	1	64	1
Hazel	0	1	29	1	0	3	51	3	0	3	40	3	0	5	22	5
Hawthorn	0	0	34	0	0	1	26	1	0	1	25	1	0	1	24	1
Alder	0	0	65	0	0	0	65	0	0	0	68	0	0	0	83	0
Willow	0	1	29	1	0	1	28	1	0	2	48	2	0	1	41	1
Other broadleaves	1	2	22	3	1	4	25	5	3	4	21	7	1	3	25	4
All species	63	141	14	203	67	114	20	180	105	117	18	222	59	102	18	161

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Table 10 (cont'd) 50-year forecast of timber availability by time period and principal species

Principal species	2052-56			2057-61				
	FC	Private sector	Total	FC	Private sector	Total		
	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)		
All conifers	42	56	11	98	54	59	10	113
Sitka spruce	1	4	15	5	1	4	15	5
Scots pine	10	9	22	19	13	11	20	24
Corsican pine	12	0	32	13	12	0	32	12
Norway spruce	3	3	35	6	5	4	30	9
Larches	1	8	41	9	2	8	37	10
Douglas fir	9	13	24	22	12	13	24	24
Lodgepole pine	0	0	82	0	1	0	82	1
Other conifers	5	19	21	24	8	19	20	27
All broadleaves	19	50	22	70	23	44	23	67
Oak	6	8	47	14	5	7	56	12
Beech	10	16	63	26	15	10	45	25
Sycamore	0	2	41	2	0	1	50	1
Ash	1	12	17	13	1	4	32	5
Birch	0	2	27	3	1	2	26	3
Sweet chestnut	0	1	64	1	1	10	77	11
Hazel	0	3	28	3	0	2	34	3
Hawthorn	0	1	24	1	0	1	23	1
Alder	0	0	81	0	0	0	-	0
Willow	0	1	30	1	0	2	67	2
Other broadleaves	1	5	50	6	1	3	31	4
All species	62	106	12	167	77	103	11	180

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Table 11 50-year forecast of standing volume; annual average volumes within periods

Forecast period	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	2,043	3,009	9	5,052
2017–21	2,065	2,626	10	4,691
2022–26	2,109	2,191	12	4,300
2027–31	2,166	1,837	13	4,003
2032–36	2,220	1,480	15	3,700
2037–41	2,267	1,411	14	3,678
2042–46	2,227	1,336	13	3,563
2047–51	2,183	1,322	12	3,505
2052–56	2,204	1,442	11	3,646
2057–61	2,178	1,571	10	3,749
All broadleaves				
2013–16	3,055	9,807	5	12,862
2017–21	3,127	10,172	5	13,298
2022–26	3,179	10,806	5	13,986
2027–31	3,242	11,682	5	14,925
2032–36	3,304	12,556	4	15,860
2037–41	3,279	13,361	4	16,640
2042–46	3,295	13,977	4	17,272
2047–51	3,272	14,667	4	17,939
2052–56	3,302	15,246	4	18,548
2057–61	3,291	15,688	4	18,978
All species				
2013–16	5,098	12,812	4	17,910
2017–21	5,191	12,792	4	17,983
2022–26	5,288	12,997	4	18,285
2027–31	5,408	13,517	4	18,925
2032–36	5,524	14,036	4	19,560
2037–41	5,546	14,768	4	20,314
2042–46	5,522	15,307	4	20,829
2047–51	5,455	15,977	4	21,432
2052–56	5,507	16,673	4	22,179
2057–61	5,469	17,239	4	22,708

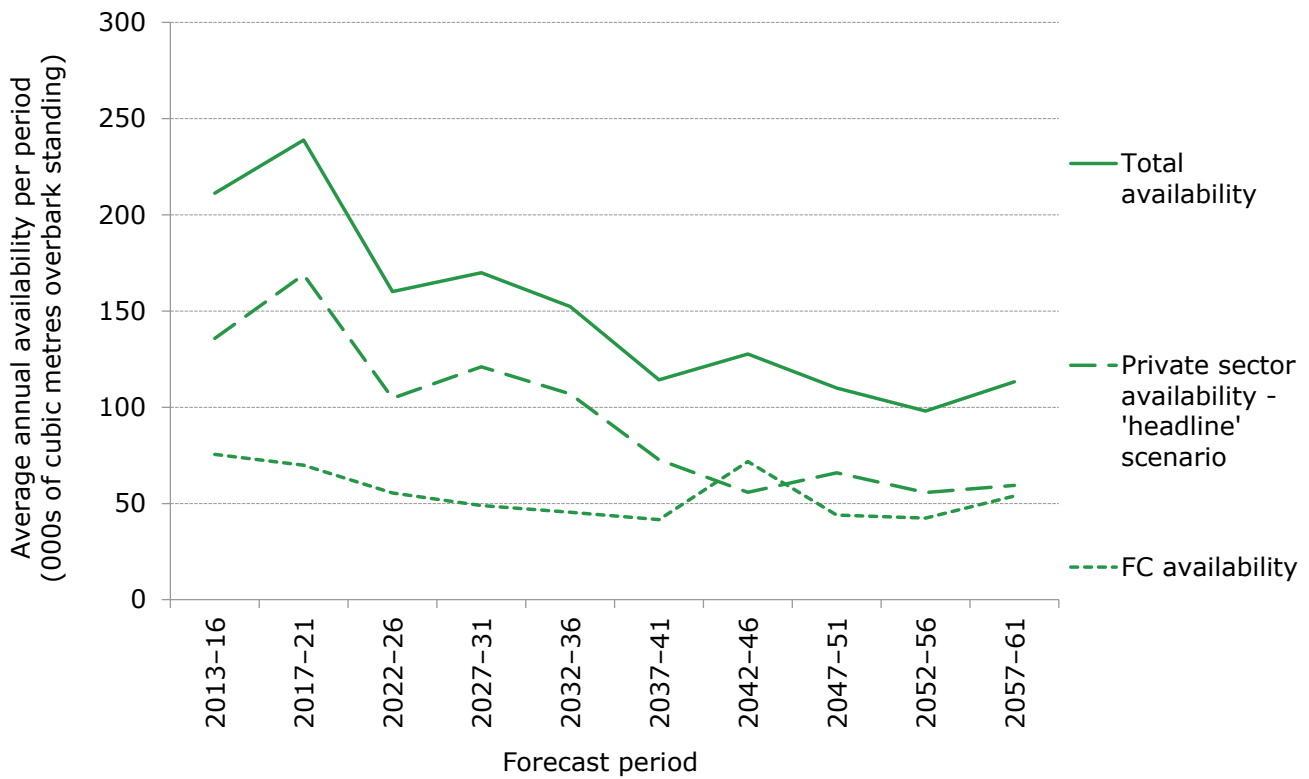
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Table 12 50-year forecast of net increment; annual average volumes within periods

Forecast period	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	70	68	10	138
2017–21	67	65	10	132
2022–26	61	51	11	112
2027–31	57	45	11	103
2032–36	54	44	11	98
2037–41	52	51	10	103
2042–46	49	60	9	110
2047–51	46	70	8	117
2052–56	46	79	8	125
2057–61	46	86	7	132
All broadleaves				
2013–16	24	148	7	173
2017–21	25	178	4	203
2022–26	24	201	4	225
2027–31	24	208	3	232
2032–36	25	205	4	230
2037–41	23	197	4	220
2042–46	23	183	4	206
2047–51	22	168	4	190
2052–56	22	153	4	175
2057–61	20	139	4	160
All species				
2013–16	94	217	6	311
2017–21	92	243	4	335
2022–26	85	252	3	337
2027–31	82	253	3	334
2032–36	79	249	3	327
2037–41	75	247	3	322
2042–46	72	242	3	314
2047–51	68	237	4	305
2052–56	68	231	4	299
2057–61	66	224	4	290

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Figure 4 Overview of 50-year forecast of average annual softwood availability



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Figure 5 50-year forecast of average annual softwood availability

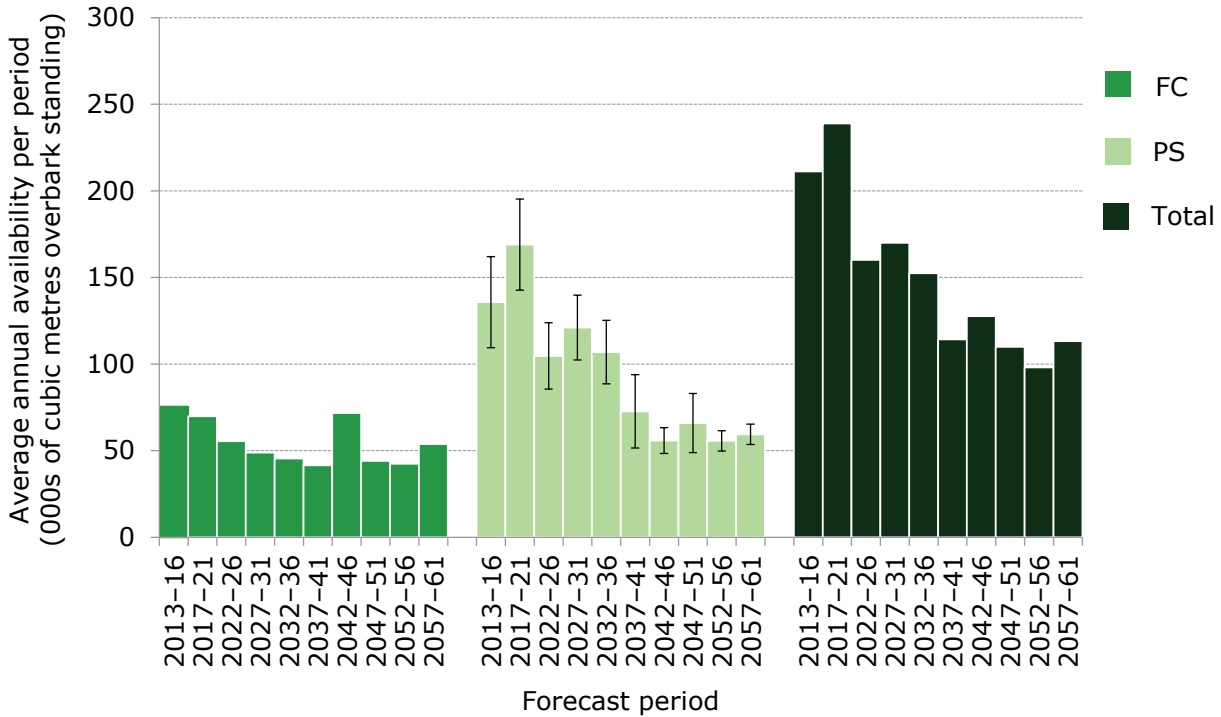
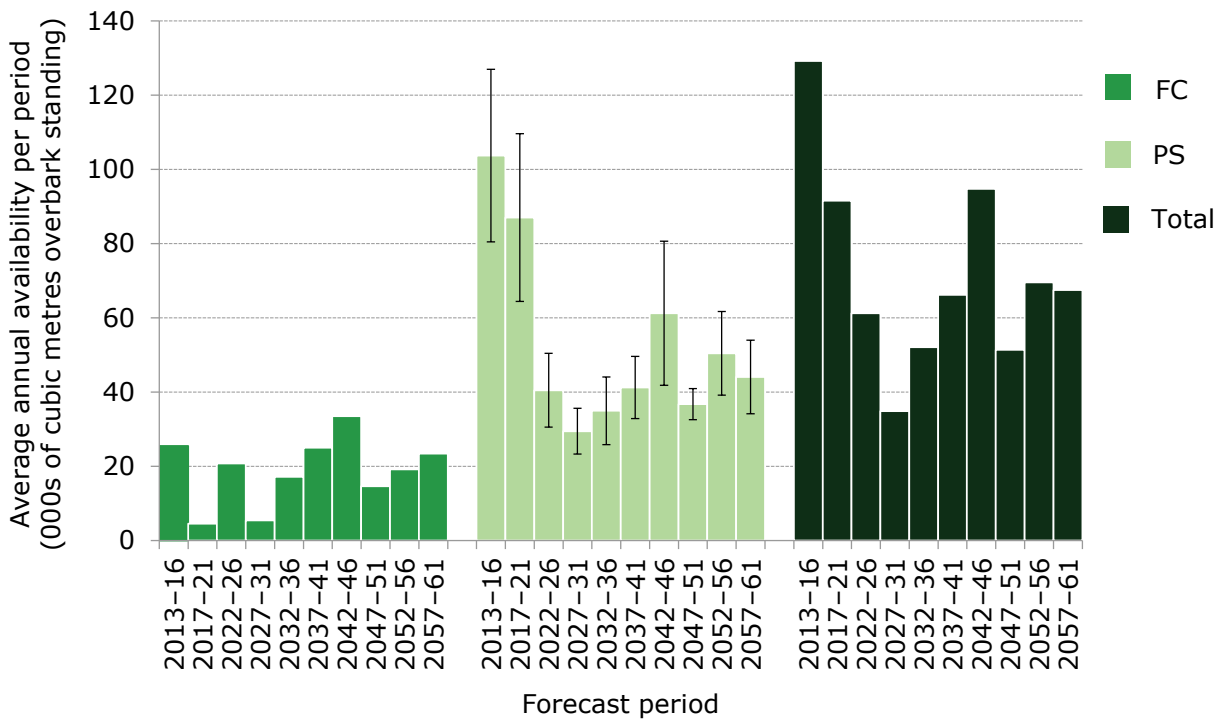


Figure 6 50-year forecast of average annual hardwood availability



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Figure 7 50-year forecast of softwood standing volume, increment and availability

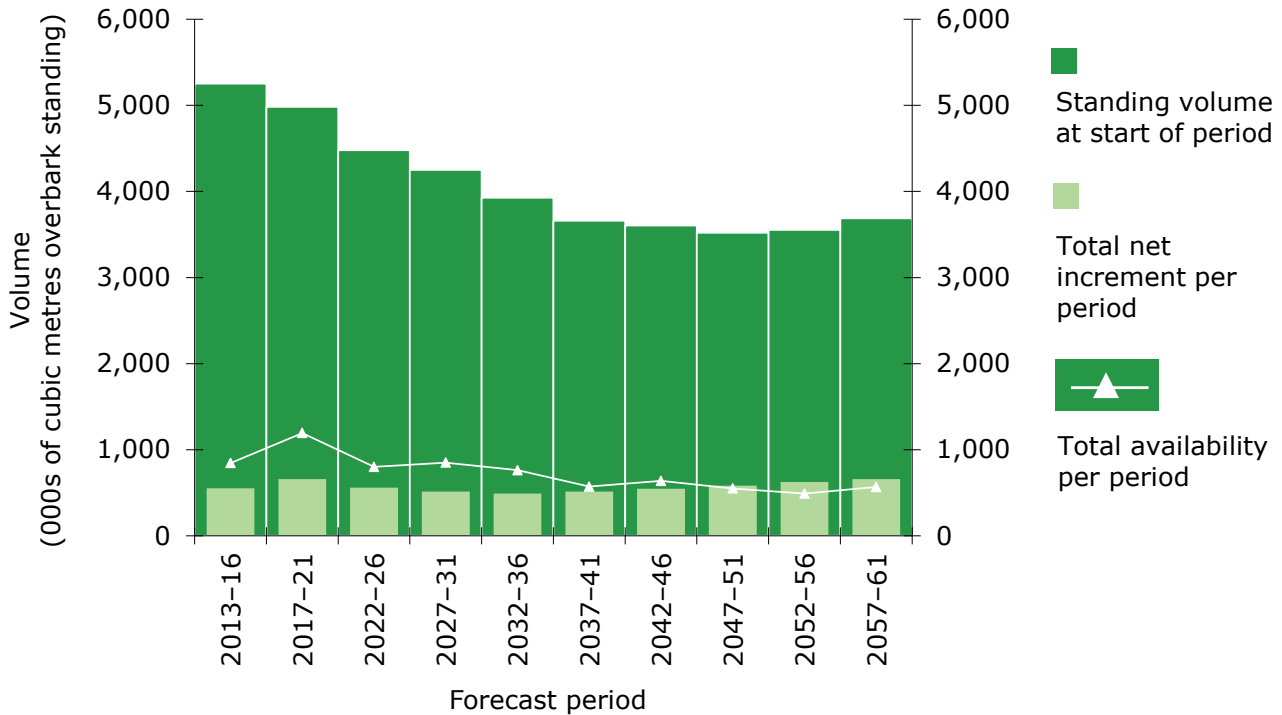
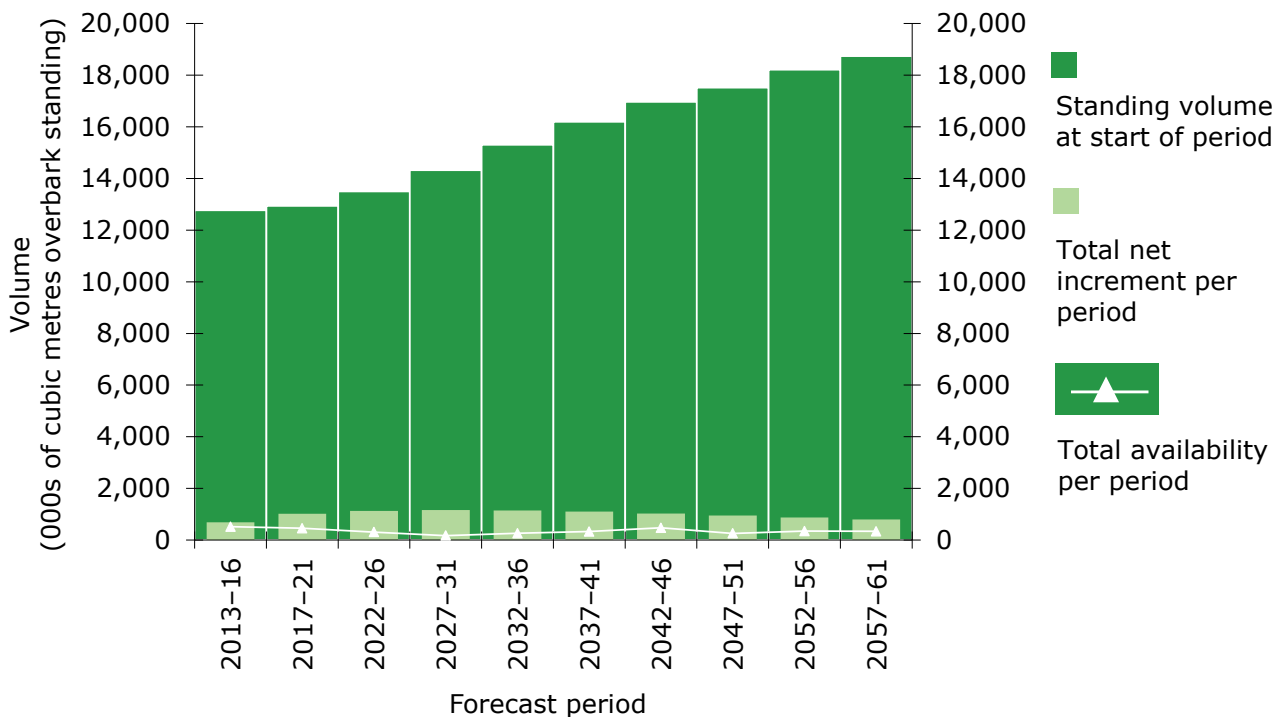


Figure 8 50-year forecast of hardwood standing volume, increment and availability



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50-year forecast of timber availability under the 'unrestricted' scenario

Table 13 50-year forecast of timber availability by time period and principal species – unrestricted biological potential for Private sector hardwoods

Principal species	2013-16			2017-21			2022-26			2027-31						
	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total				
	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)				
All conifers	75	136	19	211	70	169	16	239	55	105	18	160	49	121	15	170
Sitka spruce	0	0	91	1	0	2	77	2	0	0	91	0	0	0	91	0
Scots pine	17	18	25	35	17	27	24	43	11	15	27	26	12	24	32	36
Corsican pine	28	8	40	36	28	15	47	44	24	8	47	32	17	5	49	23
Norway spruce	5	4	41	8	4	12	43	16	3	1	36	4	2	17	50	20
Larches	2	23	27	26	2	36	34	38	2	16	33	17	1	13	36	14
Douglas fir	15	42	33	57	12	31	35	42	9	41	42	50	10	21	36	31
Lodgepole pine	0	0	100	1	0	0	-	0	0	3	100	4	0	0	-	0
Other conifers	8	41	53	49	7	47	51	53	5	21	35	26	5	41	37	46
All broadleaves	25	627	9	652	5	462	7	467	21	225	7	246	5	179	9	184
Oak	6	75	22	81	1	76	26	77	5	39	16	44	1	58	20	59
Beech	16	31	37	47	2	24	26	26	13	29	32	41	3	22	21	25
Sycamore	0	39	27	39	0	32	26	32	0	8	22	8	0	7	22	7
Ash	1	280	18	281	0	161	11	161	1	56	12	56	0	40	23	40
Birch	1	34	16	35	0	35	15	35	0	23	18	24	0	15	35	15
Sweet chestnut	0	12	39	13	0	11	40	12	0	6	27	7	0	5	31	5
Hazel	0	42	16	42	0	40	16	40	0	26	24	26	0	8	17	8
Hawthorn	0	8	36	8	0	8	37	8	0	4	25	4	0	3	24	3
Alder	0	22	42	22	0	23	42	23	0	9	32	9	0	1	38	1
Willow	0	17	44	17	0	10	32	10	0	6	24	6	0	6	23	6
Other broadleaves	2	73	22	75	1	52	22	52	1	20	15	22	1	16	13	16
All species	101	762	8	863	74	631	6	706	76	328	7	404	54	300	9	355

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Table 13 (cont'd) 50-year forecast of timber availability by time period and principal species – unrestricted biological potential for Private sector hardwoods

Principal species	2032-36			2037-41			2042-46			2047-51						
	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total	FC	Private sector	Total				
	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)				
All conifers	45	107	17	152	42	73	29	114	72	56	13	128	44	66	26	110
Sitka spruce	1	1	37	2	1	1	31	2	3	2	23	5	1	3	20	4
Scots pine	9	39	35	47	9	23	28	31	15	19	29	34	9	25	64	34
Corsican pine	19	3	57	23	15	20	98	35	30	4	98	34	11	0	30	11
Norway spruce	2	3	80	5	3	2	51	5	3	2	56	5	4	1	26	5
Larches	1	12	38	13	1	9	41	10	3	8	43	11	2	8	43	10
Douglas fir	9	20	38	29	9	10	31	19	12	13	26	24	10	11	25	21
Lodgepole pine	0	0	-	0	0	0	35	0	0	0	35	0	0	0	82	0
Other conifers	4	29	42	33	4	8	29	12	7	8	19	15	6	18	27	24
All broadleaves	17	164	8	182	25	189	7	214	34	229	11	262	15	210	7	225
Oak	4	26	12	30	2	31	17	33	14	48	26	62	7	28	14	35
Beech	10	27	32	38	21	32	27	54	14	52	42	66	5	16	21	20
Sycamore	0	6	19	6	0	7	20	7	0	8	20	9	0	13	24	13
Ash	1	33	12	33	0	46	15	47	1	43	9	44	1	56	15	57
Birch	0	14	28	14	0	9	20	9	1	14	18	14	1	17	16	17
Sweet chestnut	0	10	50	10	0	4	30	4	0	5	28	5	0	11	63	11
Hazel	0	13	33	13	0	15	25	15	0	16	15	16	0	30	15	30
Hawthorn	0	3	23	3	0	5	17	5	0	5	17	5	0	4	18	4
Alder	0	4	51	4	0	2	40	2	0	4	37	4	0	3	35	3
Willow	0	6	21	6	0	8	30	8	0	8	21	8	0	7	21	7
Other broadleaves	1	25	18	26	1	35	17	36	3	26	12	30	1	27	14	28
All species	63	270	8	333	67	261	9	328	105	284	9	389	59	276	9	335

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Table 13 (cont'd) 50-year forecast of timber availability by time period and principal species – unrestricted biological potential for Private sector hardwoods

Principal species	2052-56			2057-61				
	FC	Private sector	Total	FC	Private sector	Total		
	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)		
All conifers	42	56	11	98	54	59	10	113
Sitka spruce	1	4	15	5	1	4	15	5
Scots pine	10	9	22	19	13	11	20	24
Corsican pine	12	0	32	13	12	0	32	12
Norway spruce	3	3	35	6	5	4	30	9
Larches	1	8	41	9	2	8	37	10
Douglas fir	9	13	24	22	12	13	24	24
Lodgepole pine	0	0	82	0	1	0	82	1
Other conifers	5	19	21	24	8	19	20	27
All broadleaves	19	234	7	253	23	229	10	252
Oak	6	26	17	32	5	41	28	46
Beech	10	34	36	44	15	31	32	46
Sycamore	0	8	24	8	0	5	26	6
Ash	1	80	14	81	1	31	12	31
Birch	0	11	16	11	1	12	17	13
Sweet chestnut	0	7	45	7	1	25	55	25
Hazel	0	21	16	21	0	19	18	19
Hawthorn	0	6	19	6	0	8	33	8
Alder	0	3	32	3	0	3	30	3
Willow	0	10	26	10	0	21	31	21
Other broadleaves	1	27	14	28	1	33	20	34
All species	62	289	6	350	77	288	8	365

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Table 14 50-year forecast of standing volume; annual average volumes within periods – unrestricted biological potential for Private sector hardwoods

Forecast period	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	2,043	3,009	9	5,052
2017–21	2,065	2,626	10	4,691
2022–26	2,109	2,191	12	4,300
2027–31	2,166	1,837	13	4,003
2032–36	2,220	1,480	15	3,700
2037–41	2,267	1,411	14	3,678
2042–46	2,227	1,336	13	3,563
2047–51	2,183	1,322	12	3,505
2052–56	2,204	1,442	11	3,646
2057–61	2,178	1,571	10	3,749
All broadleaves				
2013–16	3,055	8,235	5	11,290
2017–21	3,127	6,877	6	10,003
2022–26	3,179	5,980	7	9,159
2027–31	3,242	6,086	7	9,328
2032–36	3,304	6,371	6	9,675
2037–41	3,279	6,719	6	9,998
2042–46	3,295	6,853	6	10,148
2047–51	3,272	7,189	5	10,461
2052–56	3,302	7,298	5	10,601
2057–61	3,291	7,260	5	10,550
All species				
2013–16	5,098	11,239	4	16,338
2017–21	5,191	9,497	5	14,688
2022–26	5,288	8,171	6	13,459
2027–31	5,408	7,921	6	13,329
2032–36	5,524	7,851	6	13,374
2037–41	5,546	8,126	5	13,672
2042–46	5,522	8,183	5	13,704
2047–51	5,455	8,499	5	13,954
2052–56	5,507	8,725	5	14,232
2057–61	5,469	8,812	5	14,280

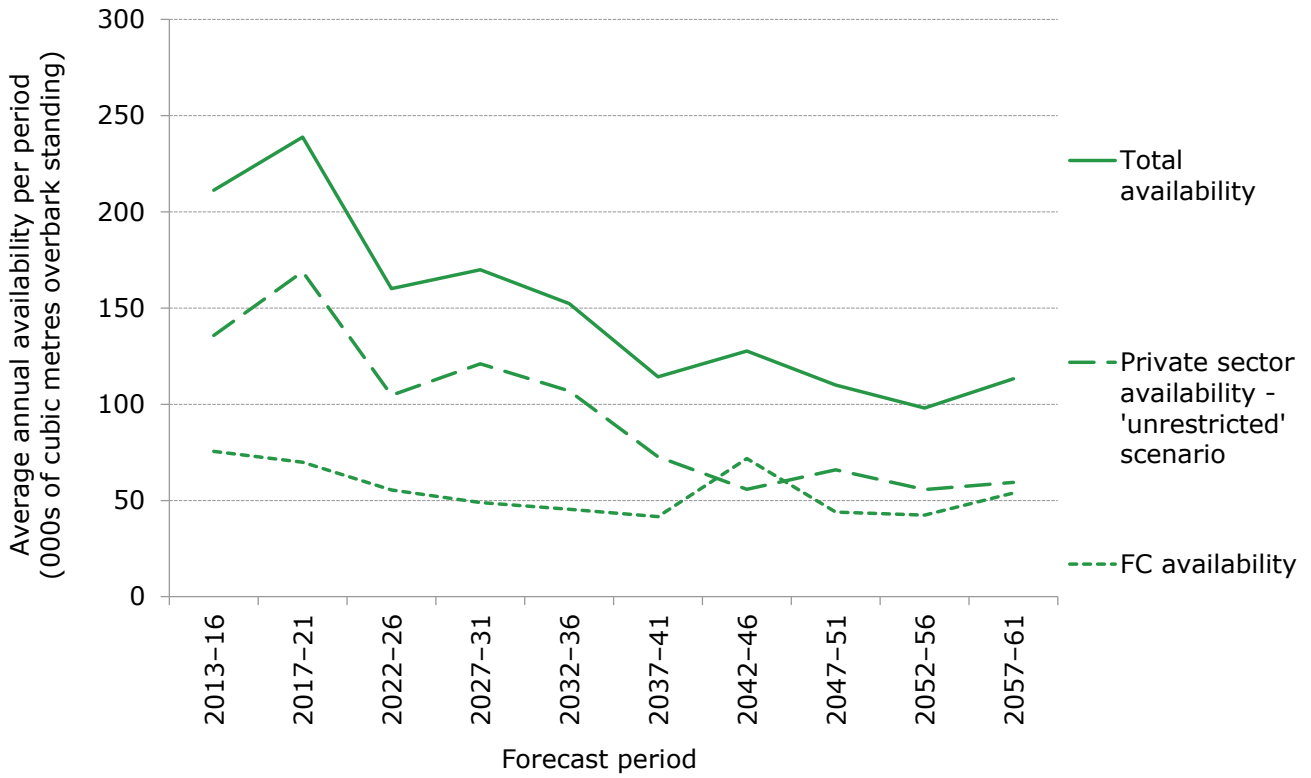
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Table 15 50-year forecast of net increment; annual average volumes within periods – unrestricted biological potential for Private sector hardwoods

Forecast period	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	70	68	10	138
2017–21	67	65	10	132
2022–26	61	51	11	112
2027–31	57	45	11	103
2032–36	54	44	11	98
2037–41	52	51	10	103
2042–46	49	60	9	110
2047–51	46	70	8	117
2052–56	46	79	8	125
2057–61	46	86	7	132
All broadleaves				
2013–16	24	146	7	171
2017–21	25	163	5	188
2022–26	24	178	4	202
2027–31	24	203	4	228
2032–36	25	231	3	256
2037–41	23	256	3	279
2042–46	23	266	3	289
2047–51	22	262	3	285
2052–56	22	243	4	265
2057–61	20	224	4	245
All species				
2013–16	94	214	6	309
2017–21	92	227	4	319
2022–26	85	229	4	314
2027–31	82	248	3	330
2032–36	79	274	3	353
2037–41	75	306	3	381
2042–46	72	325	3	398
2047–51	68	332	3	400
2052–56	68	321	3	388
2057–61	66	309	3	375

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Figure 9 Overview of 50-year forecast of average annual softwood availability – unrestricted biological potential for Private sector hardwoods



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Figure 10 50-year forecast comparison of average annual softwood availability–unrestricted biological potential for Private sector hardwoods

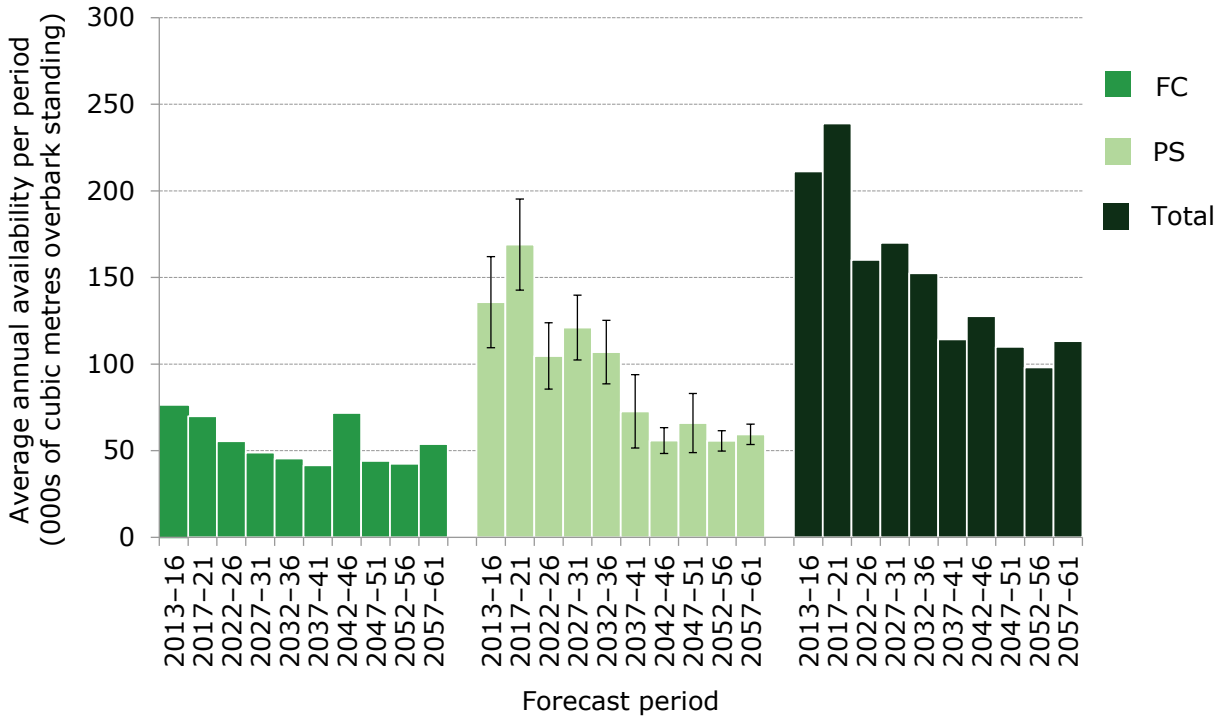
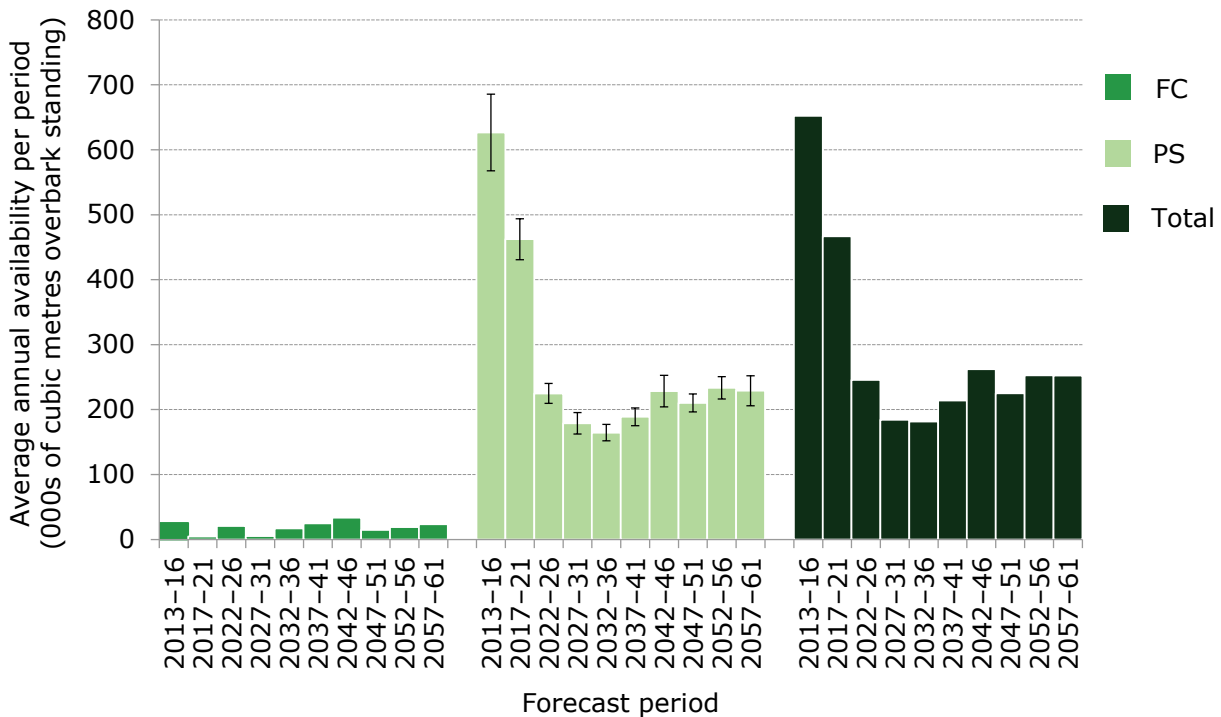


Figure 11 50-year forecast comparison of average annual hardwood availability – unrestricted biological potential for Private sector hardwoods



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Figure 12 50-year summary of softwood standing volume, increment and availability – unrestricted biological potential for Private sector hardwoods

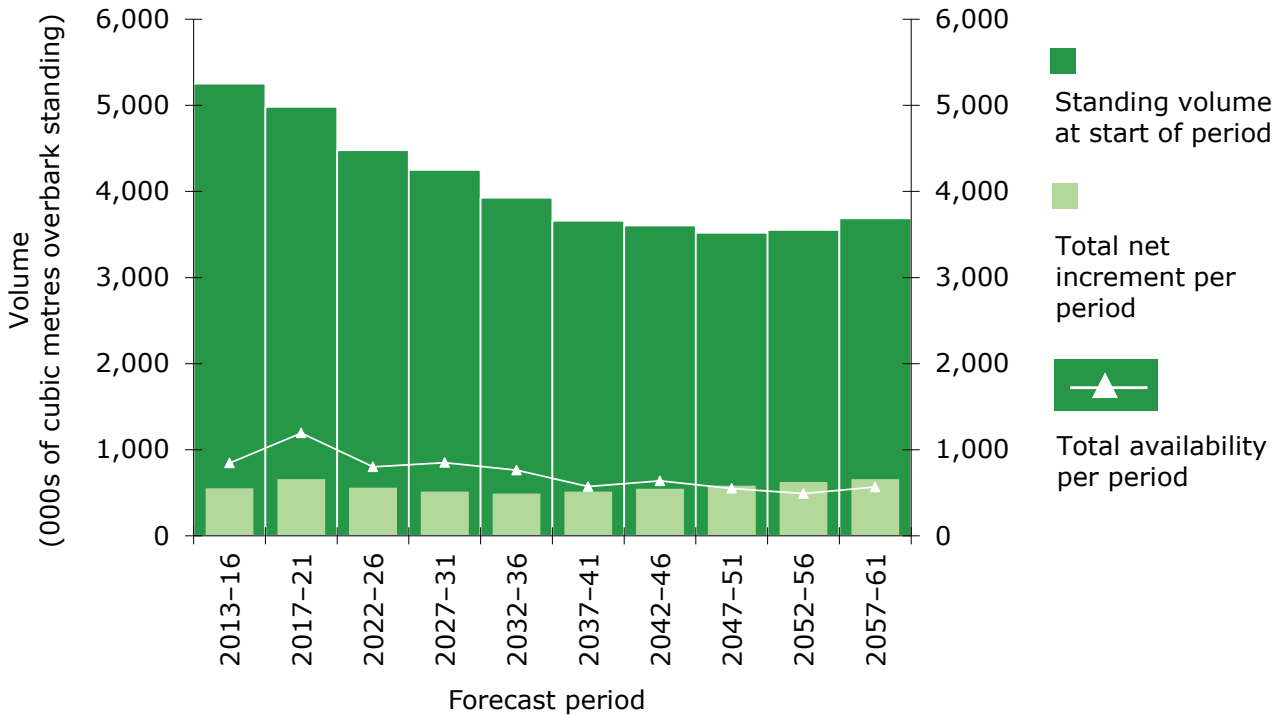
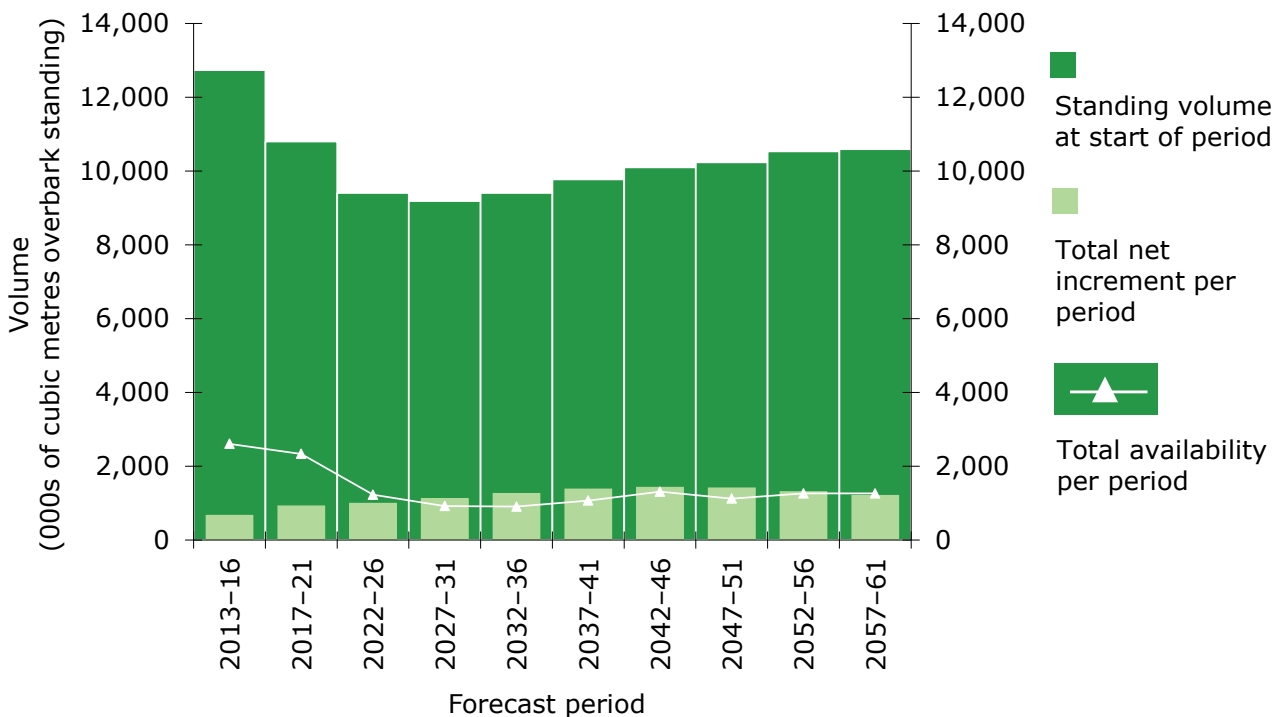


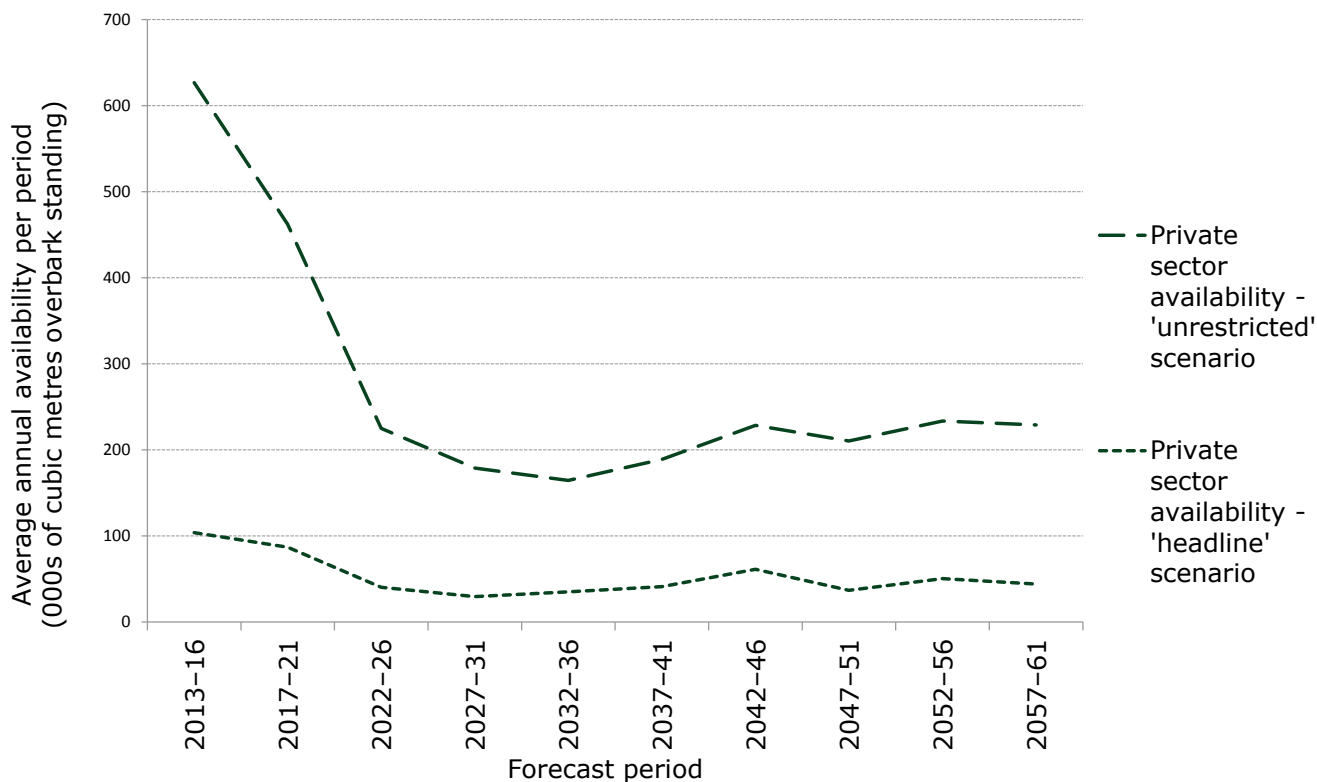
Figure 13 50-year summary of hardwood standing volume, increment and availability – unrestricted biological potential for Private sector hardwoods



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Comparison of hardwood production between harvesting scenarios

Figure 14 50-year forecast comparison of average annual hardwood timber availability



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Figure 15 15-year forecast comparison of average annual hardwood timber availability

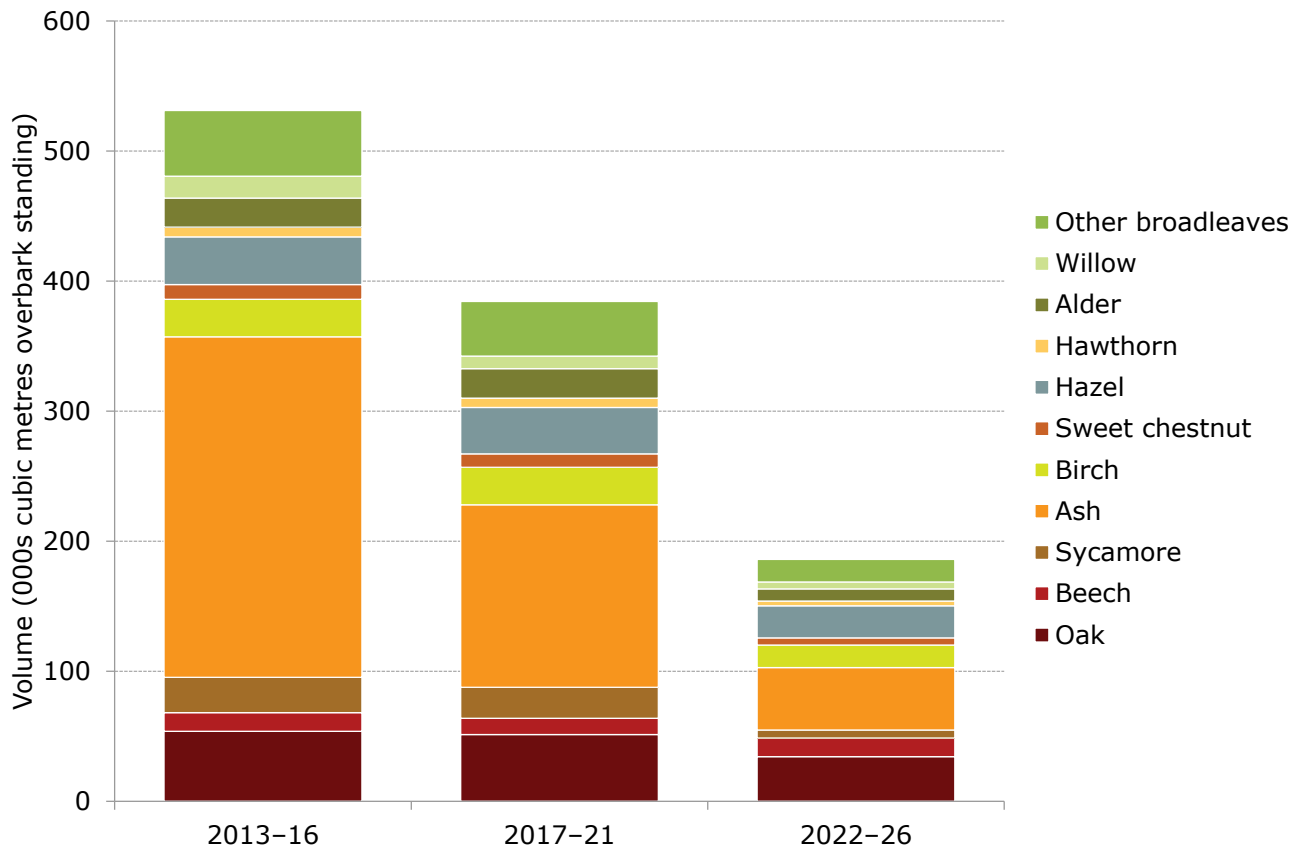


Table 16 15-year forecast comparison of average annual timber availability

Principal species	2013-16			2017-21			2022-26		
	Headline	Unrestricted volume	Difference	Headline	Unrestricted volume	Difference	Headline	Unrestricted volume	Difference
	(000 m ³ obs)			(000 m ³ obs)			(000 m ³ obs)		
All conifers	211	211	0	239	239	0	160	160	0
Sitka spruce	1	1	0	2	2	0	0	0	0
Scots pine	35	35	0	43	43	0	26	26	0
Corsican pine	36	36	0	44	44	0	32	32	0
Norway spruce	8	8	0	16	16	0	4	4	0
Larches	26	26	0	38	38	0	17	17	0
Douglas fir	57	57	0	42	42	0	50	50	0
Lodgepole pine	1	1	0	0	0	0	4	4	0
Other conifers	49	49	0	53	53	0	26	26	0
All broadleaves	129	652	523	92	467	375	61	246	184
Oak	27	81	54	25	77	51	9	44	34
Beech	33	47	14	14	26	13	27	41	14
Sycamore	12	39	27	8	32	24	2	8	6
Ash	19	281	262	21	161	140	8	56	48
Birch	6	35	29	7	35	29	6	24	17
Sweet chestnut	2	13	11	1	12	10	1	7	5
Hazel	5	42	37	5	40	36	2	26	25
Hawthorn	0	8	7	0	8	7	0	4	4
Alder	0	22	22	0	23	23	0	9	9
Willow	0	17	17	0	10	10	0	6	5
Other broadleaves	24	75	51	10	52	42	4	22	17
All species	340	863	523	331	706	375	220	404	184

NFI national reports and papers

The principal themes reported on for the 2011 woodland profile and future forecasts are:

- 2011 preliminary estimates of broadleaved species in British woodlands
- 2011 standing coniferous timber volume
- 25-year forecast of softwood availability
- 25-year forecast of coniferous standing volume and increment
- 2011 biomass in live woodland trees in Britain
- 2011 carbon in live woodland trees in Britain

The principal themes reported on for the 2012 woodland profile and future forecasts are:

- 50 year forecast of softwood availability
- 50 year forecast of hardwood availability

Each theme has a series of reports, papers and data, tailored for different audiences and uses. All the documents and data can be found on the NFI website www.forestry.gov.uk/inventory.

Glossary

A glossary of terms is presented in the full suite of forecast reports which can be found at www.forestry.gov.uk/forecast.

Official Statistics

This is an Official Statistics publication. More information about Official Statistics and the UK Statistics Authority is available at www.statisticsauthority.gov.uk

National Forest Inventory Statistician: Alan Brewer