

NFI provisional estimates for woodland within 100 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 100-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 50 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

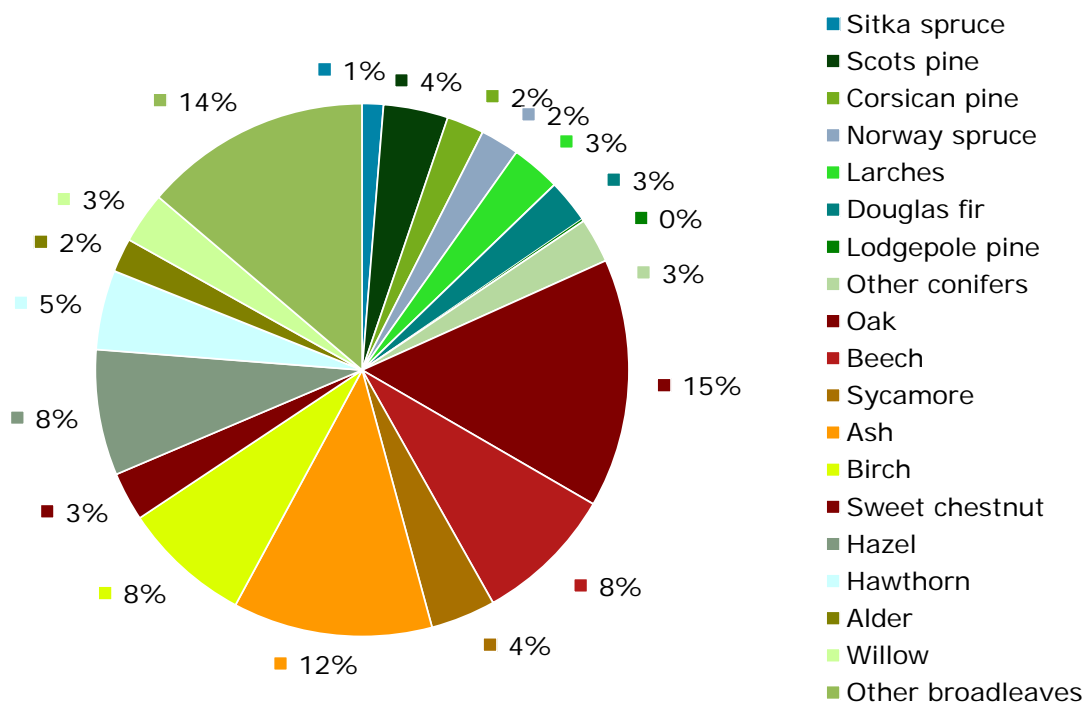
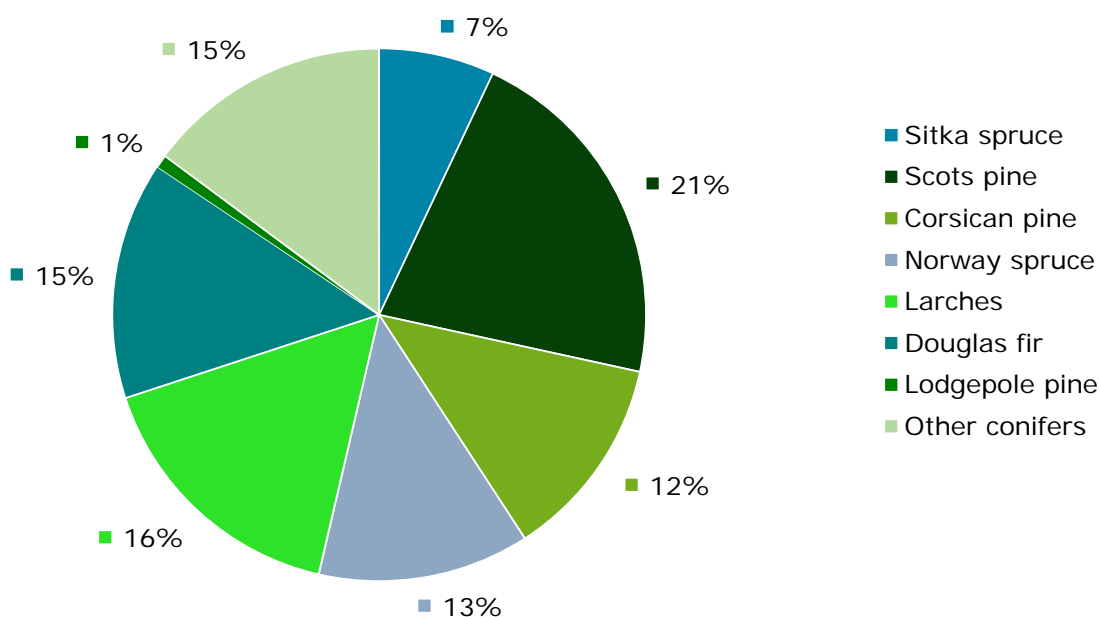


Figure 1a Principal conifer tree species composition by stocked area at 31 March 2012



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

Principal species	FC/NRW	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
Conifers				
Sitka spruce	4.5	2.7	21	7.2
Scots pine	4.8	17.1	7	21.9
Corsican pine	6.9	5.8	13	12.7
Norway spruce	3.0	10.1	9	13.1
Larches	5.2	11.5	8	16.7
Douglas fir	5.8	9.0	10	14.8
Lodgepole pine	0.5	0.3	43	0.8
Other conifers	2.8	12.4	9	15.2
All conifers	33.4	69.0	3	102.4
Broadleaves				
Oak	11.6	73.0	3	84.6
Beech	10.6	37.0	5	47.6
Sycamore	0.4	21.6	7	21.9
Ash	1.7	66.1	3	67.8
Birch	2.1	41.5	5	43.6
Sweet chestnut	0.6	15.9	9	16.6
Hazel	0.2	42.5	4	42.7
Hawthorn	0.0	27.1	6	27.1
Alder	0.2	11.3	8	11.5
Willow	0.0	17.4	7	17.4
Other broadleaves	7.0	70.2	4	77.2
All broadleaves	34.4	424.2	1	458.6
All species				
All species	67.9	493.2	1	561.1

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Table 2 Stocked area by age class at 31 March 2012

Age class	FC/NRW	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
All conifers				
0–10 years	2.7	2.0	23	4.7
11–20 years	3.6	2.3	18	5.9
21–40 years	7.6	18.9	7	26.5
41–60 years	14.2	33.9	5	48.0
61–80 years	3.7	8.6	11	12.2
81–100 years	1.2	1.8	24	3.0
100+ years	0.4	1.6	21	2.1
Total	33.4	69.0	3	102.4
All broadleaves				
0–10 years	1.5	47.1	5	48.6
11–20 years	1.7	55.3	4	57.0
21–40 years	2.5	118.5	3	121.0
41–60 years	8.0	71.9	4	79.8
61–80 years	7.8	52.6	4	60.4
81–100 years	2.7	47.2	5	49.9
100+ years	10.2	31.5	6	41.8
Total	34.4	424.2	1	458.6
All species				
0–10 years	4.2	49.2	5	53.4
11–20 years	5.3	57.7	4	63.0
21–40 years	10.2	137.5	3	147.7
41–60 years	22.1	105.9	3	128.0
61–80 years	11.5	61.2	4	72.6
81–100 years	3.9	49.0	5	52.9
100+ years	10.7	32.8	6	43.5
Total	67.9	493.2	1	561.1

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

Mean stand DBH	FC/NRW	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
All conifers				
0–7 cm	3.2	2.1	20	5.3
7–10 cm	1.3	2.5	16	3.8
10–15 cm	3.8	4.6	12	8.4
15–20 cm	3.2	7.3	10	10.5
20–30 cm	7.4	17.6	7	25.0
30–40 cm	7.4	17.6	7	25.0
40–60 cm	6.2	14.4	8	20.7
60–80 cm	0.8	1.8	20	2.6
80+ cm	0.2	1.1	31	1.3
Total	33.4	69.0	3	102.4
All broadleaves				
0–7 cm	2.3	59.4	5	61.8
7–10 cm	2.8	76.8	3	79.6
10–15 cm	3.4	60.0	4	63.5
15–20 cm	4.3	42.1	4	46.3
20–30 cm	10.2	62.7	4	72.9
30–40 cm	6.9	40.5	5	47.4
40–60 cm	3.5	49.9	4	53.3
60–80 cm	0.9	20.7	6	21.6
80+ cm	0.2	12.0	10	12.2
Total	34.4	424.2	1	458.6
All species				
0–7 cm	5.6	61.6	5	67.2
7–10 cm	4.1	79.4	3	83.5
10–15 cm	7.2	64.8	3	72.0
15–20 cm	7.4	49.4	4	56.9
20–30 cm	17.5	80.4	3	97.9
30–40 cm	14.3	58.1	4	72.4
40–60 cm	9.7	64.2	4	73.9
60–80 cm	1.7	22.3	6	23.9
80+ cm	0.5	13.1	10	13.6
Total	67.9	493.2	1	561.1

Table 4 Felled area at 31 March 2012

Clearfelled area	FC/NRW	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
	2.2	2.7	24	4.8

Standing volume at 31 March 2012

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

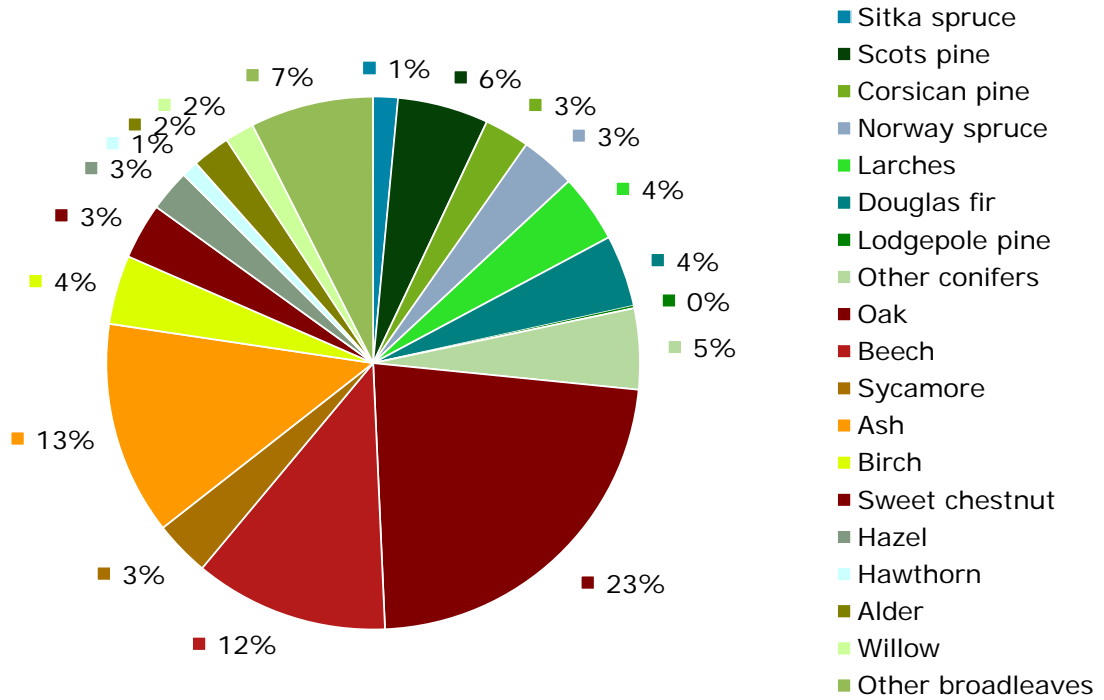
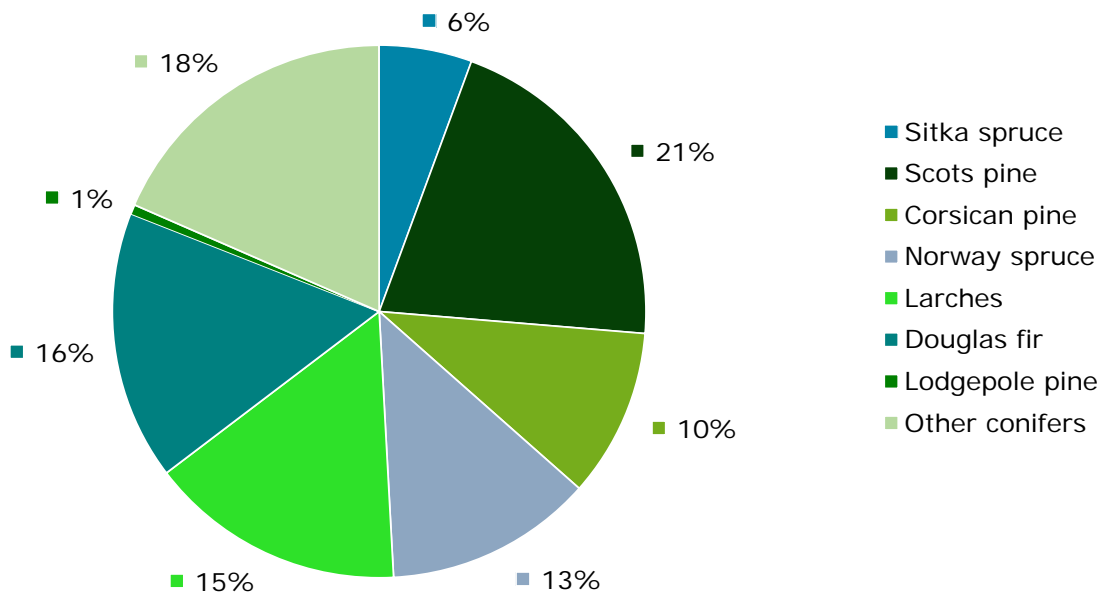


Figure 2a Principal conifer tree species composition by standing volume at 31 March 2012



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

Principal species	FC/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
Conifers				
Sitka spruce	947	1,075	28	2,022
Scots pine	1,322	6,143	8	7,465
Corsican pine	1,527	2,156	14	3,683
Norway spruce	916	3,625	10	4,541
Larches	1,181	4,418	8	5,599
Douglas fir	1,664	4,220	13	5,884
Lodgepole pine	93	113	48	206
Other conifers	1,032	5,617	14	6,649
All conifers	8,682	27,379	4	36,061
Broadleaves				
Oak	2,746	28,022	5	30,767
Beech	2,496	13,442	7	15,938
Sycamore	47	4,513	9	4,560
Ash	259	17,290	5	17,550
Birch	214	5,459	6	5,673
Sweet chestnut	98	4,510	10	4,608
Hazel	20	3,384	7	3,404
Hawthorn	0	1,371	9	1,371
Alder	41	3,073	11	3,114
Willow	0	2,394	12	2,394
Other broadleaves	882	9,236	7	10,118
All broadleaves	6,803	92,735	2	99,539
All species				
All species	15,485	120,100	2	135,585

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Table 6 Standing volume by age class at 31 March 2012

Age class	FC/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
0–10 years	2	2	63	4
11–20 years	188	117	21	305
21–40 years	1,525	5,500	9	7,025
41–60 years	4,882	14,189	5	19,071
61–80 years	1,366	5,190	15	6,556
81–100 years	492	1,416	31	1,908
100+ years	227	964	26	1,191
Total	8,682	27,379	4	36,061
All broadleaves				
0–10 years	0	105	19	105
11–20 years	23	2,337	6	2,360
21–40 years	155	15,559	4	15,714
41–60 years	1,249	17,427	4	18,676
61–80 years	1,534	18,444	5	19,978
81–100 years	581	21,252	5	21,833
100+ years	3,261	17,612	8	20,872
Total	6,803	92,735	2	99,539
All species				
0–10 years	2	107	19	109
11–20 years	211	2,459	6	2,671
21–40 years	1,680	21,054	4	22,733
41–60 years	6,131	31,656	3	37,787
61–80 years	2,900	23,651	5	26,551
81–100 years	1,073	22,677	5	23,750
100+ years	3,488	18,495	8	21,983
Total	15,485	120,100	2	135,585

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

Mean stand DBH	FC/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
0–7 cm	1	1	78	2
7–10 cm	33	83	17	116
10–15 cm	389	575	15	965
15–20 cm	710	1,738	11	2,448
20–30 cm	2,483	6,309	7	8,793
30–40 cm	2,426	7,912	7	10,339
40–60 cm	2,180	8,602	10	10,783
60–80 cm	347	1,030	18	1,377
80+ cm	112	1,127	41	1,240
Total	8,682	27,379	4	36,061
All broadleaves				
0–7 cm	10	252	10	262
7–10 cm	119	3,028	4	3,147
10–15 cm	519	6,973	4	7,492
15–20 cm	866	7,345	5	8,211
20–30 cm	2,592	15,935	4	18,528
30–40 cm	1,720	13,606	5	15,326
40–60 cm	749	21,566	5	22,315
60–80 cm	179	13,285	7	13,464
80+ cm	49	10,744	11	10,793
Total	6,803	92,735	2	99,539
All species				
0–7 cm	11	253	10	264
7–10 cm	152	3,118	4	3,270
10–15 cm	908	7,563	4	8,472
15–20 cm	1,576	9,108	4	10,684
20–30 cm	5,076	22,249	3	27,325
30–40 cm	4,146	21,552	4	25,699
40–60 cm	2,929	30,167	4	33,096
60–80 cm	526	14,191	7	14,716
80+ cm	162	11,897	11	12,059
Total	15,485	120,100	2	135,585

Biomass and carbon stocks at 31 March 2012

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

Principal species	FC/NRW	Private sector		Total
	biomass (000 odt)	biomass (000 odt)	SE%	biomass (000 odt)
Conifers				
Sitka spruce	609	607	28	1,216
Scots pine	921	4,116	8	5,037
Corsican pine	923	1,213	14	2,136
Norway spruce	501	1,901	10	2,402
Larches	748	2,597	8	3,345
Douglas fir	1,120	2,670	12	3,790
Lodgepole pine	66	77	48	142
Other conifers	566	3,015	13	3,580
All conifers	5,453	16,203	4	21,655
Broadleaves				
Oak	2,464	23,390	4	25,854
Beech	2,360	11,465	7	13,825
Sycamore	43	3,779	9	3,822
Ash	242	14,173	5	14,415
Birch	211	5,086	5	5,297
Sweet chestnut	100	3,627	10	3,727
Hazel	20	3,323	6	3,342
Hawthorn	0	1,662	8	1,662
Alder	34	2,326	11	2,360
Willow	0	2,435	11	2,435
Other broadleaves	805	8,246	6	9,050
All broadleaves	6,278	79,555	2	85,833
All species				
All species	11,731	95,783	2	107,514

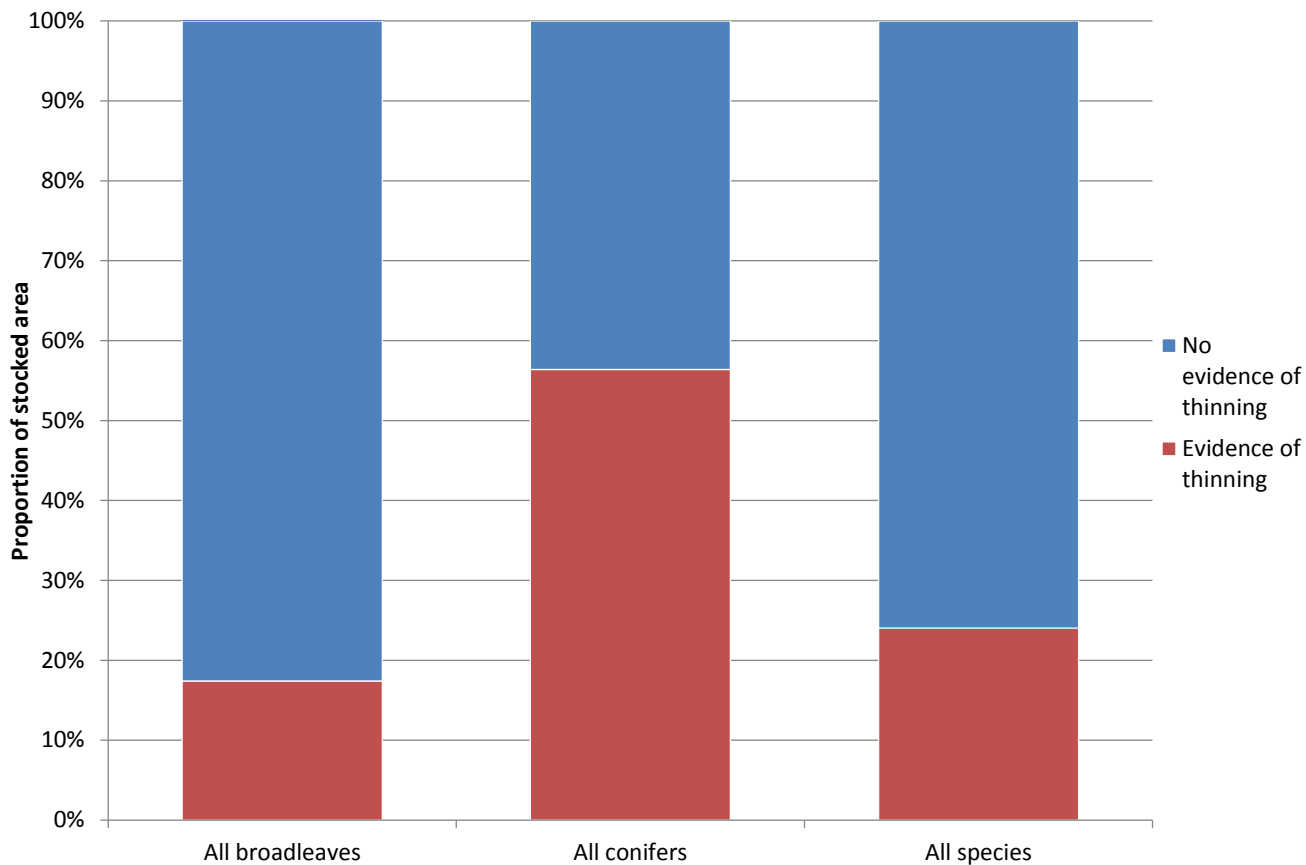
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Table 9 Total carbon stocks in principal tree species at 31 March 2012

Principal species	FC/NRW	Private sector		Total
	carbon (000 t)	carbon (000 t)	SE%	carbon (000 t)
Conifers				
Sitka spruce	305	304	28	608
Scots pine	461	2,058	8	2,519
Corsican pine	461	607	14	1,068
Norway spruce	250	951	10	1,201
Larches	374	1,298	8	1,672
Douglas fir	560	1,335	12	1,895
Lodgepole pine	33	38	48	71
Other conifers	283	1,507	13	1,790
All conifers	2,726	8,101	4	10,828
Broadleaves				
Oak	1,232	11,695	4	12,927
Beech	1,180	5,732	7	6,912
Sycamore	22	1,889	9	1,911
Ash	121	7,086	5	7,207
Birch	106	2,543	5	2,649
Sweet chestnut	50	1,813	10	1,864
Hazel	10	1,661	6	1,671
Hawthorn	0	831	8	831
Alder	17	1,163	11	1,180
Willow	0	1,218	11	1,218
Other broadleaves	402	4,123	6	4,525
All broadleaves	3,139	39,777	2	42,916
All species				
All species	5,866	47,891	2	53,757

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/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	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	380	1,394	7	1,773	340	1,400	7	1,741	275	1,203	8	1,478	272	1,097	7	1,369
Sitka spruce	54	44	42	98	55	127	44	183	40	37	42	77	46	18	32	64
Scots pine	38	236	16	274	37	213	13	251	28	268	13	296	27	316	14	343
Corsican pine	84	156	22	240	73	145	22	217	67	141	26	209	48	58	36	105
Norway spruce	41	131	10	172	39	181	19	221	30	164	19	194	31	259	17	291
Larches	36	271	14	307	29	241	11	270	27	155	11	182	24	128	12	153
Douglas fir	71	301	20	372	59	216	16	274	49	155	18	204	61	134	19	195
Lodgepole pine	5	3	52	8	5	2	46	7	3	6	59	9	3	2	48	4
Other conifers	50	252	17	302	43	277	16	320	31	273	23	304	31	180	15	211
All broadleaves	132	1,190	10	1,322	21	1,087	10	1,108	105	597	9	702	23	547	12	571
Oak	37	168	18	205	4	227	20	232	29	153	21	182	6	178	19	184
Beech	70	184	24	254	10	296	26	306	56	132	17	188	8	164	30	173
Sycamore	2	106	27	108	0	69	24	69	2	27	25	29	1	11	19	12
Ash	7	399	18	406	1	221	11	222	5	92	18	98	2	37	16	38
Birch	3	106	17	108	1	113	16	114	2	69	17	71	1	42	27	43
Sweet chestnut	3	52	49	55	1	14	16	15	2	27	23	30	1	32	48	34
Hazel	0	13	36	13	0	15	30	15	0	18	26	18	0	17	27	17
Hawthorn	0	5	25	5	0	4	20	4	0	5	12	5	0	5	14	5
Alder	1	17	50	17	0	11	36	11	0	6	39	6	0	7	61	7
Willow	0	3	19	3	0	4	15	4	0	4	13	4	0	8	37	8
Other broadleaves	10	132	25	142	3	118	25	121	8	63	25	71	4	47	15	51
All species	512	2,579	6	3,091	362	2,488	6	2,849	380	1,792	6	2,172	295	1,648	6	1,944

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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/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	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	263	1,088	8	1,351	262	961	9	1,223	302	810	9	1,112	276	645	8	920
Sitka spruce	65	25	22	90	43	34	32	77	36	70	31	106	35	34	15	70
Scots pine	21	332	14	352	27	316	20	343	29	179	22	208	26	187	19	213
Corsican pine	49	63	51	112	44	54	48	98	78	45	33	123	61	3	26	64
Norway spruce	22	258	19	281	27	201	19	229	19	199	22	217	23	117	24	139
Larches	26	114	13	140	41	76	15	117	54	54	12	108	44	64	18	108
Douglas fir	57	108	18	166	54	87	17	141	59	114	19	173	58	79	10	137
Lodgepole pine	1	2	47	3	2	18	70	20	1	2	55	2	1	9	63	10
Other conifers	22	184	20	206	25	171	21	196	27	148	27	175	27	151	14	178
All broadleaves	94	450	9	545	75	431	8	506	177	598	9	774	61	583	9	644
Oak	26	89	14	114	15	90	18	104	73	133	31	206	23	138	26	161
Beech	50	161	23	211	44	116	21	159	66	121	25	186	20	120	27	140
Sycamore	2	13	17	15	1	16	16	17	2	27	13	29	2	29	16	31
Ash	5	57	21	62	3	56	9	59	11	82	8	93	5	81	9	85
Birch	2	34	16	36	2	36	11	38	3	58	13	62	2	58	12	60
Sweet chestnut	2	30	29	32	2	14	17	15	3	50	33	52	1	20	30	22
Hazel	0	13	13	13	0	23	17	23	0	23	17	23	0	35	14	35
Hawthorn	0	6	10	6	0	7	9	7	0	8	8	8	0	9	14	9
Alder	0	3	21	3	0	4	24	4	1	9	16	10	0	6	23	6
Willow	0	6	11	6	0	8	15	8	0	13	23	13	0	7	15	7
Other broadleaves	8	43	8	51	9	60	11	69	18	71	11	89	8	77	17	85
All species	357	1,540	6	1,897	337	1,387	7	1,724	479	1,398	7	1,876	336	1,229	6	1,565

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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/NRW	Private sector	Total	FC/NRW	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	258	575	10	833	297	534	6	830
Sitka spruce	43	41	13	85	43	49	12	91
Scots pine	25	120	17	144	34	128	15	162
Corsican pine	36	3	25	39	37	2	23	40
Norway spruce	19	158	32	177	28	72	20	100
Larches	48	51	12	99	48	57	11	105
Douglas fir	60	90	10	150	67	94	8	161
Lodgepole pine	3	0	31	3	3	0	31	3
Other conifers	24	111	11	135	38	131	12	169
All broadleaves	106	609	8	716	79	504	9	583
Oak	36	94	18	130	26	90	21	116
Beech	51	161	21	213	34	161	22	194
Sycamore	2	27	16	29	1	14	20	15
Ash	4	93	10	97	4	77	18	81
Birch	3	52	15	54	4	42	12	46
Sweet chestnut	2	49	39	52	3	21	33	24
Hazel	0	19	21	19	1	12	13	12
Hawthorn	0	8	8	8	0	9	15	9
Alder	0	6	25	6	0	4	37	4
Willow	0	13	23	13	0	11	36	11
Other broadleaves	8	86	13	94	7	60	18	67
All species	365	1,185	6	1,550	375	1,039	5	1,414

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

Forecast period	FC/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	8,591	25,579	4	34,170
2017–21	8,889	23,452	4	32,341
2022–26	9,182	20,228	4	29,410
2027–31	9,523	17,421	5	26,944
2032–36	9,833	14,608	5	24,441
2037–41	10,078	12,766	5	22,844
2042–46	10,261	10,934	6	21,195
2047–51	10,370	10,654	5	21,024
2052–56	10,541	11,102	5	21,643
2057–61	10,572	11,974	4	22,546
All broadleaves				
2013–16	6,725	94,439	2	101,164
2017–21	7,085	99,344	2	106,429
2022–26	7,354	107,000	2	114,354
2027–31	7,690	116,150	2	123,840
2032–36	7,996	125,249	2	133,245
2037–41	8,198	134,278	2	142,476
2042–46	8,201	141,981	2	150,181
2047–51	8,153	148,830	2	156,983
2052–56	8,272	154,942	1	163,214
2057–61	8,329	160,278	1	168,607
All species				
2013–16	15,316	120,010	2	135,326
2017–21	15,974	122,789	2	138,763
2022–26	16,536	127,260	2	143,797
2027–31	17,213	133,601	2	150,814
2032–36	17,830	139,876	2	157,706
2037–41	18,276	147,067	1	165,343
2042–46	18,461	152,981	1	171,442
2047–51	18,523	159,566	1	178,089
2052–56	18,812	166,123	1	184,935
2057–61	18,901	172,324	1	191,225

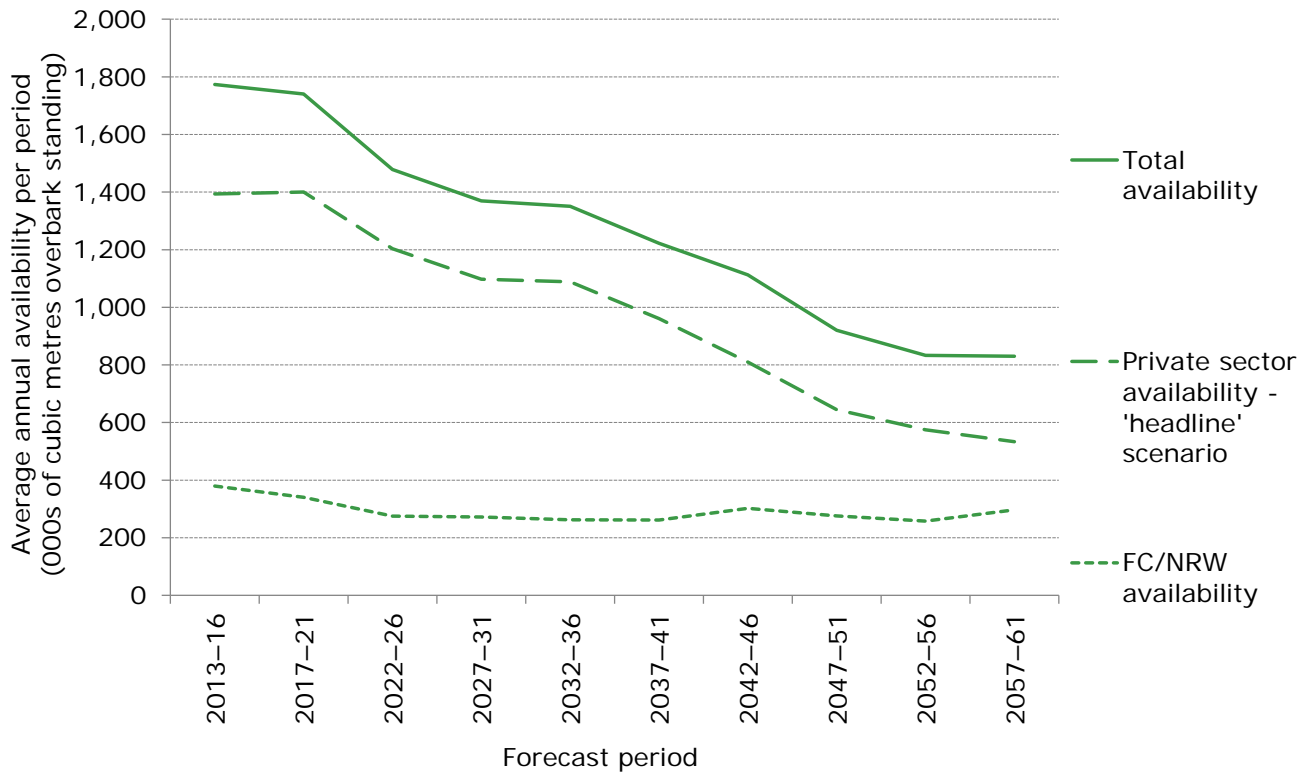
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Table 12 50-year forecast of net increment; annual average volumes within periods

Forecast period	FC/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	357	876	3	1,233
2017–21	362	795	3	1,157
2022–26	338	662	4	1,001
2027–31	328	586	4	915
2032–36	314	539	4	852
2037–41	307	554	4	861
2042–46	305	573	4	878
2047–51	303	636	4	940
2052–56	300	711	3	1,011
2057–61	294	785	3	1,079
All broadleaves				
2013–16	122	2,037	2	2,159
2017–21	124	2,247	2	2,370
2022–26	123	2,367	1	2,490
2027–31	124	2,359	1	2,483
2032–36	125	2,286	1	2,411
2037–41	122	2,190	1	2,312
2042–46	118	2,051	1	2,169
2047–51	112	1,896	2	2,008
2052–56	108	1,743	2	1,851
2057–61	101	1,603	2	1,704
All species				
2013–16	479	2,913	2	3,392
2017–21	486	3,042	1	3,527
2022–26	461	3,031	1	3,492
2027–31	453	2,946	1	3,399
2032–36	439	2,825	1	3,264
2037–41	429	2,743	1	3,172
2042–46	423	2,624	1	3,047
2047–51	415	2,532	1	2,948
2052–56	407	2,453	1	2,861
2057–61	395	2,388	1	2,783

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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

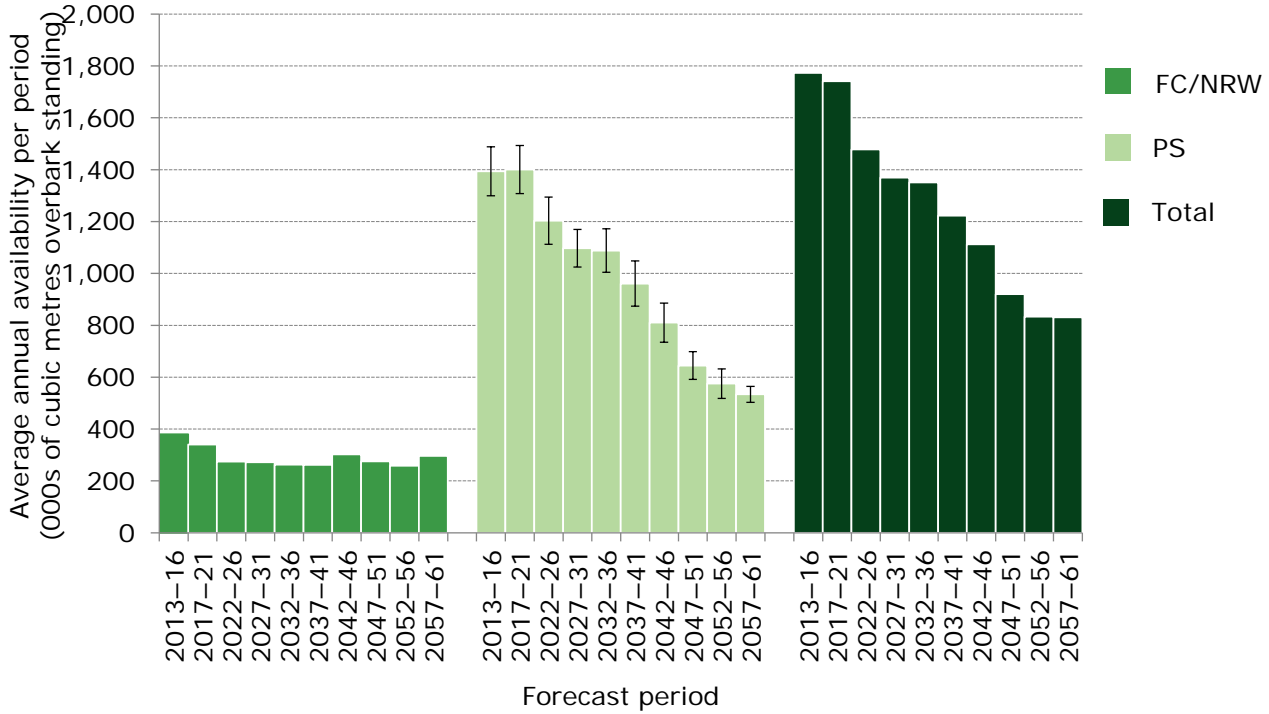
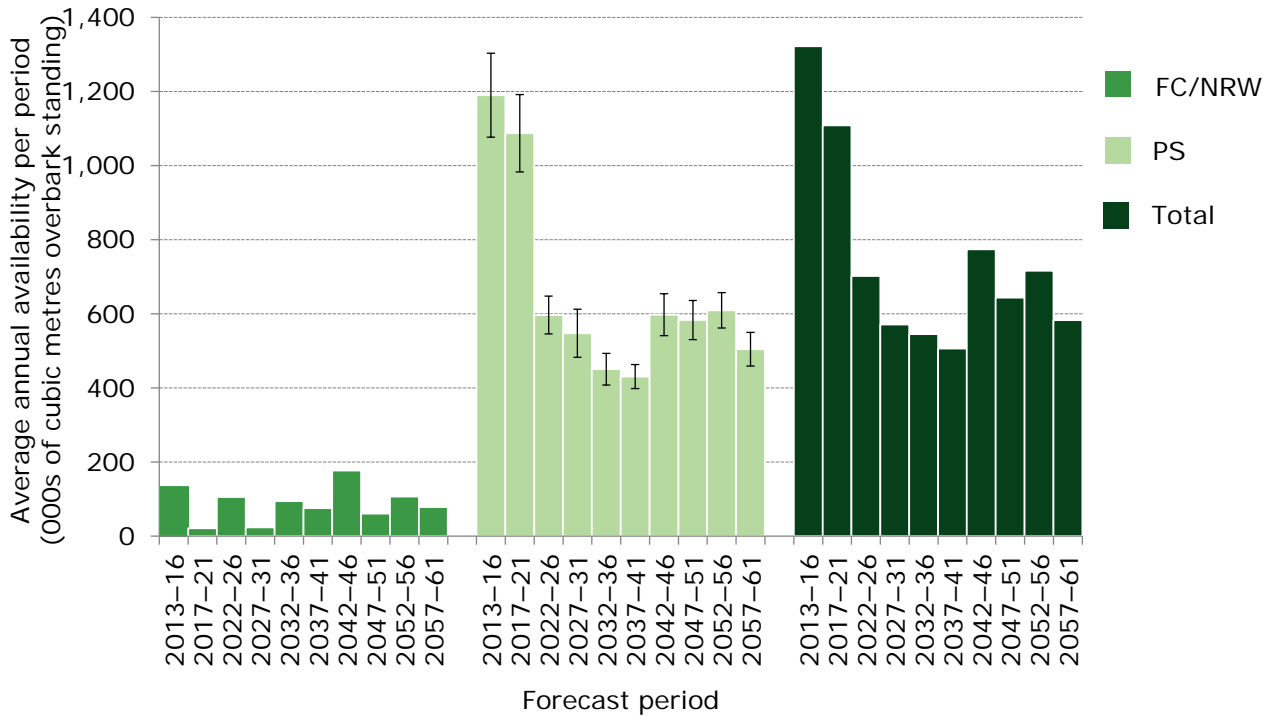


Figure 6 50-year forecast of average annual hardwood availability



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

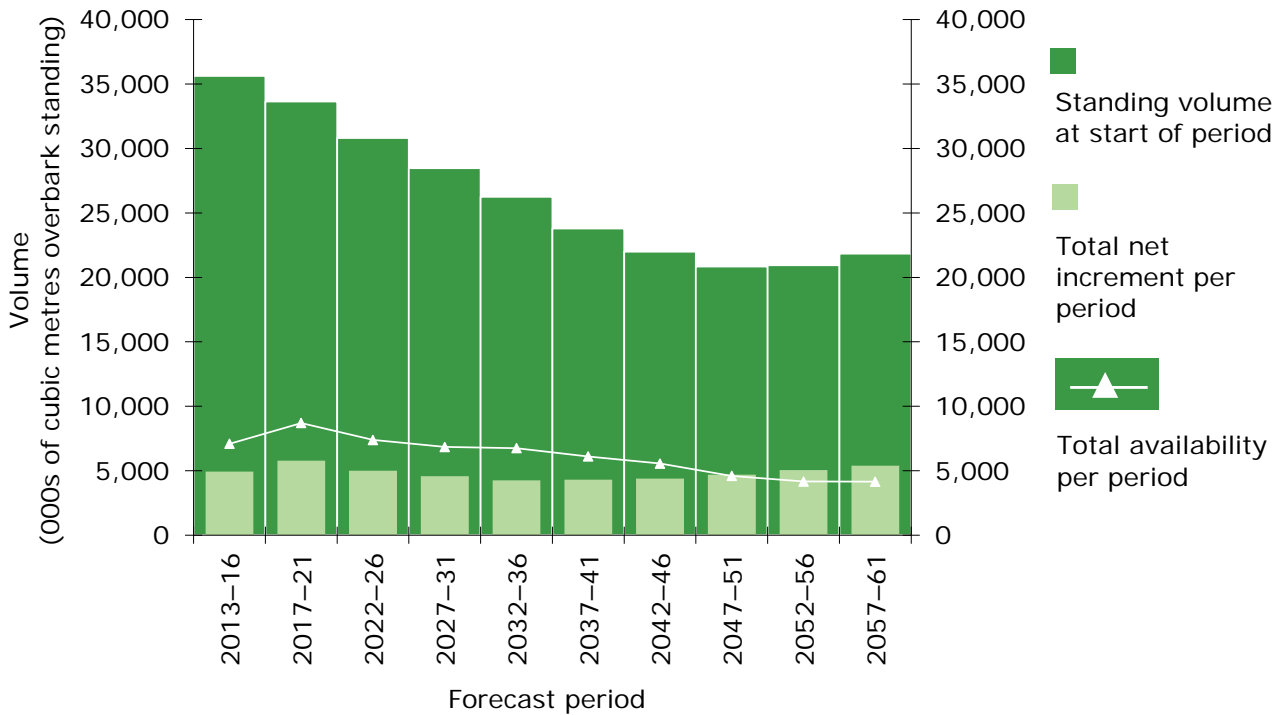
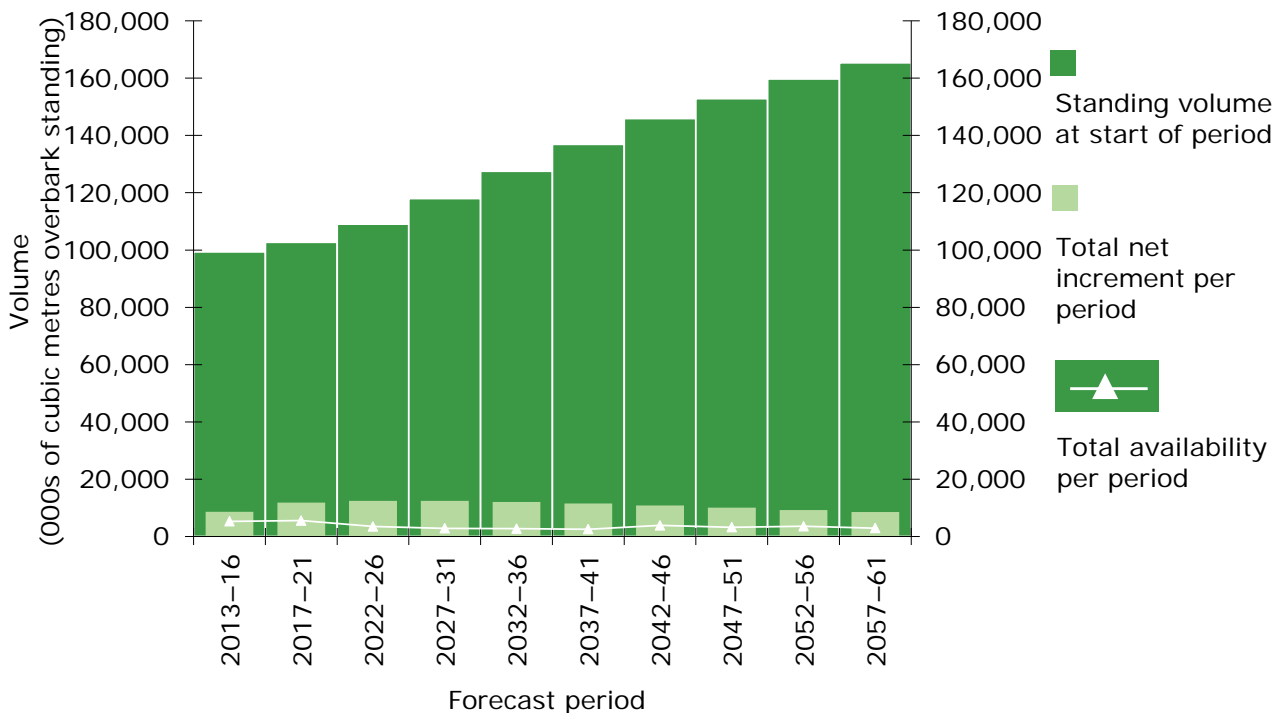


Figure 8 50-year forecast of hardwood standing volume, increment and availability



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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/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	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	380	1,394	7	1,773	340	1,400	7	1,741	275	1,203	8	1,478	272	1,097	7	1,369
Sitka spruce	54	44	42	98	55	127	44	183	40	37	42	77	46	18	32	64
Scots pine	38	236	16	274	37	213	13	251	28	268	13	296	27	316	14	343
Corsican pine	84	156	22	240	73	145	22	217	67	141	26	209	48	58	36	105
Norway spruce	41	131	10	172	39	181	19	221	30	164	19	194	31	259	17	291
Larches	36	271	14	307	29	241	11	270	27	155	11	182	24	128	12	153
Douglas fir	71	301	20	372	59	216	16	274	49	155	18	204	61	134	19	195
Lodgepole pine	5	3	52	8	5	2	46	7	3	6	59	9	3	2	48	4
Other conifers	50	252	17	302	43	277	16	320	31	273	23	304	31	180	15	211
All broadleaves	132	6,136	4	6,268	21	4,951	3	4,972	105	2,862	3	2,967	23	2,462	4	2,485
Oak	37	711	10	748	4	749	10	753	29	595	9	625	6	787	8	793
Beech	70	378	14	447	10	485	17	494	56	360	13	416	8	365	16	374
Sycamore	2	515	11	517	0	366	10	366	2	158	11	160	1	97	16	98
Ash	7	2139	8	2145	1	1448	5	1449	5	523	6	528	2	272	8	273
Birch	3	494	7	497	1	538	6	539	2	305	8	306	1	199	11	200
Sweet chestnut	3	271	23	274	1	124	13	125	2	114	13	117	1	135	20	137
Hazel	0	265	8	265	0	299	9	299	0	203	10	203	0	108	11	108
Hawthorn	0	53	10	53	0	56	9	56	0	51	8	51	0	54	11	54
Alder	1	323	15	324	0	264	11	264	0	127	15	127	0	60	22	61
Willow	0	106	19	106	0	94	19	94	0	66	10	66	0	109	26	109
Other broadleaves	10	868	12	879	3	531	9	534	8	358	9	366	4	280	7	284
All species	512	7,518	3	8,030	362	6,356	3	6,718	380	4,061	3	4,441	295	3,566	4	3,861

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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/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	Private sector	Total	FC/NRW	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	263	1,088	8	1,351	262	961	9	1,223	302	810	9	1,112	276	645	8	920
Sitka spruce	65	25	22	90	43	34	32	77	36	70	31	106	35	34	15	70
Scots pine	21	332	14	352	27	316	20	343	29	179	22	208	26	187	19	213
Corsican pine	49	63	51	112	44	54	48	98	78	45	33	123	61	3	26	64
Norway spruce	22	258	19	281	27	201	19	229	19	199	22	217	23	117	24	139
Larches	26	114	13	140	41	76	15	117	54	54	12	108	44	64	18	108
Douglas fir	57	108	18	166	54	87	17	141	59	114	19	173	58	79	10	137
Lodgepole pine	1	2	47	3	2	18	70	20	1	2	55	2	1	9	63	10
Other conifers	22	184	20	206	25	171	21	196	27	148	27	175	27	151	14	178
All broadleaves	94	2,084	4	2,178	75	2,101	3	2,176	177	2,419	3	2,596	61	2,270	4	2,331
Oak	26	404	8	429	15	471	11	486	73	418	12	490	23	372	11	395
Beech	50	348	16	398	44	253	12	296	66	283	14	349	20	273	16	293
Sycamore	2	90	11	92	1	93	9	94	2	137	9	139	2	122	9	124
Ash	5	329	8	334	3	328	6	330	11	419	6	430	5	369	7	374
Birch	2	197	8	199	2	170	7	172	3	236	7	239	2	228	7	230
Sweet chestnut	2	135	15	137	2	70	11	72	3	165	19	167	1	133	19	135
Hazel	0	114	13	115	0	146	9	147	0	127	9	127	0	186	7	186
Hawthorn	0	53	7	53	0	92	15	92	0	81	23	81	0	68	12	68
Alder	0	64	15	65	0	53	11	53	1	79	10	80	0	62	11	63
Willow	0	68	14	68	0	127	18	127	0	97	20	97	0	78	12	78
Other broadleaves	8	278	7	285	9	295	6	305	18	370	8	389	8	371	9	378
All species	357	3,176	4	3,533	337	3,060	4	3,397	479	3,221	3	3,699	336	2,918	3	3,254

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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/NRW	Private sector	Total	FC/NRW	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	258	575	10	833	297	534	6	830
Sitka spruce	43	41	13	85	43	49	12	91
Scots pine	25	120	17	144	34	128	15	162
Corsican pine	36	3	25	39	37	2	23	40
Norway spruce	19	158	32	177	28	72	20	100
Larches	48	51	12	99	48	57	11	105
Douglas fir	60	90	10	150	67	94	8	161
Lodgepole pine	3	0	31	3	0	31		3
Other conifers	24	111	11	135	38	131	12	169
All broadleaves	106	2,556	3	2,662	79	2,263	4	2,342
Oak	36	332	8	368	26	345	9	371
Beech	51	321	13	372	34	388	14	422
Sycamore	2	128	11	130	1	84	9	85
Ash	4	447	5	451	4	316	6	319
Birch	3	226	7	229	4	188	7	192
Sweet chestnut	2	205	20	207	3	190	21	193
Hazel	0	131	8	132	1	118	7	119
Hawthorn	0	86	14	86	0	92	12	92
Alder	0	64	12	65	0	51	10	51
Willow	0	152	14	152	0	133	16	133
Other broadleaves	8	458	9	466	7	347	11	354
All species	365	3,135	3	3,500	375	2,801	3	3,177

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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/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	8,591	25,579	4	34,170
2017–21	8,889	23,452	4	32,341
2022–26	9,182	20,228	4	29,410
2027–31	9,523	17,421	5	26,944
2032–36	9,833	14,608	5	24,441
2037–41	10,078	12,766	5	22,844
2042–46	10,261	10,934	6	21,195
2047–51	10,370	10,654	5	21,024
2052–56	10,541	11,102	5	21,643
2057–61	10,572	11,974	4	22,546
All broadleaves				
2013–16	6,725	79,686	2	86,411
2017–21	7,085	66,946	2	74,032
2022–26	7,354	57,472	2	64,826
2027–31	7,690	55,920	2	63,610
2032–36	7,996	55,986	2	63,982
2037–41	8,198	57,767	2	65,965
2042–46	8,201	59,056	2	67,257
2047–51	8,153	60,728	2	68,882
2052–56	8,272	61,408	2	69,679
2057–61	8,329	61,538	2	69,867
All species				
2013–16	15,316	105,295	2	120,611
2017–21	15,974	90,407	2	106,381
2022–26	16,536	77,722	2	94,259
2027–31	17,213	73,340	2	90,553
2032–36	17,830	70,567	2	88,397
2037–41	18,276	70,488	2	88,764
2042–46	18,461	69,977	2	88,438
2047–51	18,523	71,376	2	89,900
2052–56	18,812	72,486	2	91,298
2057–61	18,901	73,466	2	92,366

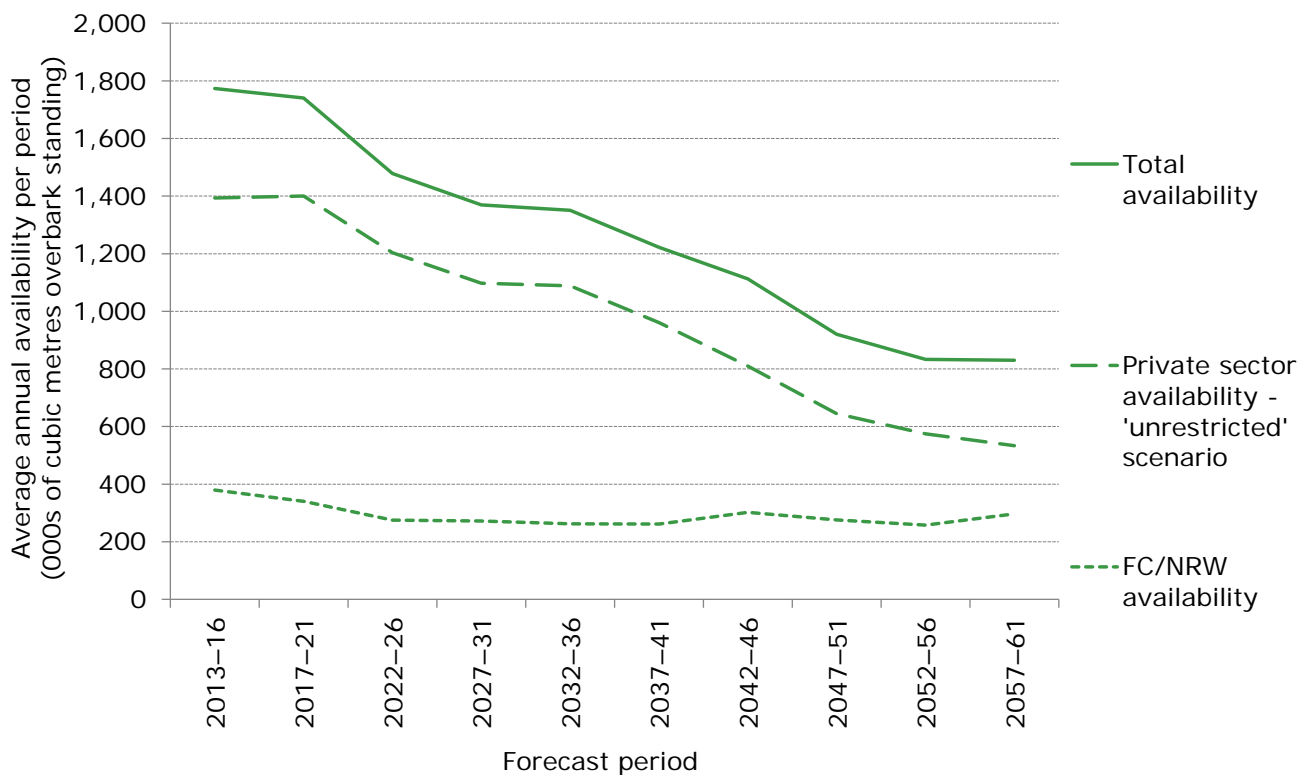
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Table 15 50-year forecast of net increment; annual average volumes within periods – unrestricted biological potential for Private sector hardwoods

Forecast period	FC/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
All conifers				
2013–16	357	876	3	1,233
2017–21	362	795	3	1,157
2022–26	338	662	4	1,001
2027–31	328	586	4	915
2032–36	314	539	4	852
2037–41	307	554	4	861
2042–46	305	573	4	878
2047–51	303	636	4	940
2052–56	300	711	3	1,011
2057–61	294	785	3	1,079
All broadleaves				
2013–16	122	1,980	2	2,102
2017–21	124	2,009	2	2,132
2022–26	123	2,009	2	2,132
2027–31	124	2,128	2	2,252
2032–36	125	2,323	2	2,448
2037–41	122	2,547	1	2,669
2042–46	118	2,666	1	2,784
2047–51	112	2,646	1	2,758
2052–56	108	2,519	1	2,627
2057–61	101	2,392	1	2,493
All species				
2013–16	479	2,856	2	3,335
2017–21	486	2,804	1	3,289
2022–26	461	2,672	2	3,133
2027–31	453	2,714	1	3,167
2032–36	439	2,860	1	3,299
2037–41	429	3,099	1	3,528
2042–46	423	3,239	1	3,662
2047–51	415	3,283	1	3,698
2052–56	407	3,230	1	3,638
2057–61	395	3,177	1	3,572

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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

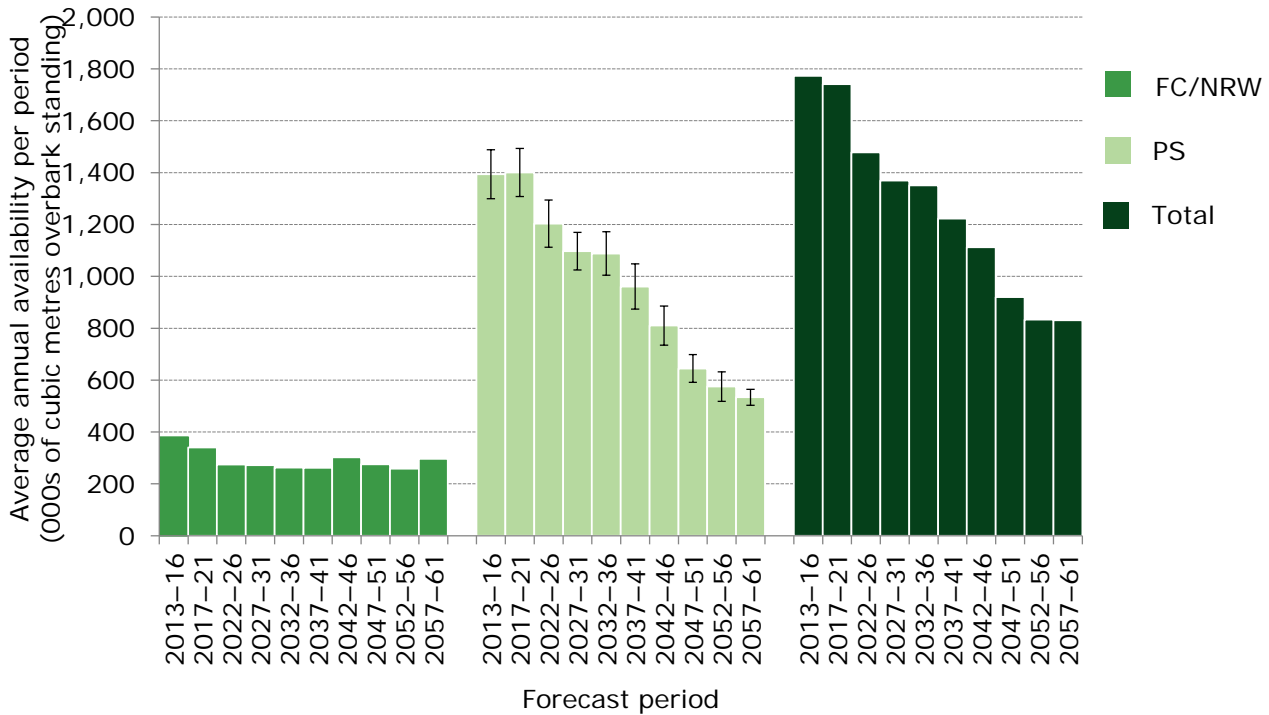
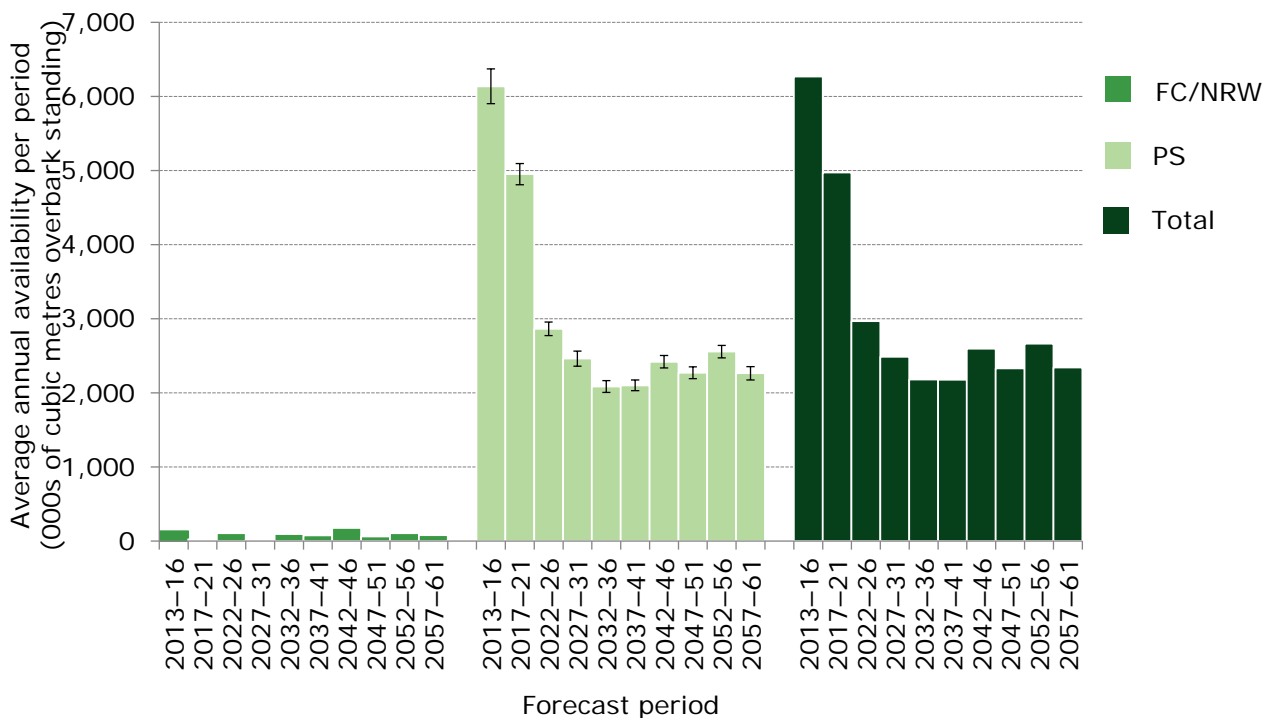


Figure 11 50-year forecast comparison of average annual hardwood availability – unrestricted biological potential for Private sector hardwoods



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

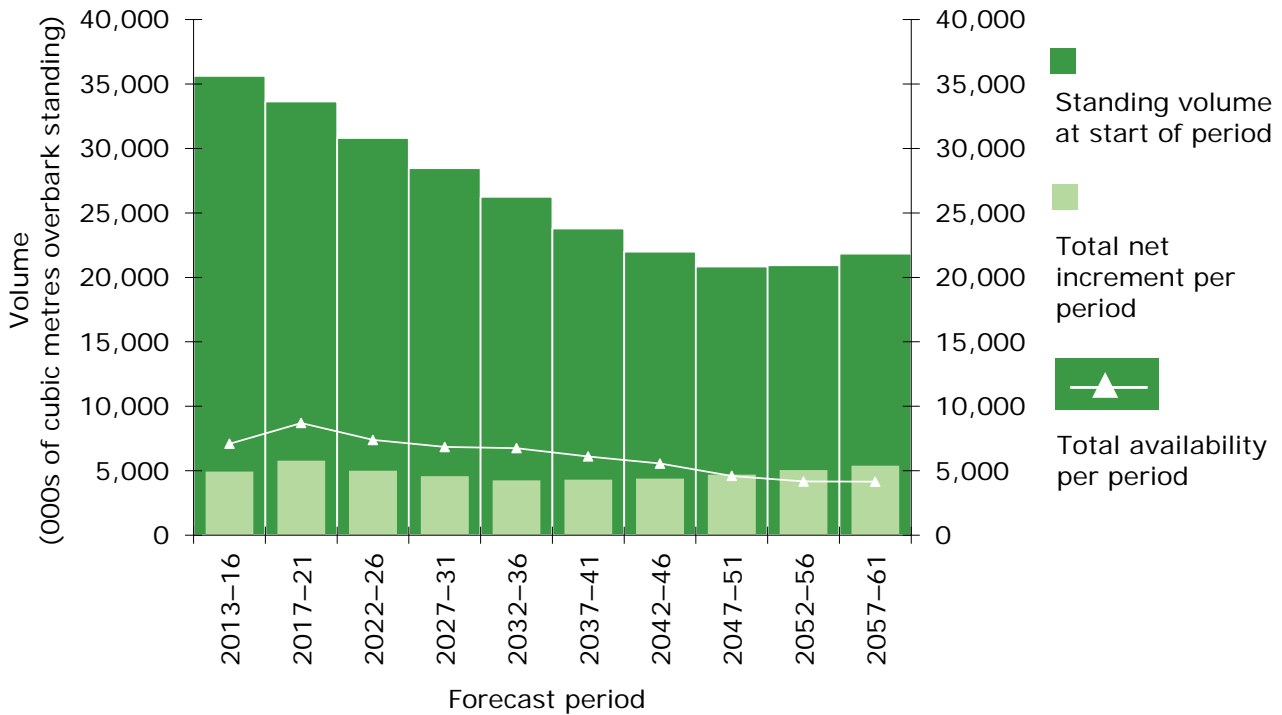
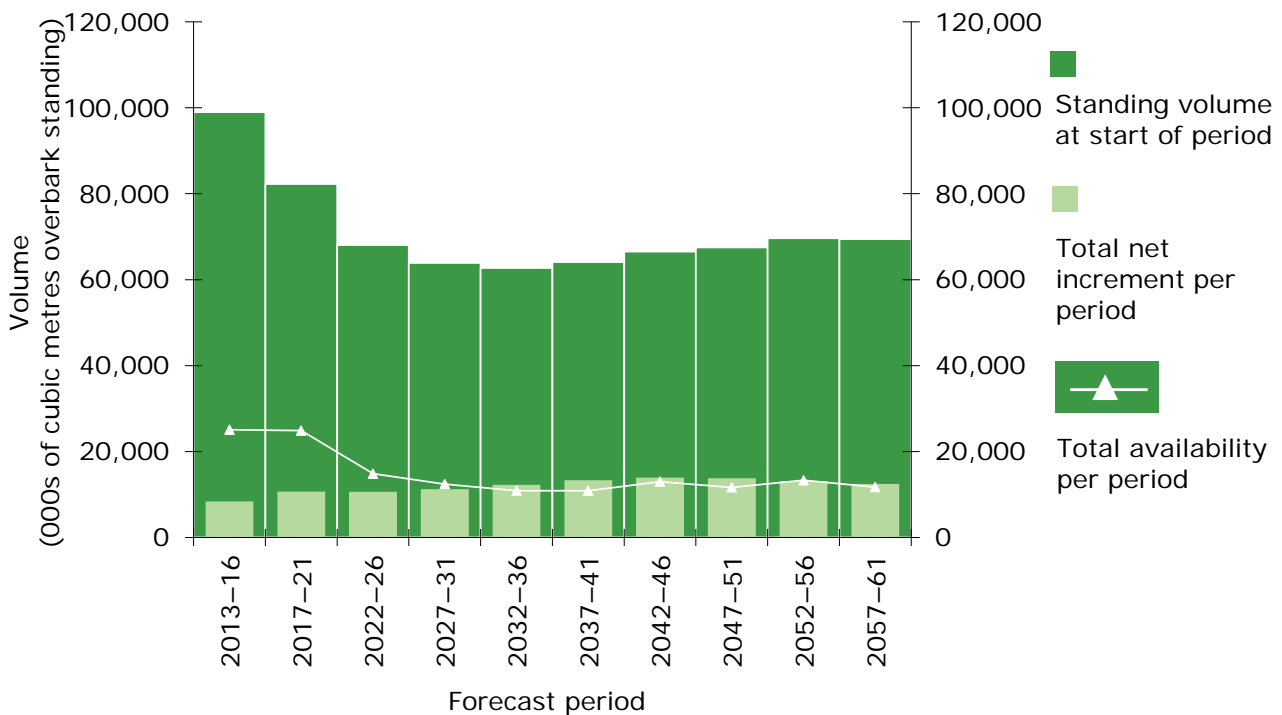


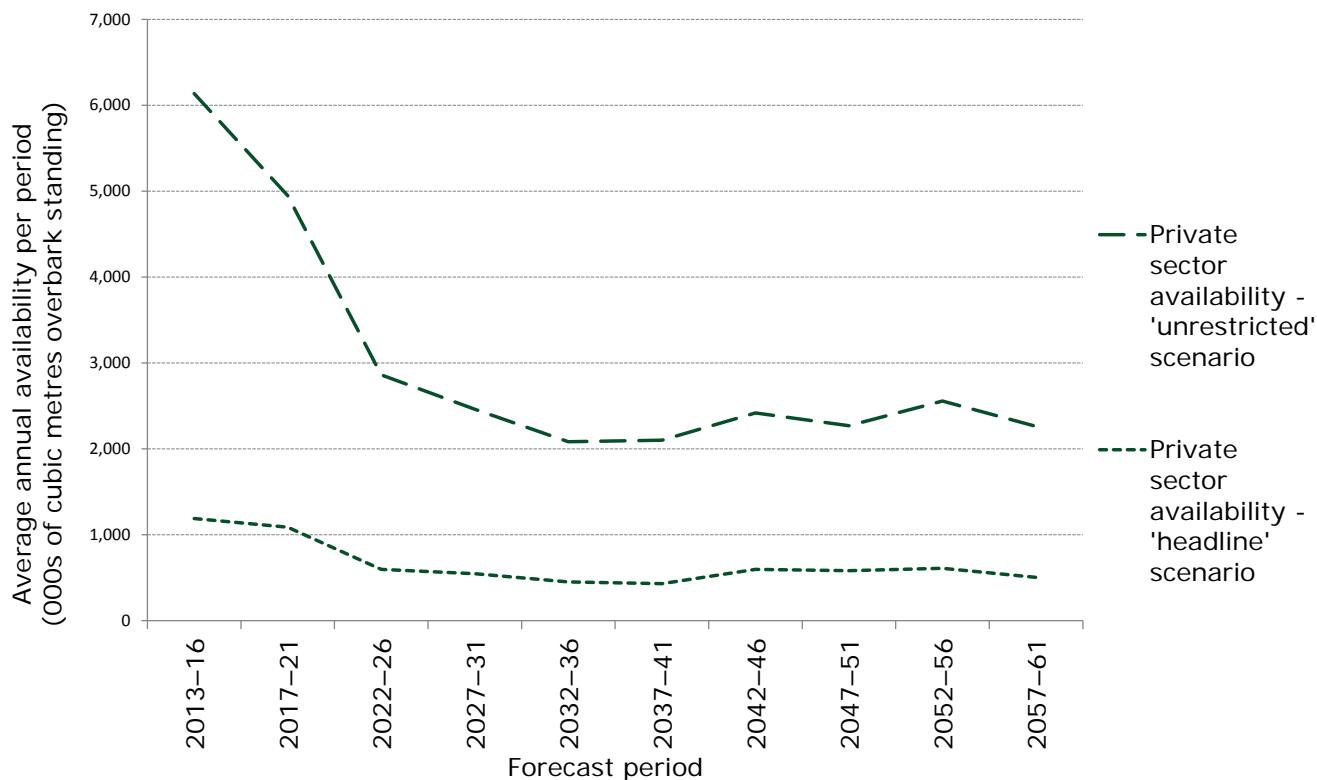
Figure 13 50-year summary of hardwood standing volume, increment and availability – unrestricted biological potential for Private sector hardwoods



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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

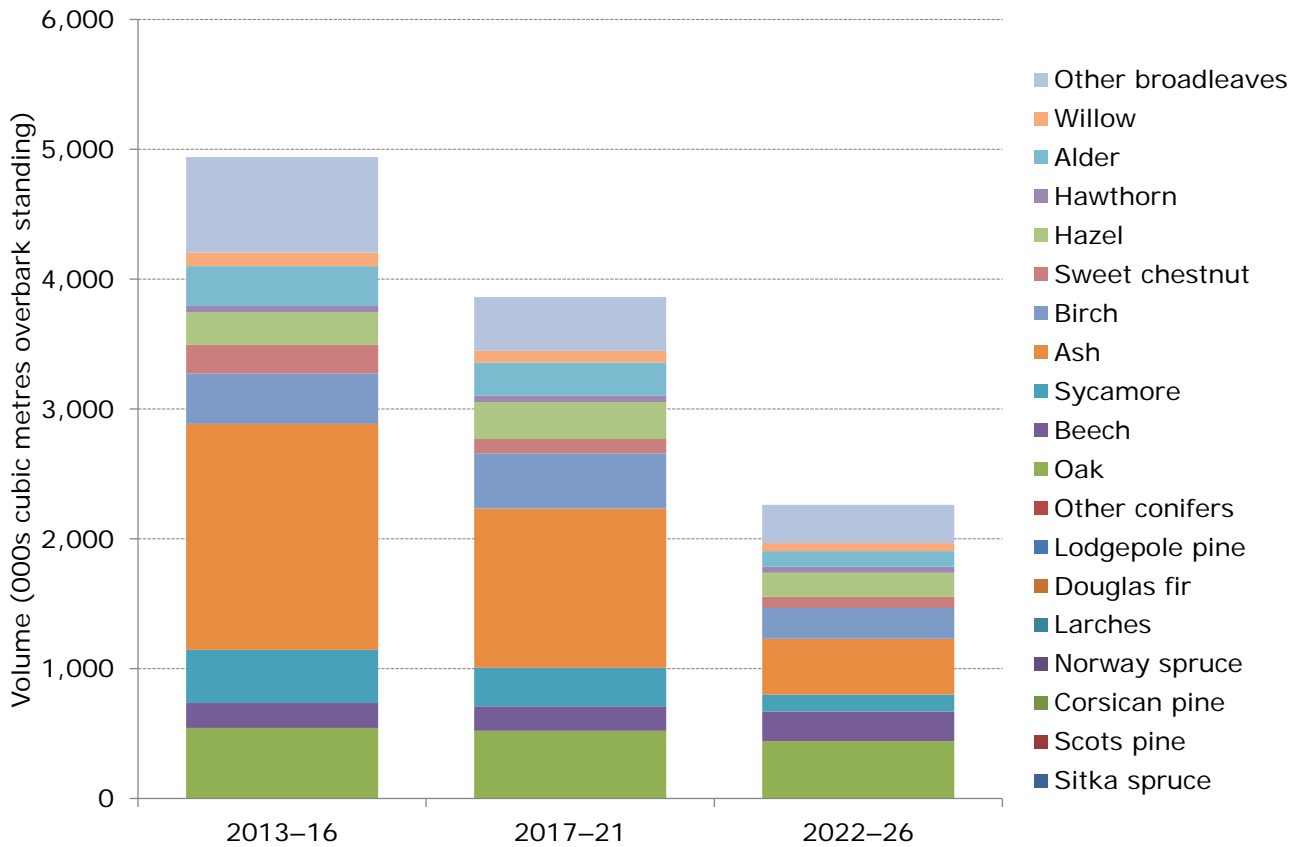


Table 16 15-year forecast comparison of average annual timber availability

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	1,773	1,773	0	1,741	1,741	0	1,478	1,478	0
Sitka spruce	98	98	0	183	183	0	77	77	0
Scots pine	274	274	0	251	251	0	296	296	0
Corsican pine	240	240	0	217	217	0	209	209	0
Norway spruce	172	172	0	221	221	0	194	194	0
Larches	307	307	0	270	270	0	182	182	0
Douglas fir	372	372	0	274	274	0	204	204	0
Lodgepole pine	8	8	0	7	7	0	9	9	0
Other conifers	302	302	0	320	320	0	304	304	0
All broadleaves	1,322	6,268	4,946	1,108	4,972	3,863	702	2,967	2,266
Oak	205	748	543	232	753	521	182	625	443
Beech	254	447	193	306	494	188	188	416	228
Sycamore	108	517	409	69	366	297	29	160	131
Ash	406	2,145	1,739	222	1,449	1,227	98	528	430
Birch	108	497	389	114	539	425	71	306	236
Sweet chestnut	55	274	219	15	125	110	30	117	87
Hazel	13	265	252	15	299	284	18	203	185
Hawthorn	5	53	48	4	56	52	5	51	46
Alder	17	324	307	11	264	253	6	127	121
Willow	3	106	103	4	94	91	4	66	61
Other broadleaves	142	879	737	121	534	413	71	366	295
All species	3,091	8,030	4,939	2,849	6,718	3,869	2,172	4,441	2,270

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