

NFI provisional estimates for woodland within 20 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 a 20-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 <u>www.forestry.gov.uk/forecast</u>. 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 20 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' 50year forecast (Figures 4–8 and Tables 10–12) and the 'unrestricted' 50-year forecast (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



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

	FC	Private sec	tor	Total
Principal species	area	area	SF%	area
	(000 ha)	(000 ha)	0270	(000 ha)
Conifers				
Sitka spruce	0.0	0.0	96	0.0
Scots pine	0.1	0.5	51	0.6
Corsican pine	0.0	0.2	67	0.2
Norway spruce	0.2	0.4	39	0.6
Larches	0.1	0.5	33	0.7
Douglas fir	0.1	0.2	58	0.4
Lodgepole pine	0.0	0.0	-	0.0
Other conifers	0.1	0.9	29	1.0
All conifers	0.6	2.7	15	3.4
Broadleaves				
Oak	0.5	3.0	15	3.5
Beech	1.0	2.6	22	3.6
Sycamore	0.1	1.6	21	1.7
Ash	0.1	3.8	12	3.8
Birch	0.1	0.4	25	0.4
Sweet chestnut	0.0	0.1	48	0.1
Hazel	0.0	3.4	16	3.4
Hawthorn	0.0	1.6	20	1.6
Alder	0.0	0.7	36	0.7
Willow	0.0	0.9	33	0.9
Other broadleaves	0.4	4.4	13	4.7
All broadleaves	2.0	22.1	3	24.2
All species				
All species	2.7	24.9	2	27.6

Table 2Stocked area by age class at 31 March 2012

	FC	Private sec	tor	Total
Age class	area (000 ha)	area (000 ha)	SE%	area (000 ha)
All conifers				
0–10 years	0.0	0.0	51	0.0
11–20 years	0.1	0.1	56	0.2
21–40 years	0.1	0.8	37	1.0
41–60 years	0.3	1.4	29	1.7
61–80 years	0.1	0.3	53	0.4
81–100 years	0.0	0.1	90	0.1
100+ years	0.0	0.1	56	0.1
Total	0.6	2.7	15	3.4
All broadleaves				
0–10 years	0.0	3.1	17	3.2
11–20 years	0.1	3.4	17	3.5
21–40 years	0.1	4.7	14	4.8
41–60 years	0.6	2.8	18	3.4
61–80 years	1.0	2.8	19	3.8
81–100 years	0.0	2.8	17	2.9
100+ years	0.2	2.5	17	2.7
Total	2.0	22.1	3	24.2
All species				
0–10 years	0.1	3.2	17	3.2
11–20 years	0.2	3.5	17	3.7
21–40 years	0.2	5.7	13	5.8
41–60 years	1.0	4.1	17	5.1
61–80 years	1.1	3.1	18	4.2
81–100 years	0.0	2.9	17	3.0
100+ years	0.2	2.4	16	2.6
Total	2.7	24.9	2	27.6

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

	FC	Private sector		Total
Mean stand DBH	area	area	SE%	area
	(000 ha)	(000 ha)	JL 70	(000 ha)
All conifers				
0–7 cm	0.0	0.0	41	0.1
7–10 cm	0.0	0.1	73	0.1
10–15 cm	0.1	0.1	43	0.1
15–20 cm	0.0	0.4	40	0.5
20–30 cm	0.1	1.1	31	1.2
30–40 cm	0.2	0.4	44	0.6
40–60 cm	0.1	0.5	41	0.6
60–80 cm	0.0	0.1	68	0.1
80+ cm	0.0	0.1	56	0.1
Total	0.6	2.7	15	3.4
All broadleaves				
0–7 cm	0.1	4.2	13	4.3
7–10 cm	0.1	4.2	13	4.4
10–15 cm	0.2	2.4	15	2.6
15–20 cm	0.2	2.2	17	2.4
20–30 cm	0.4	2.8	15	3.3
30–40 cm	0.8	2.0	22	2.8
40–60 cm	0.2	2.0	20	2.2
60–80 cm	0.0	2.0	17	2.0
80+ cm	0.0	0.2	45	0.2
Total	2.0	22.1	3	24.2
All species				
0–7 cm	0.1	4.3	13	4.4
7–10 cm	0.2	4.4	13	4.5
10–15 cm	0.3	2.5	15	2.8
15–20 cm	0.2	2.7	16	2.9
20–30 cm	0.6	3.9	14	4.5
30–40 cm	1.0	2.5	20	3.5
40–60 cm	0.3	2.3	18	2.6
60–80 cm	0.0	2.1	16	2.2
80+ cm	0.0	0.2	37	0.3
Total	2.7	24.9	2	27.6

Table 4Felled area at 31 March 2012

	FC	Private sec	tor	Total
Clearfelled area	area (000 ha)	area (000 ha)	SE%	area (000 ha)
	0.0	0.0	-	0.0

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



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

	FC	Private sector		Total	
Principal species	volume	volume	<u> </u>	volume	
	(000 m ³ obs)	(000 m ³ obs)	SE%	(000 m ³ obs)	
Conifers					
Sitka spruce	0	11	96	11	
Scots pine	27	124	42	151	
Corsican pine	7	39	67	46	
Norway spruce	45	91	48	136	
Larches	28	291	33	320	
Douglas fir	35	152	55	187	
Lodgepole pine	0	0	-	0	
Other conifers	21	322	32	343	
All conifers	162	1,033	17	1,195	
Broadleaves					
Oak	73	1,154	15	1,227	
Beech	219	1,069	24	1,289	
Sycamore	7	330	24	337	
Ash	7	1,152	15	1,159	
Birch	6	60	31	66	
Sweet chestnut	1	73	52	74	
Hazel	0	389	22	389	
Hawthorn	0	60	25	60	
Alder	0	122	36	122	
Willow	0	168	49	168	
Other broadleaves	49	431	21	480	
All broadleaves	363	4,896	6	5,259	
All species					
All species	525	5,946	6	6,471	

Table 6Standing volume by age class at 31 March 2012

	FC	Private sec	tor	Total
Age class	volume	volume	<u>C</u> <u></u>	volume
	(000 m ³ obs)	(000 m ³ obs)	SE%	(000 m ³ obs)
All conifers				
0–10 years	0	0	-	0
11–20 years	4	13	86	18
21–40 years	28	225	50	253
41–60 years	99	526	27	625
61–80 years	30	175	55	205
81–100 years	1	43	90	44
100+ years	0	13	56	13
Total	162	1,033	17	1,195
All broadleaves				
0–10 years	0	1	78	1
11–20 years	2	116	26	117
21–40 years	4	693	17	697
41–60 years	99	757	20	856
61–80 years	223	1,008	25	1,232
81–100 years	4	1,234	18	1,238
100+ years	31	1,078	16	1,109
Total	363	4,896	6	5,259
All species				
0–10 years	0	1	78	1
11–20 years	6	130	25	136
21–40 years	32	938	20	970
41-60 years	198	1,268	17	1,466
61–80 years	254	1,205	23	1,459
81–100 years	5	1,290	18	1,295
100+ years	31	1,064	16	1,095
Total	525	5,946	6	6,471

Table 7	Standing	volume by	mean star	nd DBH	class a	t 31	March	2012
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	FC	Private sector		
Mean stand DBH	volume	volume	CE0/	
	(000 m ³ obs)	(000 m ³ obs)	3E %	
All conifers				
0–7 cm	0	0	-	
7–10 cm	1	4	77	
10–15 cm	6	7	44	
15–20 cm	6	55	51	
20–30 cm	27	412	33	
30–40 cm	58	208	37	
40–60 cm	53	206	40	
60–80 cm	12	89	68	
80+ cm	0	13	56	
Total	162	1,033	17	
All broadleaves				
0–7 cm	1	16	41	
7–10 cm	8	141	15	
10–15 cm	32	271	19	
15–20 cm	27	501	18	
20–30 cm	73	692	17	
30–40 cm	185	947	23	
40–60 cm	32	1,002	18	
60–80 cm	2	1,173	18	
80+ cm	4	143	43	
Total	363	4,896	6	
All species				
0–7 cm	1	16	41	
7–10 cm	9	147	15	
10–15 cm	37	281	18	
15–20 cm	33	561	17	
20–30 cm	100	1,113	17	
30–40 cm	243	1,174	20	
40–60 cm	84	1,157	17	
60–80 cm	15	1,290	17	
80+ cm	4	158	39	
Total	525	5,946	6	

Biomass and carbon stocks at 31 March 2012

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

	FC	Private sec	tor	Total	
Principal species	biomass	biomass	SE%	biomass	
	(000 odt)	(000 odt)	JL 70	(000 odt)	
Conifers					
Sitka spruce	0	6	96	6	
Scots pine	19	91	43	110	
Corsican pine	4	24	67	28	
Norway spruce	25	51	47	76	
Larches	18	165	33	183	
Douglas fir	24	92	55	116	
Lodgepole pine	0	0	-	0	
Other conifers	11	181	32	193	
All conifers	101	612	17	713	
Broadleaves	· · · ·				
Oak	67	984	15	1,051	
Beech	199	931	23	1,130	
Sycamore	7	276	24	283	
Ash	7	942	15	949	
Birch	6	59	30	65	
Sweet chestnut	2	55	51	57	
Hazel	0	359	20	359	
Hawthorn	0	76	25	76	
Alder	0	94	34	94	
Willow	0	169	48	169	
Other broadleaves	45	406	18	451	
All broadleaves	333	4,261	6	4,594	
All species					
All species	434	4,890	5	5,324	

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

	FC	Private sec	tor	Total		
Principal species	carbon	carbon	SE%	carbon		
	(000 t)	(000 t)	JL 70	(000 t)		
Conifers						
Sitka spruce	0	3	96	3		
Scots pine	9	46	43	55		
Corsican pine	2	12	67	14		
Norway spruce	12	26	47	38		
Larches	9	82	33	91		
Douglas fir	12	46	55	58		
Lodgepole pine	0	0	-	0		
Other conifers	6	91	32	96		
All conifers	51	306	17	356		
Broadleaves						
Oak	34	492	15	525		
Beech	100	465	23	565		
Sycamore	3	138	24	142		
Ash	3	471	15	474		
Birch	3	29	30	32		
Sweet chestnut	1	28	51	28		
Hazel	0	180	20	180		
Hawthorn	0	38	25	38		
Alder	0	47	34	47		
Willow	0	84	48	84		
Other broadleaves	23	203	18	225		
All broadleaves	167	2,130	6	2,297		
All species						
All species	217	2,445	5	2,662		

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.

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.

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

		2013	–16			2017-	-21			2022	-26			202	/_31	
	FC	Private s	ector	Total	FC	Private se	ector	Total	FC	Private s	ector	Total	FC	Private s	ector	Total
Principal species	volu	ime	SE0/	volume	volu	ime	SE0/	volume	volu	ime	SE0/	volume	vol	ume	SE0/	volume
	(000 m	³ obs)	3E /0	(000 m ³ obs)	(000 m	³ obs)	3E 70	(000 m ³ obs)	(000 m	³ obs)	3E /0	(000 m ³ obs)	(000 n	n ³ obs)	3E 70	(000 m ³ obs)
All conifers	7	36	18	43	7	44	18	52	7	42	19	49	6	50	28	56
Sitka spruce	0	0	96	0	0	0	96	0	0	0	96	0	0	C	96	0
Scots pine	1	3	53	4	1	3	46	4	2	3	47	4	1	3	47	4
Corsican pine	0	1	82	1	0	1	62	1	0	1	62	1	0	5	96	5
Norway spruce	2	5	49	8	2	4	44	6	2	8	61	11	2	5	63	7
Larches	1	14	34	15	1	15	35	16	1	9	38	9	1	7	39	8
Douglas fir	2	6	58	8	1	5	57	7	2	5	57	7	1	5	57	7
Lodgepole pine	0	0	-	0	0	0	-	0	0	0	-	0	0	C	-	0
Other conifers	1	7	33	8	1	15	34	16	1	16	33	16	1	24	57	25
All broadleaves	16	33	28	49	1	32	30	33	12	17	26	29	1	50	66	51
Oak	3	6	54	8	0	2	50	3	2	2	49	5	0	3	44	3
Beech	11	5	41	16	1	6	43	7	8	4	41	13	0	39	83	39
Sycamore	1	2	65	3	0	2	64	2	0	1	53	1	0	1	51	1
Ash	0	16	46	16	0	17	47	17	0	6	49	6	0	3	51	3
Birch	0	2	82	2	0	2	79	2	0	2	64	2	0	C	75	0
Sweet chestnut	0	1	52	1	0	0	52	0	0	0	52	0	0	C	52	0
Hazel	0	0	75	0	0	0	41	0	0	0	29	0	0	C	26	0
Hawthorn	0	0	86	0	0	0	65	0	0	0	58	0	0	C	48	0
Alder	0	0	61	0	0	0	81	0	0	0	56	0	0	C	56	0
Willow	0	0	93	0	0	0	65	0	0	0	56	0	0	C	50	0
Other broadleaves	2	0	59	2	0	1	40	1	1	1	25	2	0	1	22	1
All species	24	69	17	92	8	77	17	85	19	58	16	77	7	102	36	109

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

Table 10 (cont'd)	50-year forecast	of timber	availability	' by	time	period and	principal	species
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		2032	-36			2037	-41		2042–46				2047–51			
	FC	Private s	ector	Total	FC	Private se	ector	Total	FC	Private se	ector	Total	FC	Private s	ector	Total
Principal species	volu	ime	SE0/	volume	volu	me	SE0/	volume	volu	ume	SE0/	volume	volu	ume	SE0/	volume
	(000 m	³ obs)	3E /0	(000 m ³ obs)	(000 m	³ obs)	3E 70	(000 m ³ obs)	(000 m	n ³ obs)	3E 70	(000 m ³ obs)	(000 m	n ³ obs)	3E 70	(000 m ³ obs)
All conifers	5	42	20	47	5	19	23	23	5	55	50	61	9	36	50	44
Sitka spruce	0	0	65	0	0	0	61	0	0	1	52	1	0	1	43	1
Scots pine	1	8	44	9	1	2	55	3	1	5	45	5	1	1	51	2
Corsican pine	0	1	77	1	0	1	80	1	1	8	84	9	0	0	69	0
Norway spruce	1	3	54	4	1	5	50	7	1	4	50	5	2	11	74	13
Larches	1	7	39	8	1	4	40	5	1	3	46	4	1	3	46	4
Douglas fir	2	5	56	7	1	2	43	3	1	1	30	2	2	2	30	4
Lodgepole pine	0	0	-	0	0	0	69	0	0	0	69	0	0	0	69	0
Other conifers	1	17	41	18	1	4	62	5	0	34	79	34	2	18	62	19
All broadleaves	12	25	34	37	1	14	17	15	13	38	48	51	3	17	15	20
Oak	2	8	73	10	0	2	53	2	3	2	50	5	0	2	46	2
Beech	8	3	40	12	0	3	39	4	8	24	75	33	1	2	40	4
Sycamore	1	1	33	1	0	1	33	1	0	1	33	1	0	1	33	2
Ash	0	3	38	3	0	4	38	4	0	4	35	5	0	5	35	5
Birch	0	0	46	0	0	0	31	0	0	0	58	1	0	1	41	1
Sweet chestnut	0	8	76	8	0	0	67	0	0	0	67	0	0	0	67	0
Hazel	0	0	25	0	0	1	52	1	0	1	52	1	0	2	32	2
Hawthorn	0	0	32	0	0	1	31	1	0	1	30	1	0	1	30	1
Alder	0	0	56	0	0	0	38	0	0	0	127	0	0	0	56	0
Willow	0	0	49	0	0	0	48	0	0	1	91	1	0	1	78	1
Other broadleaves	1	2	25	3	0	2	24	2	1	3	24	4	1	3	31	4
All species	17	66	19	83	6	31	16	37	19	93	35	112	12	53	35	65

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

		2052	-56		2057–61					
Detector I and a large	FC	Private se	ector	Total	FC	Private se	ector	Total		
Principal species	volu	ime	CE0/	volume	volu	ume	CE0/	volume		
	(000 m	³ obs)	SE %	(000 m ³ obs)	(000 m	n ³ obs)	SE %	(000 m ³ obs)		
		, i		· · · · ·	`	,				
All conifers	7	33	52	40	6	34	45	40		
Sitka spruce	0	1	34	1	0	1	33	1		
Scots pine	1	1	45	1	1	20	76	21		
Corsican pine	1	0	101	1	0	0	101	0		
Norway spruce	1	19	90	20	1	2	52	3		
Larches	1	3	45	4	1	3	41	5		
Douglas fir	3	2	29	5	1	3	30	4		
Lodgepole pine	0	0	69	0	0	0	69	0		
Other conifers	1	7	36	8	1	5	24	6		
All broadleaves	12	31	34	43	2	13	22	15		
Oak	2	1	43	3	0	1	41	1		
Beech	8	15	64	24	1	3	44	4		
Sycamore	0	2	45	3	0	1	57	1		
Ash	0	7	35	7	0	4	55	4		
Birch	0	0	40	0	0	0	33	0		
Sweet chestnut	0	0	66	0	0	1	67	1		
Hazel	0	1	61	1	0	0	58	0		
Hawthorn	0	1	30	1	0	1	30	1		
Alder	0	0	173	0	0	0	43	0		
Willow	0	0	44	0	0	0	44	0		
Other broadleaves	1	3	32	3	1	1	29	2		
All species	19	65	33	84	8	46	34	54		

Table 1150-year forecast of standing volume; average annual volumes within
periods

	FC	Private sec	tor	Total		
Forecast period	volume	volume	<u>cr</u> 0/	volume		
	(000 m ³ obs)	(000 m ³ obs)	3E %	(000 m ³ obs)		
All conifers						
2013–16	161	992	17	1,153		
2017–21	170	964	17	1,135		
2022–26	169	913	19	1,082		
2027–31	168	804	22	972		
2032–36	179	705	25	884		
2037–41	188	701	26	889		
2042–46	194	639	26	833		
2047–51	186	551	21	737		
2052–56	176	514	21	689		
2057–61	170	408	18	578		
All broadleaves		· · · · · · · · · · · · · · · · · · ·				
2013–16	344	5,003	6	5,347		
2017–21	372	5,271	6	5,644		
2022–26	387	5,686	6	6,073		
2027–31	411	6,077	5	6,488		
2032–36	423	6,466	5	6,890		
2037–41	445	6,901	5	7,346		
2042–46	453	7,214	5	7,667		
2047–51	463	7,576	5	8,039		
2052–56	466	7,877	5	8,343		
2057–61	485	8,145	5	8,630		
All species						
2013–16	505	6,012	6	6,517		
2017–21	543	6,256	6	6,799		
2022–26	556	6,629	5	7,185		
2027–31	578	6,908	5	7,486		
2032–36	602	7,202	5	7,804		
2037–41	633	7,637	5	8,270		
2042–46	647	7,889	5	8,537		
2047–51	648	8,163	5	8,812		
2052–56	642	8,425	5	9,067		
2057–61	655	8,584	5	9.239		

Table 1250-year forecast of net increment; average annual volumes withinperiods

	FC	Private sec	tor	Total		
Forecast period	volume	volume	CF0/	volume		
	(000 m ³ obs)	(000 m ³ obs)	<i>SE 70</i>	(000 m ³ obs)		
All conifers						
2013–16	8	36	21	44		
2017–21	8	35	22	43		
2022–26	8	31	24	39		
2027–31	7	27	26	34		
2032–36	7	24	27	30		
2037–41	6	24	25	31		
2042–46	6	25	22	31		
2047–51	6	25	17	31		
2052–56	5	25	17	31		
2057–61	5	26	17	31		
All broadleaves						
2013–16	11	80	8	91		
2017–21	11	99	5	110		
2022–26	10	111	4	122		
2027–31	10	114	4	124		
2032–36	10	110	5	120		
2037–41	10	104	5	113		
2042–46	10	95	5	105		
2047–51	9	87	5	96		
2052–56	9	80	6	89		
2057–61	10	73	6	83		
All species						
2013–16	19	116	8	136		
2017–21	19	135	6	154		
2022–26	18	144	6	162		
2027–31	17	142	6	159		
2032–36	17	134	6	151		
2037–41	16	128	6	144		
2042–46	16	121	6	136		
2047–51	15	112	6	127		
2052–56	15	105	6	120		
2057–61	15	98	6	113		









Figure 6 50-year forecast of average annual hardwood availability





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

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



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 forPrivate sector hardwoods

		2013	–16		2017–21			2022–26				2027–31				
Deles les la service	FC	Private s	ector	Total	FC	Private s	ector	Total	FC	Private s	ector	Total	FC	Private s	ector	Total
Principal species	volu	ume	CE0/	volume	volu	ume	CF0/	volume	volu	ume	CF0/	volume	vol	lume	CF0/	volume
	(000 n	n ³ obs)	3E %	(000 m ³ obs)	(000 m	n ³ obs)	3E %	(000 m ³ obs)	(000 m	n ³ obs)	3E %	(000 m ³ obs)	(000 r	n ³ obs)	3E %	(000 m ³ obs)
All conifers	7	36	18	43	7	44	18	52	7	42	19	49	6	50	28	56
Sitka spruce	0	0	96	0	0	0	96	0	0	0	96	0	C	0 0	96	0
Scots pine	1	3	53	4	1	3	46	4	2	3	47	4	1	3	47	4
Corsican pine	0	1	82	1	0	1	62	1	0	1	62	1	C) 5	96	5
Norway spruce	2	5	49	8	2	4	44	6	2	8	61	11	2	2 5	63	7
Larches	1	14	34	15	1	15	35	16	1	9	38	9	1	7	39	8
Douglas fir	2	6	58	8	1	5	57	7	2	5	57	7	1	5	57	7
Lodgepole pine	0	0	-	0	0	0	-	0	0	0	-	0	C	0 0	-	0
Other conifers	1	7	33	8	1	15	34	16	1	16	33	16	1	24	57	25
All broadleaves	16	283	11	299	1	220	9	221	12	128	11	141	1	176	24	177
Oak	3	19	27	22	0	16	24	16	2	15	22	17	C	42	47	42
Beech	11	14	26	25	1	14	27	15	8	11	23	19	C	45	72	45
Sycamore	1	32	25	33	0	22	24	22	0	22	44	22	C) 6	28	6
Ash	0	138	18	139	0	93	18	93	0	31	20	32	C) 19	23	19
Birch	0	5	36	5	0	5	35	5	0	4	37	4	C) 2	48	2
Sweet chestnut	0	1	46	1	0	1	45	1	0	1	49	1	C) 1	51	1
Hazel	0	36	24	36	0	37	24	37	0	11	18	11	C	10	65	10
Hawthorn	0	2	39	2	0	3	29	3	0	2	32	2	C) 2	27	2
Alder	0	12	37	12	0	12	37	12	0	4	32	4	C) 1	42	1
Willow	0	4	43	4	0	4	39	4	0	3	40	3	C	25	79	25
Other broadleaves	2	29	35	30	0	22	19	22	1	27	34	27	C	24	34	24
All species	24	322	10	345	8	267	8	275	19	170	9	190	7	230	20	237

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

		2032	2–36		2037–41				2042–46				2047–51			
Driveinel energies	FC	Private s	ector	Total	FC	Private s	ector	Total	FC	Private se	ector	Total	FC	Private s	ector	Total
Principal species	volu	ume	CF0/	volume	volu	ime	CE0/	volume	volu	ime	CF0/	volume	volu	ume	CF0/	volume
	(000 m	n ³ obs)	3E 70	(000 m ³ obs)	(000 m	³ obs)	3E %	(000 m ³ obs)	(000 m	³ obs)	3E %	(000 m ³ obs)	(000 n	n ³ obs)	3E %	(000 m ³ obs)
All conifers	5	42	20	47	5	19	23	23	5	55	50	61	9	36	50	44
Sitka spruce	0	0	65	0	0	0	61	0	0	1	52	1	0	1	43	1
Scots pine	1	8	44	9	1	2	55	3	1	5	45	5	1	1	51	2
Corsican pine	0	1	77	1	0	1	80	1	1	8	84	9	0	0	69	0
Norway spruce	1	3	54	4	1	5	50	7	1	4	50	5	2	11	74	13
Larches	1	7	39	8	1	4	40	5	1	3	46	4	1	3	46	4
Douglas fir	2	5	56	7	1	2	43	3	1	1	30	2	2	2	30	4
Lodgepole pine	0	0	-	0	0	0	69	0	0	0	69	0	0	0	69	0
Other conifers	1	17	41	18	1	4	62	5	0	34	79	34	2	18	62	19
All broadleaves	12	118	25	130	1	82	9	83	13	136	17	150	3	103	9	106
Oak	2	15	37	17	0	13	29	13	3	20	53	23	0	8	22	9
Beech	8	39	72	47	0	11	26	12	8	41	50	50	1	9	27	10
Sycamore	1	5	26	5	0	6	26	6	0	9	26	9	0	8	25	8
Ash	0	22	34	23	0	18	17	18	0	22	17	22	0	19	22	20
Birch	0	2	43	2	0	1	31	1	0	2	34	2	0	3	45	3
Sweet chestnut	0	8	72	8	0	1	64	1	0	1	64	1	0	1	63	1
Hazel	0	8	47	8	0	10	31	10	0	8	26	8	0	17	21	17
Hawthorn	0	3	22	3	0	4	20	4	0	5	26	5	0	3	20	3
Alder	0	1	35	1	0	3	29	3	0	4	88	4	0	2	39	2
Willow	0	2	32	2	0	2	31	2	0	3	38	3	0	7	40	7
Other broadleaves	1	14	17	15	0	20	24	20	1	22	17	23	1	27	26	28
All species	17	160	20	177	6	100	8	106	19	192	18	211	12	140	14	152

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

		2052	-56		2057–61					
Detector I and a large	FC	Private se	ector	Total	FC	Private se	ector	Total		
Principal species	volu	ime	CF0/	volume	volu	ume	CF0/	volume		
	(000 m	³ obs)	3E %	(000 m ³ obs)	(000 m	n ³ obs)	SE 70	(000 m ³ obs)		
All conifers	7	33	52	40	6	34	45	40		
Sitka spruce	0	1	34	1	0	1	33	1		
Scots pine	1	1	45	1	1	20	76	21		
Corsican pine	1	0	101	1	0	0	101	0		
Norway spruce	1	19	90	20	1	2	52	3		
Larches	1	3	45	4	1	3	41	5		
Douglas fir	3	2	29	5	1	3	30	4		
Lodgepole pine	0	0	69	0	0	0	69	0		
Other conifers	1	7	36	8	1	5	24	6		
All broadleaves	12	121	11	133	2	103	17	106		
Oak	2	8	22	10	0	13	45	13		
Beech	8	23	46	31	1	23	64	24		
Sycamore	0	14	36	14	0	6	25	6		
Ash	0	30	17	30	0	15	18	15		
Birch	0	1	39	2	0	1	25	1		
Sweet chestnut	0	1	63	1	0	9	81	9		
Hazel	0	11	29	11	0	8	18	8		
Hawthorn	0	5	19	5	0	4	22	4		
Alder	0	2	44	2	0	2	38	2		
Willow	0	2	30	2	0	7	37	7		
Other broadleaves	1	25	23	26	1	16	21	17		
All species	19	156	15	174	8	137	17	145		

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

	FC	Private sec	tor	Total		
Forecast period	volume	volume	CF0/	volume		
	(000 m ³ obs)	(000 m ³ obs)	SE %	(000 m ³ obs)		
All conifers						
2013–16	161	992	17	1,153		
2017–21	170	964	17	1,135		
2022–26	169	913	19	1,082		
2027–31	168	804	22	972		
2032–36	179	705	25	884		
2037–41	188	701	26	889		
2042–46	194	639	26	833		
2047–51	186	551	21	737		
2052–56	176	514	21	689		
2057–61	170	408	18	578		
All broadleaves						
2013–16	344	4,245	6	4,588		
2017–21	372	3,646	7	4,019		
2022–26	387	3,230	8	3,616		
2027–31	411	3,035	7	3,446		
2032–36	423	2,926	7	3,350		
2037–41	445	3,025	7	3,470		
2042–46	453	3,067	7	3,521		
2047–51	463	3,209	7	3,672		
2052–56	466	3,297	6	3,764		
2057–61	485	3,307	7	3,792		
All species						
2013–16	505	5,245	6	5,750		
2017–21	543	4,614	7	5,157		
2022–26	556	4,148	8	4,703		
2027–31	578	3,836	8	4,415		
2032–36	602	3,626	8	4,228		
2037–41	633	3,720	8	4,353		
2042–46	647	3,700	7	4,347		
2047–51	648	3,751	6	4,400		
2052–56	642	3,799	6	4,441		
2057–61	655	3.696	6	4.352		

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

	FC	Private sec	Total		
Forecast period	volume	volume	CE0/	volume	
	(000 m ³ obs)	(000 m ³ obs)	SE %	(000 m ³ obs)	
All conifers					
2013–16	8	36	21	44	
2017–21	8	35	22	43	
2022–26	8	31	24	39	
2027–31	7	27	26	34	
2032–36	7	24	27	30	
2037–41	6	24	25	31	
2042–46	6	25	22	31	
2047–51	6	25	17	31	
2052–56	5	25	17	31	
2057–61	5	26	17	31	
All broadleaves					
2013–16	11	78	8	89	
2017–21	11	90	5	101	
2022–26	10	99	5	109	
2027–31	10	107	5	117	
2032–36	10	116	5	126	
2037–41	10	128	5	137	
2042–46	10	137	4	146	
2047–51	9	133	4	143	
2052–56	9	126	4	136	
2057–61	10	119	4	129	
All species					
2013–16	19	115	8	134	
2017–21	19	126	7	145	
2022–26	18	131	7	149	
2027–31	17	134	6	151	
2032–36	17	140	6	157	
2037–41	16	152	6	168	
2042–46	16	163	5	178	
2047–51	15	159	5	174	
2052–56	15	152	5	166	
2057–61	15	144	5	159	

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





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











Comparison of hardwood production between harvesting scenarios

Figure 14 50-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 m³ obs)			
All conifers	43	43	0	52	52	0	49	49	0
Sitka spruce	0	0	0	0	0	0	0	0	0
Scots pine	4	4	0	4	4	0	4	4	0
Corsican pine	1	1	0	1	1	0	1	1	0
Norway spruce	8	8	0	6	6	0	11	11	0
Larches	15	15	0	16	16	0	9	9	0
Douglas fir	8	8	0	7	7	0	7	7	0
Lodgepole pine	0	0	0	0	0	0	0	0	0
Other conifers	8	8	0	16	16	0	16	16	0
All broadleaves	49	299	250	33	221	188	29	141	111
Oak	8	22	13	3	16	14	5	17	13
Beech	16	25	8	7	15	8	13	19	6
Sycamore	3	33	30	2	22	20	1	22	21
Ash	16	139	122	17	93	76	6	32	26
Birch	2	5	3	2	5	3	2	4	2
Sweet chestnut	1	1	1	0	1	1	0	1	0
Hazel	0	36	36	0	37	36	0	11	11
Hawthorn	0	2	2	0	3	3	0	2	2
Alder	0	12	12	0	12	12	0	4	4
Willow	0	4	4	0	4	4	0	3	3
Other broadleaves	2	30	28	1	22	21	2	27	26
All species	92	345	253	85	275	190	77	190	113

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 <u>www.forestry.gov.uk/inventory</u>.

Glossary

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

Official Statistics

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

National Forest Inventory Statistician: Alan Brewer