

NFI provisional estimates for woodland within 80 miles of Marlborough

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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 an 80-mile radius of Marlborough. 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 80 miles of Marlborough. 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

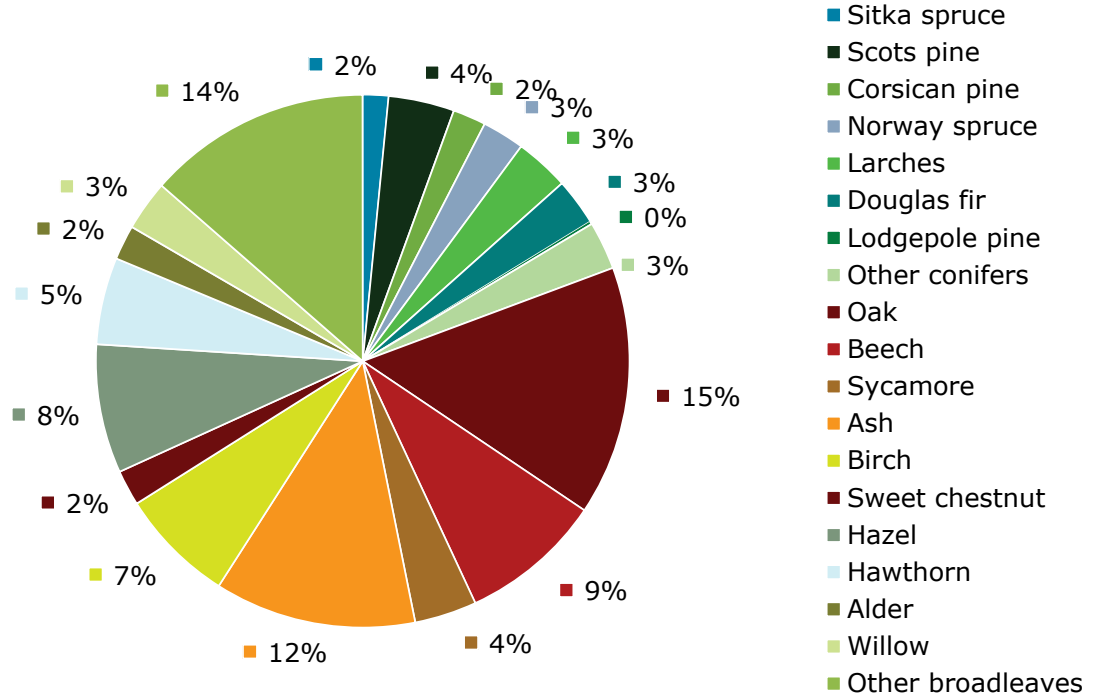
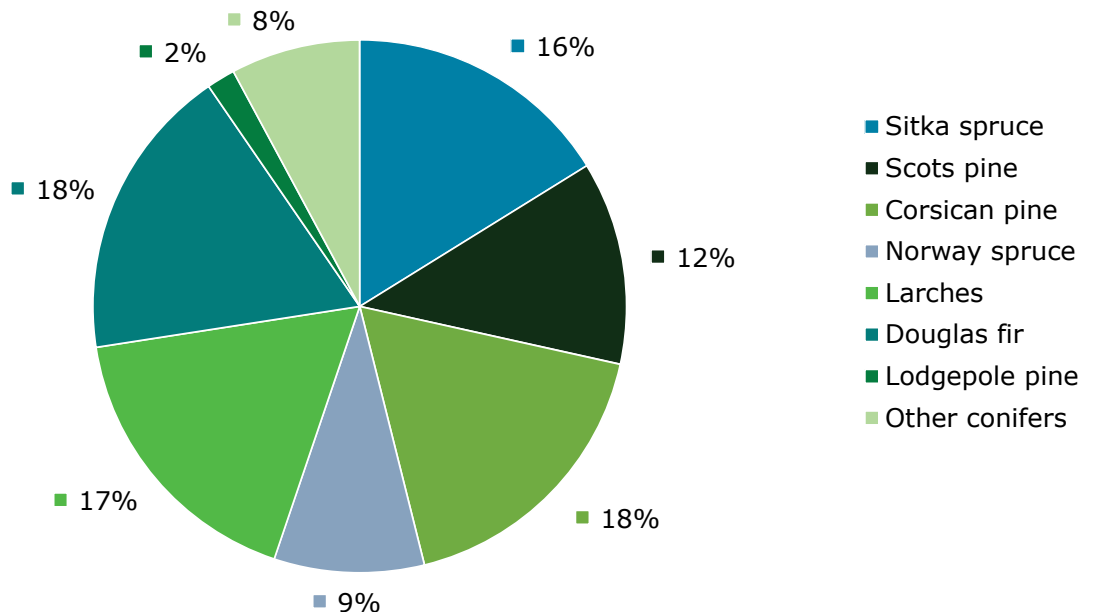


Figure 1a Principal conifer tree species composition by stocked area at 31 March 2012



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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	5.7	2.2	28	7.9
Scots pine	4.3	16.1	8	20.4
Corsican pine	6.2	4.0	15	10.2
Norway spruce	3.2	9.8	9	13.0
Larches	6.1	10.7	8	16.8
Douglas fir	6.3	8.1	10	14.4
Lodgepole pine	0.6	0.3	48	0.9
Other conifers	2.8	12.2	9	14.9
All conifers	35.2	63.5	3	98.7
Broadleaves				
Oak	11.8	65.4	4	77.2
Beech	10.1	33.9	6	44.1
Sycamore	0.3	18.9	7	19.2
Ash	1.7	60.7	4	62.4
Birch	2.0	33.7	5	35.7
Sweet chestnut	0.6	10.4	11	11.0
Hazel	0.3	39.7	5	39.9
Hawthorn	0.0	26.9	6	26.9
Alder	0.3	10.5	9	10.7
Willow	0.0	15.5	8	15.5
Other broadleaves	6.8	62.5	4	69.2
All broadleaves	33.9	378.5	1	412.4
All species				
All species	69.1	442.0	1	511.1

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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	2.8	2.0	23	4.8
11–20 years	4.2	2.9	19	7.2
21–40 years	8.4	15.8	7	24.2
41–60 years	14.5	31.6	5	46.2
61–80 years	3.7	8.0	11	11.7
81–100 years	1.2	1.6	24	2.7
100+ years	0.4	1.5	22	1.9
Total	35.2	63.5	3	98.7
All broadleaves				
0–10 years	1.6	42.3	6	43.9
11–20 years	1.6	50.8	5	52.4
21–40 years	2.6	100.7	3	103.3
41–60 years	7.4	61.4	4	68.8
61–80 years	7.7	48.4	5	56.1
81–100 years	2.7	44.8	5	47.5
100+ years	10.2	30.1	6	40.3
Total	33.9	378.5	1	412.4
All species				
0–10 years	4.4	44.4	5	48.8
11–20 years	5.9	53.8	4	59.7
21–40 years	11.0	116.6	3	127.6
41–60 years	21.9	93.1	3	115.1
61–80 years	11.4	56.4	4	67.8
81–100 years	3.8	46.4	5	50.3
100+ years	10.7	31.3	6	41.9
Total	69.1	442.0	1	511.1

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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	3.5	2.0	20	5.5
7-10 cm	1.5	2.6	16	4.1
10-15 cm	4.1	4.4	15	8.5
15-20 cm	3.8	6.3	12	10.1
20-30 cm	7.8	15.6	7	23.5
30-40 cm	7.2	16.0	7	23.2
40-60 cm	6.3	13.9	8	20.2
60-80 cm	0.8	1.7	21	2.6
80+ cm	0.2	1.0	31	1.3
Total	35.2	63.5	3	98.7
All broadleaves				
0-7 cm	2.4	53.9	5	56.3
7-10 cm	2.8	68.3	3	71.1
10-15 cm	3.4	52.1	4	55.5
15-20 cm	4.2	35.9	5	40.2
20-30 cm	9.7	54.9	4	64.6
30-40 cm	6.7	36.3	5	43.0
40-60 cm	3.5	46.7	5	50.2
60-80 cm	0.9	19.3	7	20.2
80+ cm	0.2	11.1	11	11.3
Total	33.9	378.5	1	412.4
All species				
0-7 cm	5.9	56.0	5	61.9
7-10 cm	4.3	71.0	3	75.3
10-15 cm	7.5	56.6	4	64.1
15-20 cm	8.0	42.3	4	50.3
20-30 cm	17.5	70.5	3	88.0
30-40 cm	13.9	52.3	4	66.2
40-60 cm	9.8	60.5	4	70.2
60-80 cm	1.7	20.8	7	22.5
80+ cm	0.5	12.2	10	12.6
Total	69.1	442.0	1	511.1

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)
	2.6	2.0	27	4.6

Standing volume at 31 March 2012

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

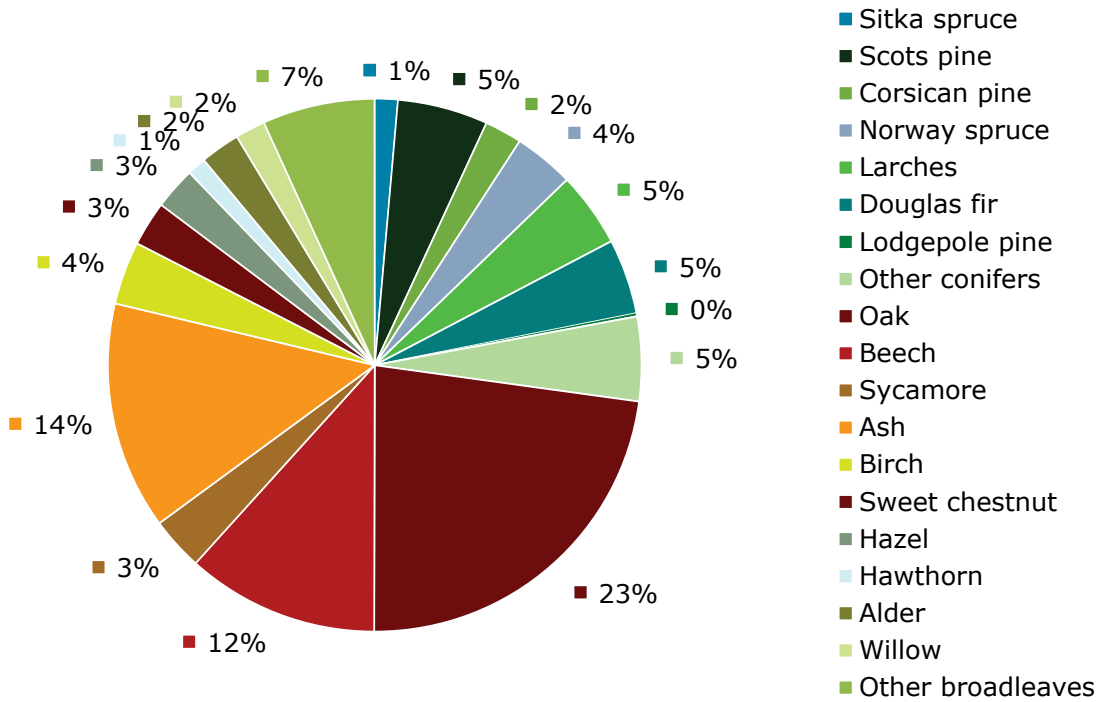
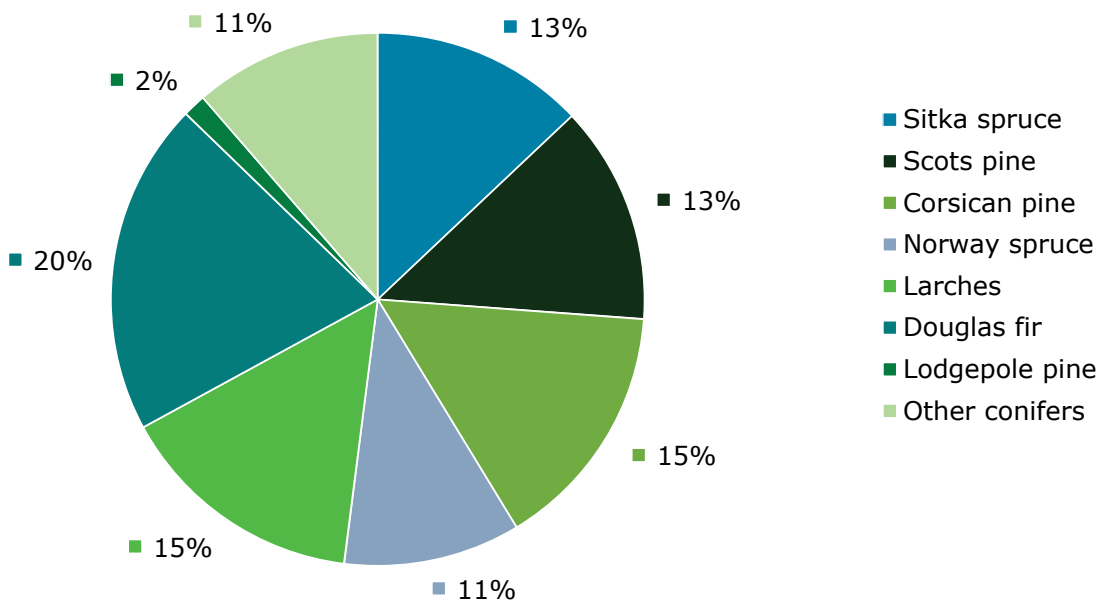


Figure 2a Principal conifer tree species composition by standing volume at 31 March 2012



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

Principal species	FC/NRW	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
Conifers				
Sitka spruce	1,196	569	30	1,764
Scots pine	1,225	5,728	8	6,953
Corsican pine	1,398	1,458	16	2,856
Norway spruce	991	3,644	10	4,635
Larches	1,390	4,367	9	5,757
Douglas fir	1,869	3,913	13	5,782
Lodgepole pine	129	105	52	234
Other conifers	1,050	5,457	13	6,507
All conifers	9,248	25,278	4	34,526
Broadleaves				
Oak	2,796	26,194	5	28,990
Beech	2,427	12,364	8	14,790
Sycamore	40	4,056	10	4,096
Ash	265	17,245	6	17,510
Birch	211	4,651	6	4,862
Sweet chestnut	94	3,343	12	3,437
Hazel	23	3,222	7	3,244
Hawthorn	0	1,446	9	1,446
Alder	45	3,016	12	3,061
Willow	0	2,305	13	2,305
Other broadleaves	864	7,775	7	8,638
All broadleaves	6,764	85,632	2	92,396
All species				
All species	16,012	110,879	2	126,891

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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	58	5
11–20 years	221	175	27	396
21–40 years	1,768	4,378	10	6,146
41–60 years	5,140	13,630	6	18,770
61–80 years	1,404	4,808	14	6,212
81–100 years	486	1,315	31	1,801
100+ years	227	970	26	1,197
Total	9,248	25,278	4	34,526
All broadleaves				
0–10 years	0	89	21	90
11–20 years	23	2,163	7	2,186
21–40 years	170	12,577	4	12,747
41–60 years	1,180	15,105	5	16,285
61–80 years	1,531	16,563	6	18,094
81–100 years	583	21,937	6	22,520
100+ years	3,277	17,197	8	20,475
Total	6,764	85,632	2	92,396
All species				
0–10 years	2	92	21	94
11–20 years	244	2,343	7	2,587
21–40 years	1,938	16,932	4	18,870
41–60 years	6,320	28,754	4	35,073
61–80 years	2,936	21,382	5	24,318
81–100 years	1,068	23,279	6	24,347
100+ years	3,504	18,097	7	21,601
Total	16,012	110,879	2	126,891

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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	39	89	19	128
10-15 cm	420	476	17	895
15-20 cm	904	1,501	12	2,405
20-30 cm	2,782	5,469	8	8,251
30-40 cm	2,411	7,445	7	9,856
40-60 cm	2,215	8,096	10	10,311
60-80 cm	354	1,135	19	1,489
80+ cm	122	1,066	40	1,188
Total	9,248	25,278	4	34,526
All broadleaves				
0-7 cm	11	237	10	248
7-10 cm	125	2,610	4	2,735
10-15 cm	522	5,820	5	6,342
15-20 cm	885	6,146	5	7,031
20-30 cm	2,530	13,774	4	16,305
30-40 cm	1,694	12,461	5	14,155
40-60 cm	767	21,677	5	22,443
60-80 cm	182	12,729	7	12,911
80+ cm	48	10,178	12	10,227
Total	6,764	85,632	2	92,396
All species				
0-7 cm	12	238	10	250
7-10 cm	164	2,706	4	2,869
10-15 cm	941	6,306	4	7,248
15-20 cm	1,789	7,665	5	9,454
20-30 cm	5,313	19,233	4	24,546
30-40 cm	4,105	19,934	4	24,039
40-60 cm	2,982	29,769	5	32,751
60-80 cm	536	13,742	7	14,278
80+ cm	171	11,285	12	11,456
Total	16,012	110,879	2	126,891

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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/NRW	Private sector		Total
	biomass (000 odt)	biomass (000 odt)	SE%	biomass (000 odt)
Conifers				
Sitka spruce	779	335	28	1,114
Scots pine	852	3,832	8	4,684
Corsican pine	840	823	16	1,664
Norway spruce	541	1,907	10	2,447
Larches	882	2,546	8	3,428
Douglas fir	1,256	2,460	13	3,717
Lodgepole pine	91	70	52	162
Other conifers	574	2,933	12	3,507
All conifers	5,816	14,928	4	20,744
Broadleaves				
Oak	2,512	21,715	5	24,227
Beech	2,295	10,534	7	12,829
Sycamore	37	3,366	10	3,403
Ash	247	13,956	6	14,203
Birch	207	4,310	6	4,517
Sweet chestnut	96	2,609	12	2,705
Hazel	22	3,152	6	3,174
Hawthorn	0	1,736	8	1,736
Alder	37	2,294	11	2,332
Willow	0	2,309	12	2,309
Other broadleaves	786	6,856	6	7,641
All broadleaves	6,240	72,861	2	79,101
All species				
All species	12,055	87,806	2	99,861

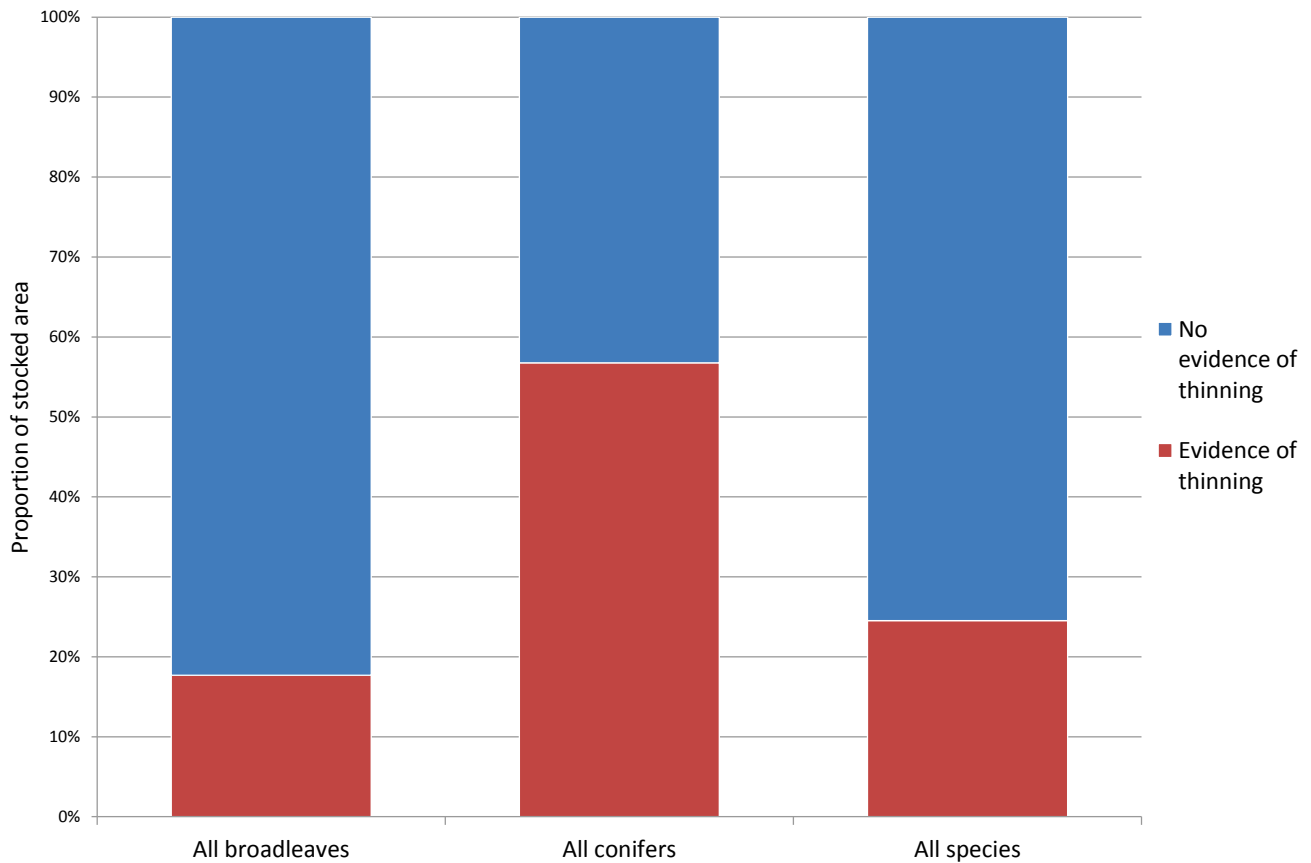
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Table 9 Total carbon stocks in principal tree species at 31 March 2012

Principal species	FC/NRW	Private sector		Total
	carbon (000 t)	carbon (000 t)	SE%	carbon (000 t)
Conifers				
Sitka spruce	390	168	28	557
Scots pine	426	1,916	8	2,342
Corsican pine	420	412	16	832
Norway spruce	270	953	10	1,224
Larches	441	1,273	8	1,714
Douglas fir	628	1,230	13	1,858
Lodgepole pine	46	35	52	81
Other conifers	287	1,467	12	1,754
All conifers	2,908	7,464	4	10,372
Broadleaves				
Oak	1,256	10,858	5	12,114
Beech	1,148	5,267	7	6,415
Sycamore	18	1,683	10	1,702
Ash	123	6,978	6	7,101
Birch	104	2,155	6	2,259
Sweet chestnut	48	1,304	12	1,352
Hazel	11	1,576	6	1,587
Hawthorn	0	868	8	868
Alder	19	1,147	11	1,166
Willow	0	1,154	12	1,154
Other broadleaves	393	3,428	6	3,821
All broadleaves	3,120	36,431	2	39,551
All species				
All species	6,028	43,903	2	49,931

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	412	1,325	7	1,737	361	1,185	6	1,546	304	1,122	8	1,426	290	1,075	7	1,366
Sitka spruce	73	19	31	91	64	23	26	88	54	18	34	72	57	15	36	72
Scots pine	35	246	19	281	39	206	13	245	28	234	14	261	25	328	15	353
Corsican pine	79	129	24	208	69	95	27	164	60	83	32	143	42	31	27	73
Norway spruce	44	147	18	192	43	168	19	210	33	211	24	244	34	256	17	290
Larches	44	248	15	291	37	232	12	268	33	146	10	179	28	134	11	162
Douglas fir	81	276	19	358	63	191	16	254	61	152	18	213	64	112	20	176
Lodgepole pine	7	3	52	10	5	2	54	7	3	6	64	9	4	1	56	6
Other conifers	48	256	16	305	41	266	16	307	33	270	23	303	36	197	16	233
All broadleaves	132	1,109	9	1,241	28	983	10	1,011	108	524	9	632	26	523	12	549
Oak	41	176	16	217	10	225	20	235	31	171	20	202	7	186	18	194
Beech	66	168	24	235	10	279	27	290	57	118	18	175	9	146	31	155
Sycamore	2	129	26	131	0	69	24	70	1	22	18	23	1	12	19	13
Ash	6	360	17	366	2	196	12	198	6	74	20	80	2	35	17	37
Birch	3	79	20	82	1	77	17	78	2	47	20	49	1	33	33	35
Sweet chestnut	3	49	51	52	1	12	18	13	2	24	24	26	1	29	53	30
Hazel	0	12	37	12	0	13	32	13	0	12	18	12	0	12	32	12
Hawthorn	0	4	26	4	0	4	19	4	0	5	12	5	0	5	14	5
Alder	1	11	66	11	0	6	35	6	0	6	40	6	0	7	57	7
Willow	0	2	21	2	0	3	16	3	0	3	14	3	0	6	43	6
Other broadleaves	10	113	25	124	3	97	26	100	8	41	15	50	4	49	24	52
All species	544	2,427	6	2,971	389	2,166	6	2,554	412	1,636	6	2,048	316	1,601	6	1,917

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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	304	1,097	9	1,402	305	835	10	1,140	324	655	10	979	283	599	9	882
Sitka spruce	89	123	53	211	63	18	23	81	41	47	41	88	37	23	18	60
Scots pine	20	339	14	359	27	249	22	276	29	123	20	152	25	171	21	196
Corsican pine	42	25	56	67	39	53	49	92	74	25	40	99	40	2	31	43
Norway spruce	28	229	21	257	31	182	21	214	20	184	23	204	26	111	24	137
Larches	31	115	13	147	45	73	12	118	66	57	12	123	54	69	19	123
Douglas fir	70	98	18	168	68	80	16	148	67	81	18	148	73	75	10	148
Lodgepole pine	1	1	56	3	2	17	72	20	1	1	68	2	1	5	91	6
Other conifers	22	167	21	189	30	161	22	191	28	135	28	163	26	142	14	169
All broadleaves	91	433	11	524	77	384	8	461	174	511	9	685	64	536	10	600
Oak	25	81	13	106	16	87	20	104	73	103	30	176	24	130	26	154
Beech	47	154	24	201	44	102	22	146	63	115	25	178	21	141	27	162
Sycamore	1	13	17	15	1	22	31	23	2	26	14	28	1	28	17	29
Ash	5	50	21	55	3	52	10	55	11	74	8	85	6	70	10	76
Birch	2	22	18	24	2	26	12	29	3	46	14	49	3	43	14	45
Sweet chestnut	2	51	45	53	2	10	20	12	3	38	39	41	1	14	38	16
Hazel	0	10	14	10	0	18	19	18	0	19	19	20	0	24	13	24
Hawthorn	0	6	10	6	0	7	9	7	0	8	8	8	0	9	14	9
Alder	0	3	26	3	0	3	25	4	1	8	17	9	0	5	26	5
Willow	0	5	11	5	0	6	16	6	0	10	27	10	0	6	16	6
Other broadleaves	8	36	8	43	9	48	11	58	18	62	12	80	8	64	19	72
All species	395	1,531	7	1,927	382	1,213	7	1,596	498	1,154	7	1,652	347	1,135	7	1,482

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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	280	560	10	839	304	483	6	787
Sitka spruce	43	30	14	73	46	36	13	82
Scots pine	23	112	18	135	30	118	16	148
Corsican pine	34	3	28	37	31	2	30	32
Norway spruce	20	155	33	175	31	60	14	91
Larches	54	53	12	107	49	57	11	107
Douglas fir	76	102	12	177	78	86	8	164
Lodgepole pine	4	0	35	4	5	0	35	5
Other conifers	26	104	11	130	35	123	12	157
All broadleaves	107	513	8	620	75	452	9	527
Oak	37	93	17	130	27	89	20	116
Beech	49	126	20	175	28	146	22	174
Sycamore	1	27	16	28	1	15	20	16
Ash	5	86	10	91	4	71	19	75
Birch	3	40	19	43	4	32	14	36
Sweet chestnut	2	32	52	34	3	18	38	21
Hazel	1	13	14	14	1	13	21	14
Hawthorn	0	8	8	8	0	9	16	9
Alder	0	5	28	5	0	3	44	3
Willow	0	9	28	9	0	6	22	6
Other broadleaves	9	73	15	82	7	48	20	55
All species	387	1,072	6	1,459	379	934	5	1,313

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Table 11 50-year forecast of standing volume; average annual 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	9,149	23,558	4	32,707
2017-21	9,420	21,750	4	31,170
2022-26	9,736	19,143	5	28,879
2027-31	10,115	16,463	5	26,578
2032-36	10,338	13,535	6	23,873
2037-41	10,466	11,601	6	22,067
2042-46	10,688	10,265	6	20,953
2047-51	10,873	10,160	5	21,033
2052-56	11,184	10,478	5	21,661
2057-61	11,405	11,281	4	22,686
All broadleaves				
2013-16	6,682	87,007	2	93,689
2017-21	7,006	91,265	2	98,271
2022-26	7,241	98,018	2	105,259
2027-31	7,561	106,110	2	113,671
2032-36	7,864	113,870	2	121,734
2037-41	8,064	121,806	2	129,870
2042-46	8,071	128,593	2	136,663
2047-51	8,028	134,593	2	142,621
2052-56	8,164	140,174	2	148,338
2057-61	8,293	144,896	2	153,189
All species				
2013-16	15,831	110,502	2	126,334
2017-21	16,426	112,957	2	129,383
2022-26	16,977	117,150	2	134,127
2027-31	17,676	122,559	2	140,235
2032-36	18,202	127,379	2	145,580
2037-41	18,530	133,380	2	151,910
2042-46	18,758	138,874	2	157,632
2047-51	18,901	144,784	2	163,685
2052-56	19,347	150,677	1	170,025
2057-61	19,697	156,193	1	175,891

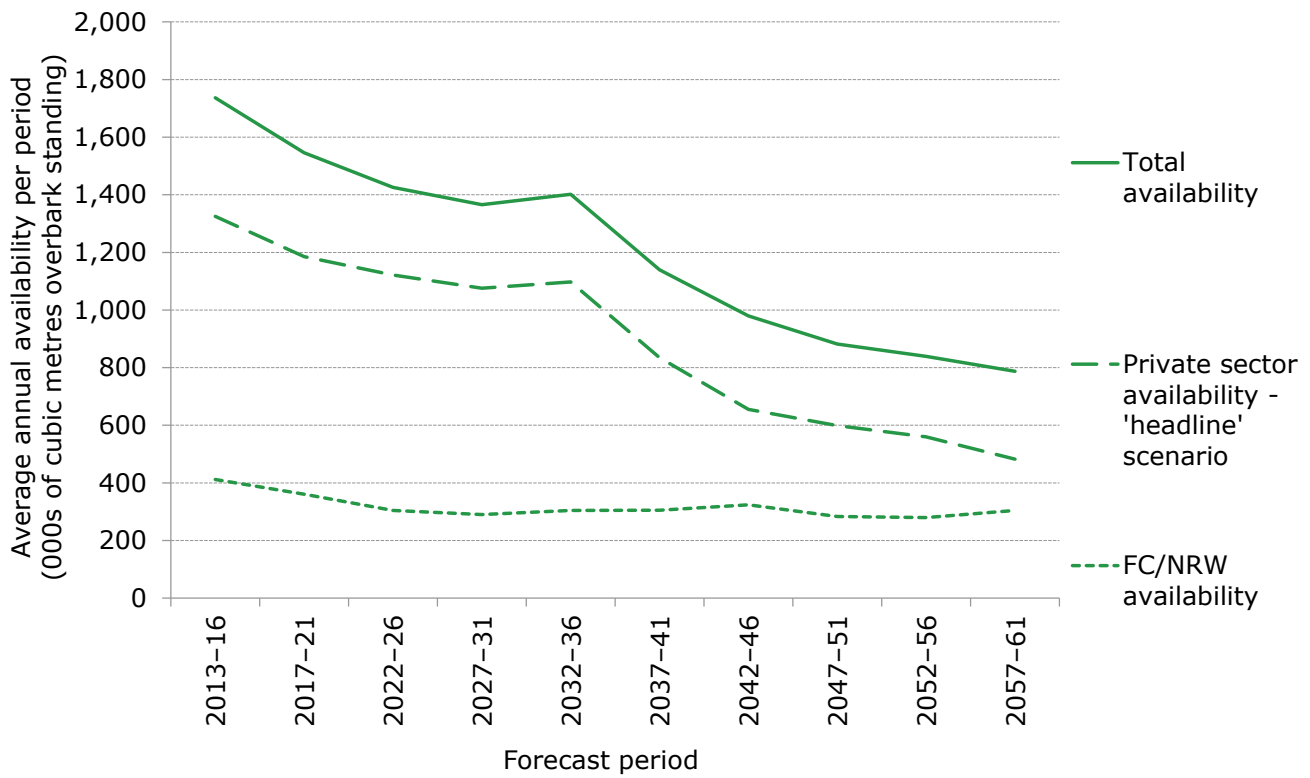
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Table 12 50-year forecast of net increment; average annual volumes within periods

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	371	802	3	1,172
2017-21	385	733	4	1,118
2022-26	362	624	4	986
2027-31	354	553	5	908
2032-36	338	497	5	835
2037-41	331	496	4	827
2042-46	334	523	4	857
2047-51	339	589	4	928
2052-56	343	658	4	1,002
2057-61	347	721	3	1,068
All broadleaves				
2013-16	118	1,814	2	1,932
2017-21	121	1,991	2	2,112
2022-26	121	2,095	1	2,216
2027-31	123	2,093	1	2,216
2032-36	124	2,023	1	2,147
2037-41	121	1,934	1	2,056
2042-46	118	1,809	1	1,927
2047-51	115	1,675	2	1,790
2052-56	115	1,545	2	1,660
2057-61	114	1,425	2	1,539
All species				
2013-16	489	2,614	2	3,103
2017-21	506	2,723	1	3,230
2022-26	482	2,720	1	3,202
2027-31	477	2,646	1	3,123
2032-36	462	2,519	1	2,981
2037-41	453	2,428	1	2,881
2042-46	452	2,331	1	2,783
2047-51	454	2,263	1	2,717
2052-56	458	2,202	1	2,660
2057-61	461	2,145	1	2,605

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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

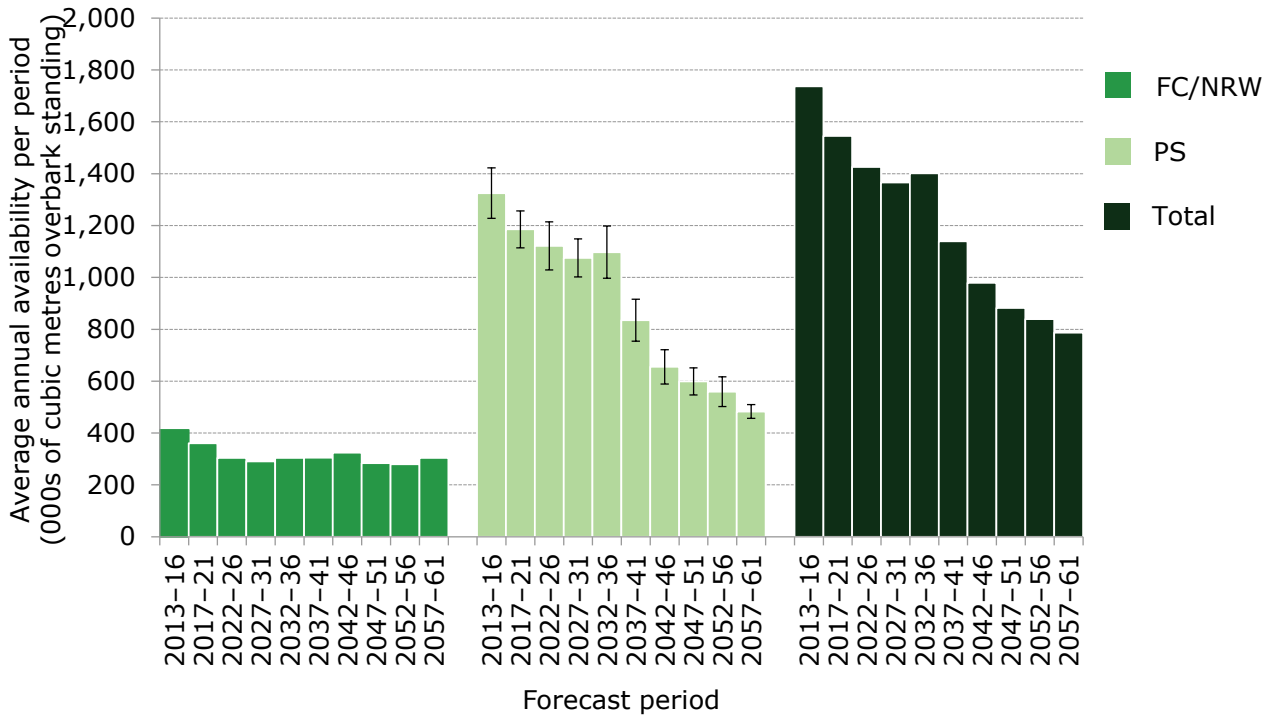
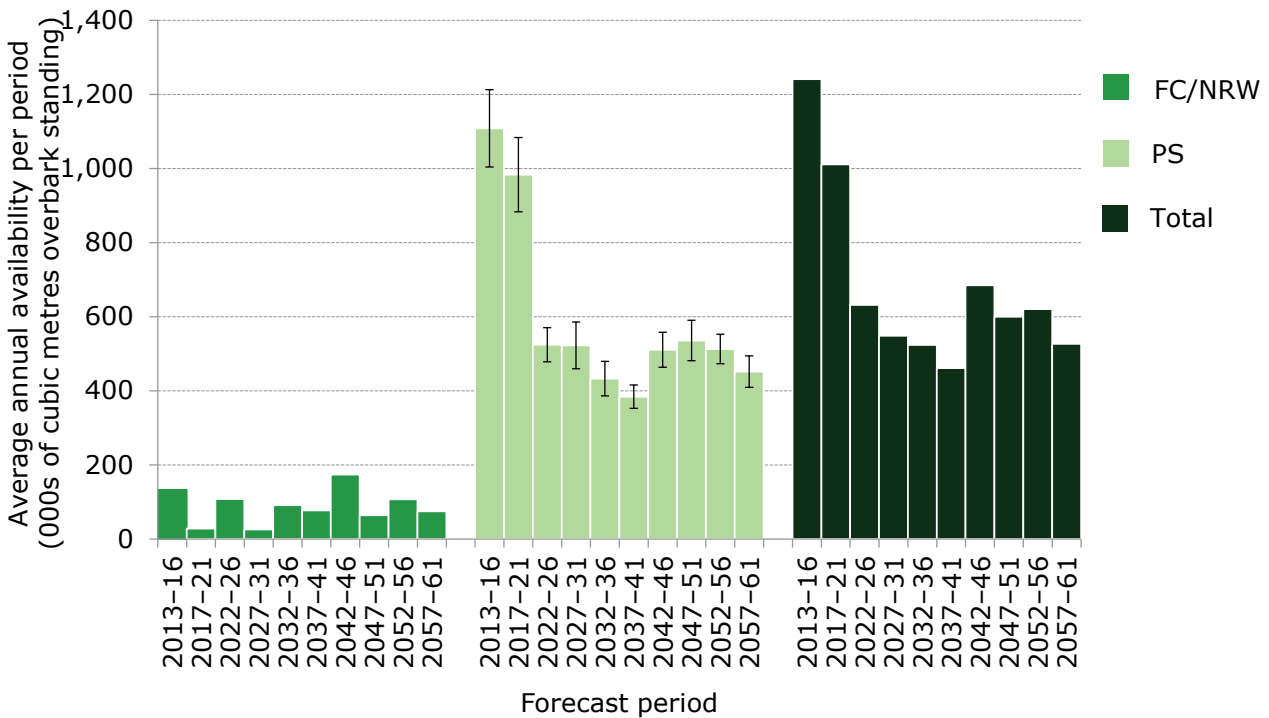


Figure 6 50-year forecast of average annual hardwood availability



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

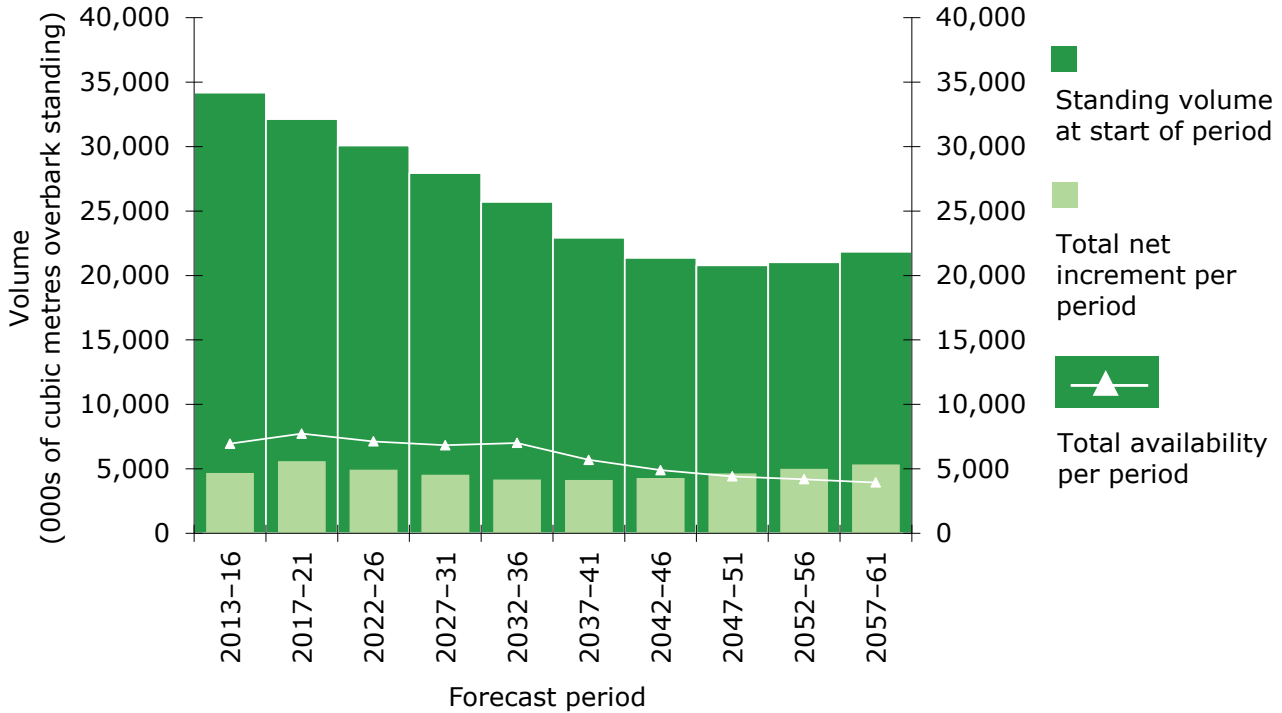
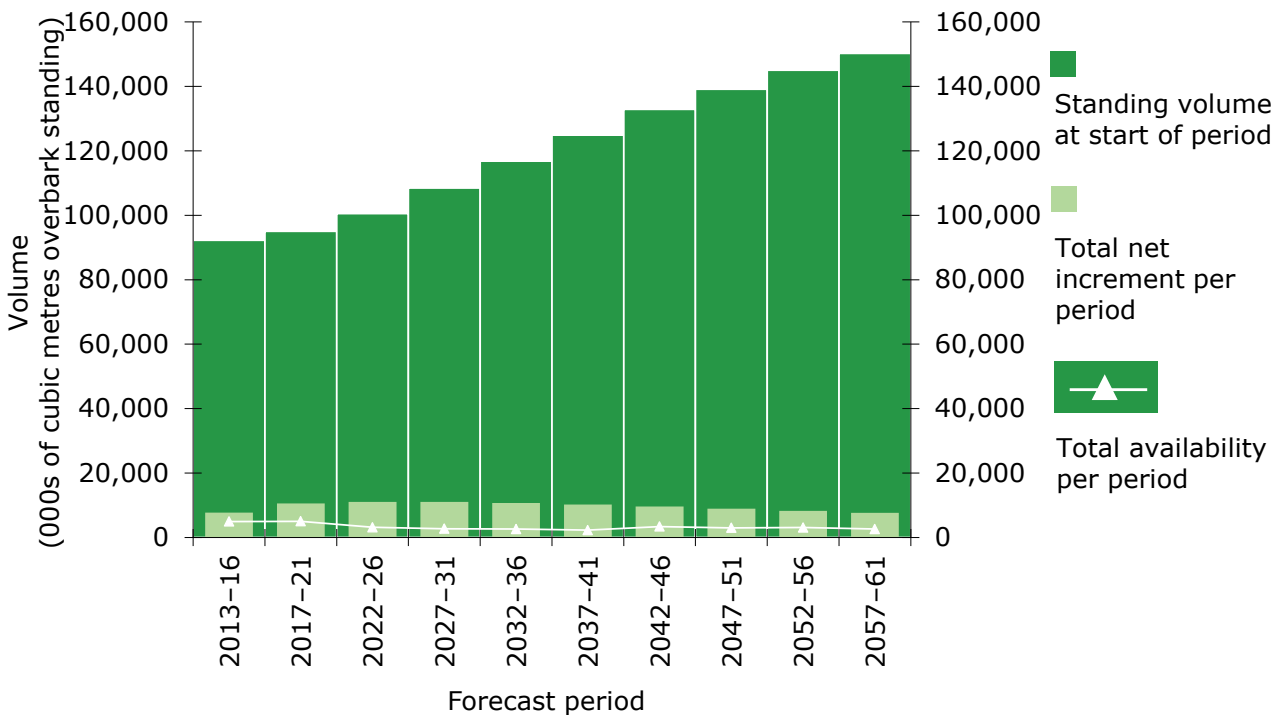


Figure 8 50-year forecast of hardwood standing volume, increment and availability



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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	412	1,325	7	1,737	361	1,185	6	1,546	304	1,122	8	1,426	290	1,075	7	1,366
Sitka spruce	73	19	31	91	64	23	26	88	54	18	34	72	57	15	36	72
Scots pine	35	246	19	281	39	206	13	245	28	234	14	261	25	328	15	353
Corsican pine	79	129	24	208	69	95	27	164	60	83	32	143	42	31	27	73
Norway spruce	44	147	18	192	43	168	19	210	33	211	24	244	34	256	17	290
Larches	44	248	15	291	37	232	12	268	33	146	10	179	28	134	11	162
Douglas fir	81	276	19	358	63	191	16	254	61	152	18	213	64	112	20	176
Lodgepole pine	7	3	52	10	5	2	54	7	3	6	64	9	4	1	56	6
Other conifers	48	256	16	305	41	266	16	307	33	270	23	303	36	197	16	233
All broadleaves	132	5,951	4	6,084	28	4,630	3	4,658	108	2,519	3	2,627	26	2,268	5	2,294
Oak	41	694	10	735	10	718	11	728	31	553	9	584	7	757	9	764
Beech	66	344	14	410	10	448	17	459	57	331	13	388	9	296	17	304
Sycamore	2	478	13	479	0	329	11	330	1	137	12	138	1	83	16	84
Ash	6	2243	8	2250	2	1386	6	1387	6	488	6	494	2	237	8	240
Birch	3	436	8	438	1	466	7	467	2	232	8	234	1	173	12	174
Sweet chestnut	3	254	24	256	1	108	16	109	2	86	16	88	1	129	27	130
Hazel	0	265	8	265	0	294	9	294	0	173	9	173	0	94	12	94
Hawthorn	0	55	10	55	0	59	9	59	0	53	8	53	0	55	11	55
Alder	1	323	15	324	0	255	12	255	0	115	16	116	0	64	21	64
Willow	0	115	20	115	0	101	21	101	0	60	11	60	0	122	25	122
Other broadleaves	10	744	12	754	3	470	9	473	8	285	7	293	4	264	8	268
All species	544	7,262	4	7,807	389	5,817	3	6,205	412	3,634	3	4,046	316	3,349	4	3,665

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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		FC/NRW		Private sector		FC/NRW		Private sector		FC/NRW		Private sector	
	volume (000 m ³ obs)		SE%		volume (000 m ³ obs)		SE%		volume (000 m ³ obs)		SE%		volume (000 m ³ obs)		SE%	
All conifers	304	1,097	9	1,402	305	835	10	1,140	324	655	10	979	283	599	9	882
Sitka spruce	89	123	53	211	63	18	23	81	41	47	41	88	37	23	18	60
Scots pine	20	339	14	359	27	249	22	276	29	123	20	152	25	171	21	196
Corsican pine	42	25	56	67	39	53	49	92	74	25	40	99	40	2	31	43
Norway spruce	28	229	21	257	31	182	21	214	20	184	23	204	26	111	24	137
Larches	31	115	13	147	45	73	12	118	66	57	12	123	54	69	19	123
Douglas fir	70	98	18	168	68	80	16	148	67	81	18	148	73	75	10	148
Lodgepole pine	1	1	56	3	2	17	72	20	1	1	68	2	1	5	91	6
Other conifers	22	167	21	189	30	161	22	191	28	135	28	163	26	142	14	169
All broadleaves	91	1,847	4	1,938	77	1,820	4	1,897	174	2,086	4	2,260	64	2,071	4	2,135
Oak	25	353	9	378	16	414	12	430	73	335	11	408	24	344	12	368
Beech	47	326	16	373	44	214	13	258	63	269	14	332	21	314	17	335
Sycamore	1	80	11	82	1	86	11	87	2	122	9	123	1	111	10	112
Ash	5	298	8	303	3	303	6	306	11	389	6	400	6	337	8	343
Birch	2	149	9	151	2	139	8	141	3	192	8	195	3	181	7	184
Sweet chestnut	2	112	25	114	2	39	14	41	3	88	22	91	1	79	26	80
Hazel	0	106	13	106	0	130	10	130	0	116	9	116	0	160	7	160
Hawthorn	0	53	7	53	0	90	15	90	0	76	21	76	0	90	15	90
Alder	0	56	15	56	0	49	11	49	1	73	11	74	0	58	12	58
Willow	0	48	8	48	0	103	20	103	0	85	24	85	0	69	13	69
Other broadleaves	8	261	9	268	9	252	6	262	18	335	8	353	8	323	9	331
All species	395	2,947	4	3,342	382	2,652	4	3,034	498	2,730	4	3,228	347	2,672	4	3,020

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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			Total volume (000 m ³ obs)	
	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	280	560	10	839	304	483	6	787
Sitka spruce	43	30	14	73	46	36	13	82
Scots pine	23	112	18	135	30	118	16	148
Corsican pine	34	3	28	37	31	2	30	32
Norway spruce	20	155	33	175	31	60	14	91
Larches	54	53	12	107	49	57	11	107
Douglas fir	76	102	12	177	78	86	8	164
Lodgepole pine	4	0	35	4	5	0	35	5
Other conifers	26	104	11	130	35	123	12	157
All broadleaves	107	2,094	3	2,202	75	1,951	4	2,025
Oak	37	297	8	335	27	309	9	337
Beech	49	267	13	316	28	348	15	376
Sycamore	1	112	11	113	1	75	10	76
Ash	5	412	5	417	4	291	6	295
Birch	3	188	8	191	4	159	7	163
Sweet chestnut	2	69	25	71	3	103	24	105
Hazel	1	116	8	117	1	115	7	116
Hawthorn	0	81	13	81	0	94	12	94
Alder	0	60	12	60	0	46	11	46
Willow	0	119	16	119	0	100	16	100
Other broadleaves	9	365	8	374	7	303	12	310
All species	387	2,657	3	3,044	379	2,436	3	2,815

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Table 14 50-year forecast of standing volume; average annual 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	9,149	23,558	4	32,707
2017–21	9,420	21,750	4	31,170
2022–26	9,736	19,143	5	28,879
2027–31	10,115	16,463	5	26,578
2032–36	10,338	13,535	6	23,873
2037–41	10,466	11,601	6	22,067
2042–46	10,688	10,265	6	20,953
2047–51	10,873	10,160	5	21,033
2052–56	11,184	10,478	5	21,661
2057–61	11,405	11,281	4	22,686
All broadleaves				
2013–16	6,682	72,445	2	79,127
2017–21	7,006	59,961	2	66,967
2022–26	7,241	50,847	2	58,087
2027–31	7,561	49,347	2	56,908
2032–36	7,864	49,157	2	57,021
2037–41	8,064	50,919	2	58,983
2042–46	8,071	52,226	2	60,296
2047–51	8,028	53,687	2	61,715
2052–56	8,164	54,724	2	62,888
2057–61	8,293	55,443	2	63,736
All species				
2013–16	15,831	95,977	2	111,808
2017–21	16,426	81,673	2	98,099
2022–26	16,977	69,978	2	86,955
2027–31	17,676	65,779	2	83,455
2032–36	18,202	62,636	2	80,838
2037–41	18,530	62,445	2	80,975
2042–46	18,758	62,450	2	81,208
2047–51	18,901	63,813	2	82,714
2052–56	19,347	65,150	2	84,498
2057–61	19,697	66,651	2	86,348

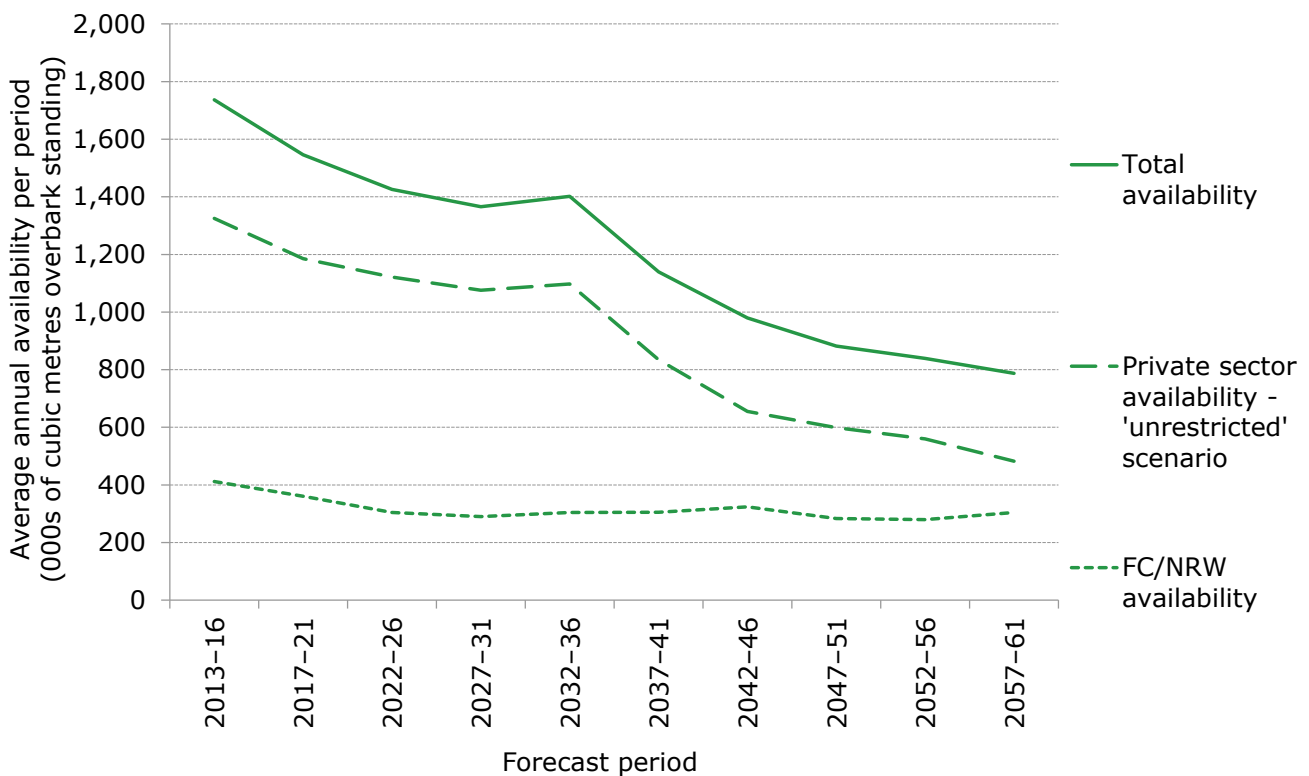
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Table 15 50-year forecast of net increment; average annual volumes within periods – unrestricted biological potential for Private sector hardwoods

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	371	802	3	1,172
2017–21	385	733	4	1,118
2022–26	362	624	4	986
2027–31	354	553	5	908
2032–36	338	497	5	835
2037–41	331	496	4	827
2042–46	334	523	4	857
2047–51	339	589	4	928
2052–56	343	658	4	1,002
2057–61	347	721	3	1,068
All broadleaves				
2013–16	118	1,756	2	1,874
2017–21	121	1,759	2	1,880
2022–26	121	1,754	2	1,874
2027–31	123	1,875	2	1,998
2032–36	124	2,050	2	2,174
2037–41	121	2,256	1	2,377
2042–46	118	2,366	1	2,484
2047–51	115	2,355	1	2,469
2052–56	115	2,245	1	2,359
2057–61	114	2,142	1	2,256
All species				
2013–16	489	2,556	2	3,045
2017–21	506	2,491	2	2,997
2022–26	482	2,377	2	2,860
2027–31	477	2,427	1	2,904
2032–36	462	2,545	1	3,007
2037–41	453	2,748	1	3,201
2042–46	452	2,887	1	3,339
2047–51	454	2,942	1	3,396
2052–56	458	2,902	1	3,360
2057–61	461	2,862	1	3,323

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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

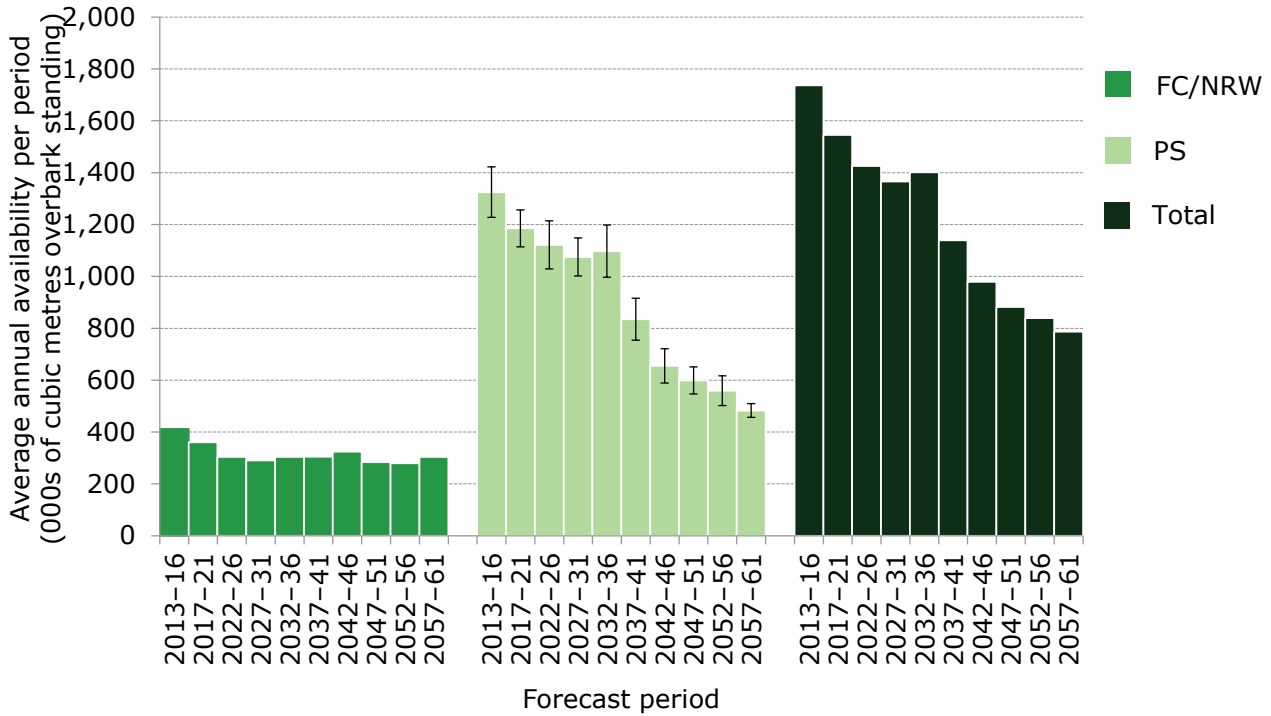
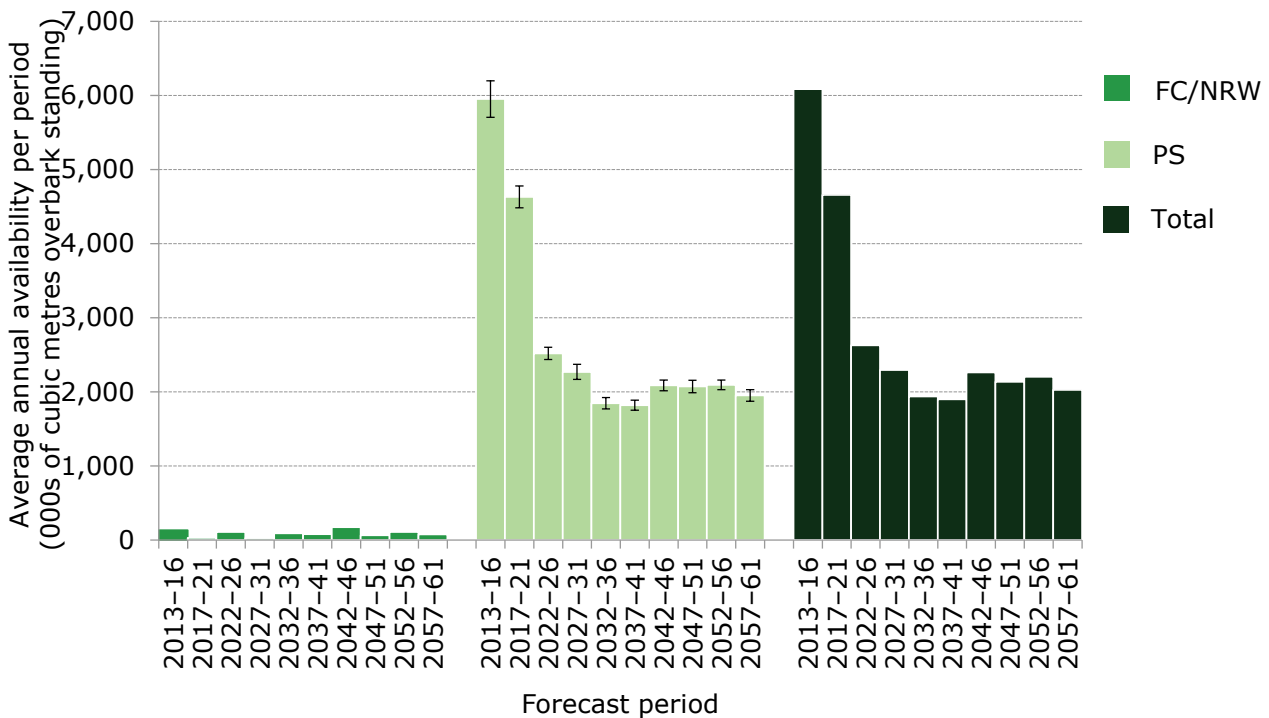


Figure 11 50-year forecast comparison of average annual hardwood availability – unrestricted biological potential for Private sector hardwoods



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

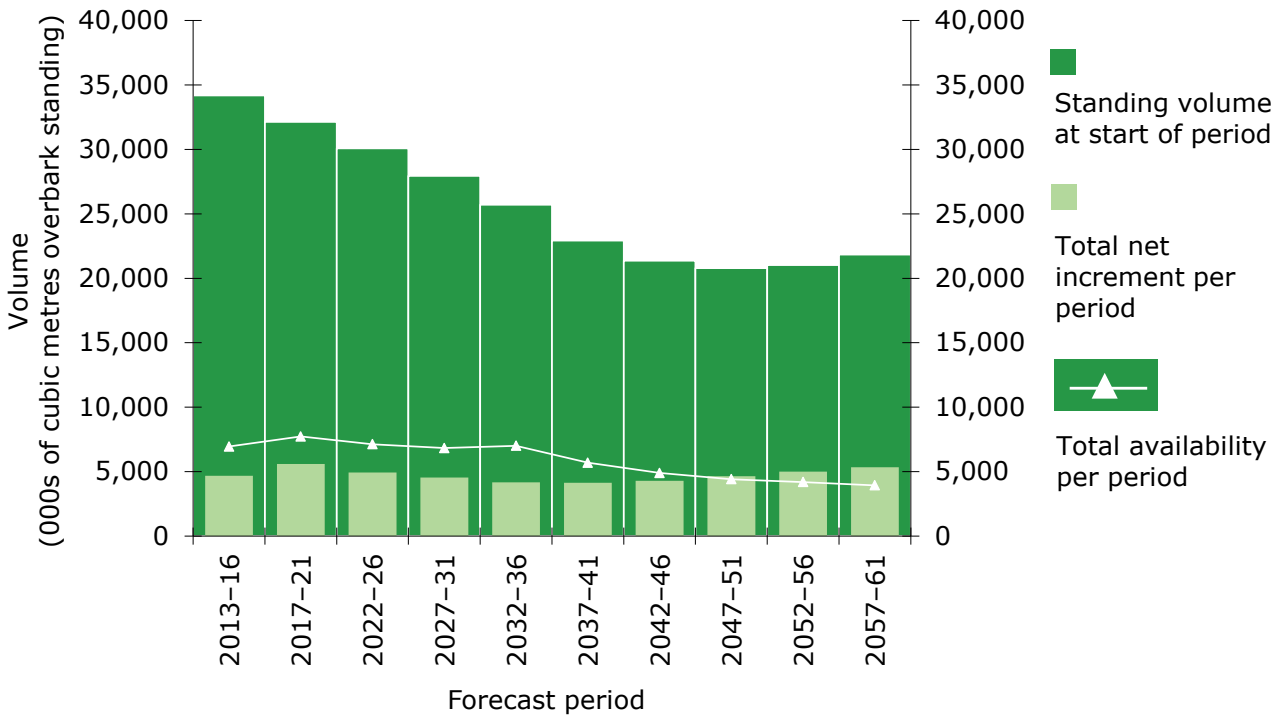
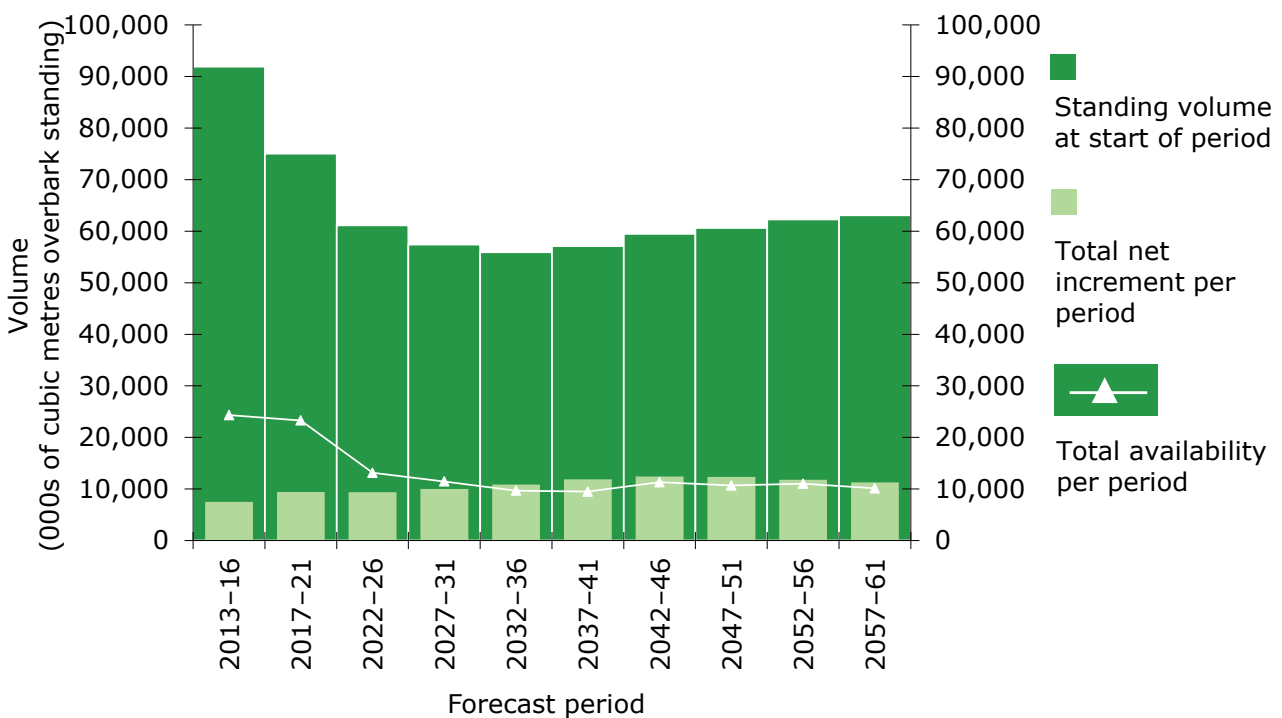


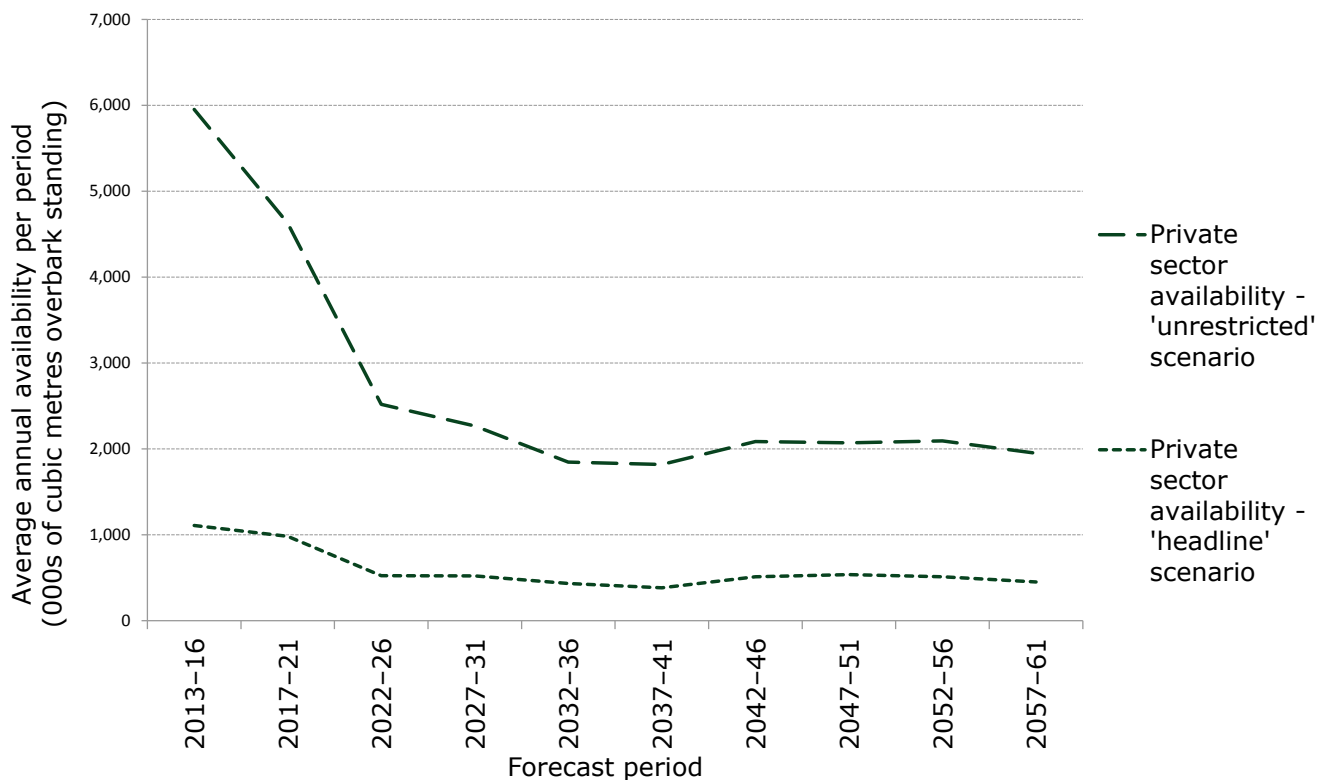
Figure 13 50-year summary of hardwood standing volume, increment and availability – unrestricted biological potential for Private sector hardwoods



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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

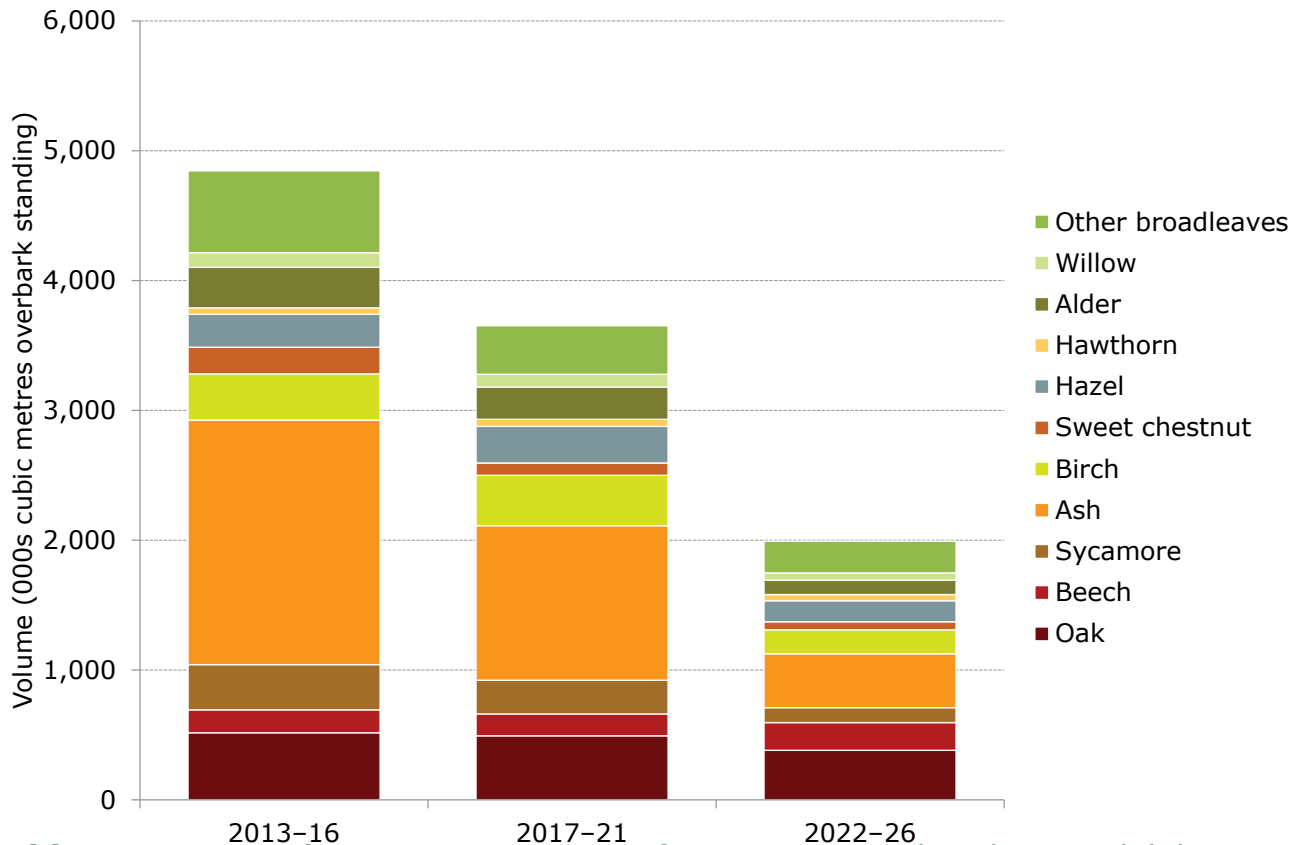


Table 16 15-year forecast comparison of average annual timber availability

Principal species	2013-16			2017-21			2022-26		
	Headline	Unrestricted	Difference	Headline	Unrestricted	Difference	Headline	Unrestricted	Difference
	volume (000 m ³ obs)			volume (000 m ³ obs)			volume (000 m ³ obs)		
All conifers	1,737	1,737	0	1,546	1,546	0	1,426	1,426	0
Sitka spruce	91	91	0	88	88	0	72	72	0
Scots pine	281	281	0	245	245	0	261	261	0
Corsican pine	208	208	0	164	164	0	143	143	0
Norway spruce	192	192	0	210	210	0	244	244	0
Larches	291	291	0	268	268	0	179	179	0
Douglas fir	358	358	0	254	254	0	213	213	0
Lodgepole pine	10	10	0	7	7	0	9	9	0
Other conifers	305	305	0	307	307	0	303	303	0
All broadleaves	1,241	6,084	4,843	1,011	4,658	3,647	632	2,627	1,995
Oak	217	735	518	235	728	493	202	584	383
Beech	235	410	175	290	459	169	175	388	213
Sycamore	131	479	348	70	330	260	23	138	115
Ash	366	2,250	1,883	198	1,387	1,189	80	494	414
Birch	82	438	356	78	467	389	49	234	185
Sweet chestnut	52	256	205	13	109	96	26	88	62
Hazel	12	265	253	13	294	280	12	173	161
Hawthorn	4	55	50	4	59	55	5	53	48
Alder	11	324	312	6	255	249	6	116	110
Willow	2	115	113	3	101	98	3	60	57
Other broadleaves	124	754	630	100	473	373	50	293	244
All species	2,971	7,807	4,835	2,554	6,205	3,651	2,048	4,046	1,998

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