

NFI provisional estimates for woodland within 50 miles of Pontrilas

Issued by: National Forest Inventory, Forestry Commission,
231 Corstorphine Road, Edinburgh, EH12 7AT

Date: August 2017

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Summary

This report provides a detailed picture of stocked area and the standing volume of timber for woodland within a 50 mile radius of Pontrilas. 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* and *50-year forecast of hardwood timber availability*. NFI reports are published at www.forestry.gov.uk/inventory.

In addition, the report provides forecasts of timber availability, for softwoods and hardwoods arising from the stocked area and standing volume. Forecasts are based on the 'headline' harvesting scenario described in the NFI 50-year forecast reports. Forecasting for broadleaved woodland in the Private sector 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.



Contents

Approach.....	4
Results.....	4
Stocked area at 31 March 2012	6
Standing volume at 31 March 2012.....	10
25-year forecast of timber availability	14
NFI national reports and papers	20
Glossary.....	20

Figures

Figure 1a Principal tree species composition by stocked area at 31 March 2012	6
Figure 1b Principal conifer tree species composition by stocked area at 31 March 2012	6
Figure 2a Principal tree species composition by standing volume at 31 March 2012 ...	10
Figure 2b Principal conifer tree species composition by standing volume at 31 March 2012	10
Figure 3 Overview of 25-year forecast of average annual softwood availability.....	18
Figure 4 Overview of 25-year forecast of average annual hardwood availability	18
Figure 5 25-year forecast of average annual softwood availability	19
Figure 6 25-year forecast of average annual hardwood availability	19

Tables

Table 1 Stocked area by principal tree species at 31 March 2012.....	7
Table 2 Stocked area by age class at 31 March 2012	8
Table 3 Stocked area by mean stand dbh class at 31 March 2012.....	9
Table 4 Felled area at 31 March 2012	9
Table 5 Standing volume by principal tree species at 31 March 2012	11
Table 6 Standing volume by age class at 31 March 2012	12
Table 7 Standing volume by mean stand dbh class at 31 March 2012	13
Table 8 25-year forecast of timber availability by time period and principal species; average annual volumes within period	15
Table 9 25-year forecast of timber availability by period, top-diameter class and conifer or broadleaved.....	17

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 in coniferous trees in Britain* (2012) and the *NFI preliminary estimates of quantities of broadleaved species in British Woodlands with special focus on ash* (2014) reports for a description of the underlying methodologies and interpretation, and also for the England and GB context. Refer to the *NFI forecasts methodology overview* (2012) 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 Great Britain 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 stocked areas and standing volumes at 31 March 2012, and 25-year forecasts of softwood and hardwood availability under the 'headline' harvesting scenario and modified to assume that all hardwoods are harvested in woodland within 100 miles of Pontrilas. The data sources used for the compilation of these estimates are the same as described in the National Forest Inventory 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) and Natural Resources Wales (NRW) estates are derived from their sub-compartment databases, while those for the private sector (i.e. non-FC in England or non-NRW in Wales) 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 attached to the private sector estimates, is provided in the earlier documents.

The Private sector forecast in this report represents the potential availability of timber under the assumption of harvesting to maximise timber production. The actual levels of timber that will be produced will vary from the results reported here as production

NFI Provisional Report

depends on the harvesting choices made by forest and woodland owners who are unlikely to consistently choose to maximise production over the forecast period.

Results are provided for stocked area at 31 March 2012 (**Figures 1a-1b** and **Tables 1-3**), felled area (**Table 4**), standing volume at 31 March 2012 (**Figures 2a-2b** and **Tables 5-7**) and the 25-year forecast (**Figures 3 - 6** and **Tables 8-9**).

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

Where the standard error is high this indicates that the estimate should be interpreted with a degree of caution. Any estimate with a relatively large standard error is shown in **amber** in the tables.

These standard errors depend on the combination of a number of factors but broadly:

- The more woodland that is within the area of interest the more samples that will have been selected, generally leading to lower standard errors
- Increasing the number of categories and sub-categories used (e.g. conifers and broadleaves then sub-divided into species groupings) may well result in higher standard errors, especially for the categories that occur less frequently such as minor species
- More variability will also result in higher standard errors; for instance if a species is usually more evenly stocked when compared with another then its standard error will tend to be lower than the latter species.

Stocked area at 31 March 2012

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

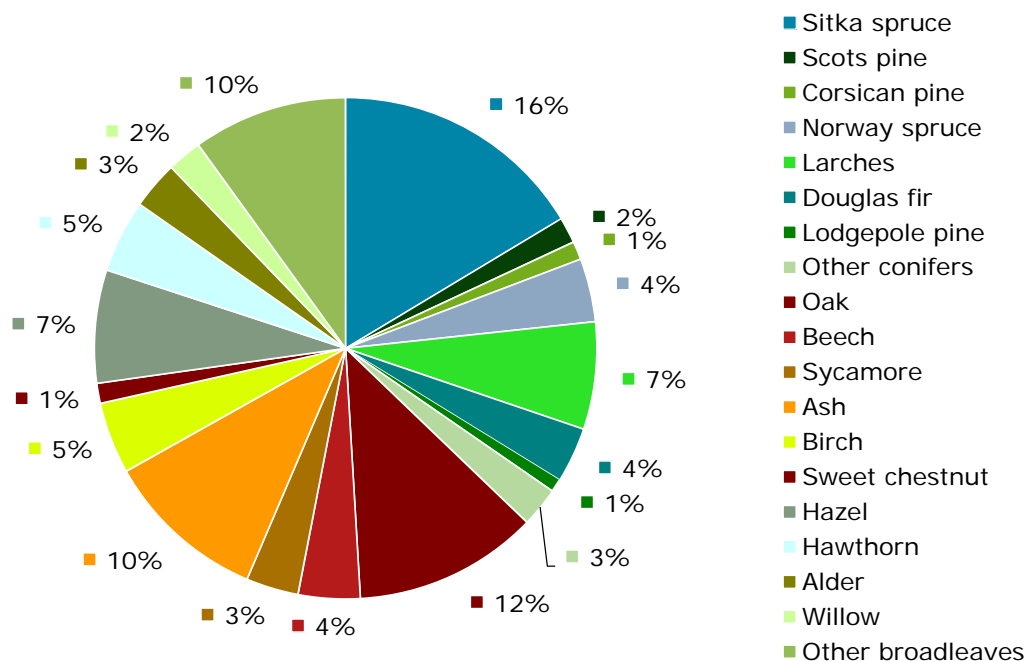
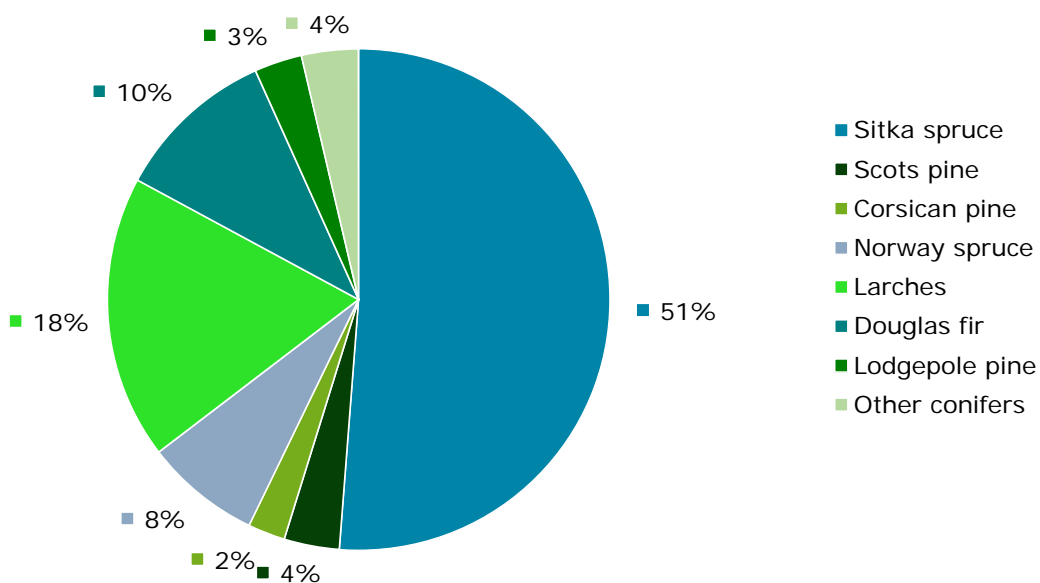


Figure 1b Principal conifer tree species composition by stocked area at 31 March 2012



NFI Provisional Report

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	26.8	11.8	11	38.6
Scots pine	1.9	2.1	22	3.9
Corsican pine	1.2	1.5	25	2.8
Norway spruce	3.9	5.7	14	9.6
Larches	9.6	6.8	13	16.3
Douglas fir	5.4	3.0	19	8.4
Lodgepole pine	1.6	0.4	58	2.0
Other conifers	1.9	4.1	18	6.0
All conifers	52.3	35.4	4	87.7
Broadleaves				
Oak	4.7	23.2	7	27.9
Beech	2.5	6.9	13	9.4
Sycamore	0.1	7.8	12	7.9
Ash	0.9	23.7	6	24.6
Birch	1.3	9.6	11	10.9
Sweet chestnut	0.4	2.6	23	3.0
Hazel	0.1	17.1	8	17.2
Hawthorn	0.0	11.0	10	11.0
Alder	0.2	7.0	12	7.2
Willow	0.0	5.2	14	5.2
Other broadleaves	6.5	16.9	7	23.5
All broadleaves	16.7	131.3	2	148.0
All species				
All species	69.0	166.7	1	235.7

NFI Provisional Report

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	5.8	1.8	28	7.6
11–20 years	7.9	3.7	18	11.6
21–40 years	15.7	10.8	12	26.5
41–60 years	18.9	15.5	9	34.4
61–80 years	3.6	2.6	24	6.2
81–100 years	0.4	0.7	54	1.1
100+ years	0.1	0.3	57	0.3
Total	52.3	35.4	4	87.7
All broadleaves				
0–10 years	2.5	13.3	9	15.8
11–20 years	1.8	19.4	8	21.3
21–40 years	2.1	37.4	5	39.5
41–60 years	2.9	20.9	8	23.8
61–80 years	2.9	18.7	9	21.6
81–100 years	1.2	12.5	11	13.8
100+ years	3.3	9.0	13	12.3
Total	16.7	131.3	2	148.0
All species				
0–10 years	8.3	15.1	9	23.4
11–20 years	9.8	23.2	7	32.9
21–40 years	17.7	48.2	5	65.9
41–60 years	21.8	36.4	6	58.2
61–80 years	6.4	21.4	8	27.8
81–100 years	1.6	13.2	11	14.8
100+ years	3.4	9.2	13	12.6
Total	69.0	166.7	1	235.7

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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	7.7	2.0	25	9.7
7–10 cm	2.8	2.3	21	5.1
10–15 cm	8.4	3.9	20	12.3
15–20 cm	9.7	5.2	19	14.9
20–30 cm	12.5	7.2	14	19.7
30–40 cm	6.4	7.6	12	14.0
40–60 cm	4.4	6.5	14	10.9
60–80 cm	0.3	0.6	51	0.9
80+ cm	0.0	0.1	70	0.2
Total	52.3	35.4	4	87.7
All broadleaves				
0–7 cm	3.2	15.5	8	18.7
7–10 cm	2.6	24.5	6	27.2
10–15 cm	2.2	23.6	7	25.8
15–20 cm	2.6	12.7	9	15.3
20–30 cm	2.8	18.3	8	21.1
30–40 cm	1.7	12.1	9	13.7
40–60 cm	1.4	15.2	9	16.6
60–80 cm	0.2	6.1	15	6.4
80+ cm	0.0	3.2	23	3.2
Total	16.7	131.3	2	148.0
All species				
0–7 cm	10.9	17.5	7	28.4
7–10 cm	5.4	26.9	5	32.3
10–15 cm	10.6	27.6	6	38.2
15–20 cm	12.4	17.9	8	30.3
20–30 cm	15.3	25.4	7	40.7
30–40 cm	8.0	19.7	7	27.7
40–60 cm	5.8	21.7	8	27.4
60–80 cm	0.5	6.7	15	7.2
80+ cm	0.0	3.4	22	3.4
Total	69.0	166.7	1	235.7

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)
	4.9	1.1	36	6.0

Standing volume at 31 March 2012

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

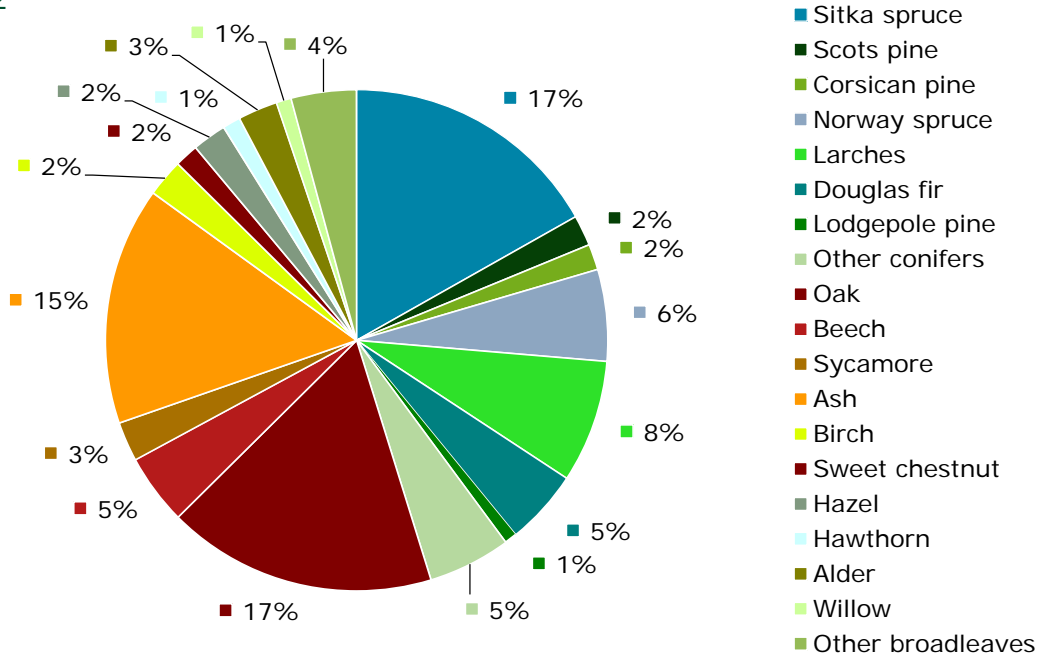
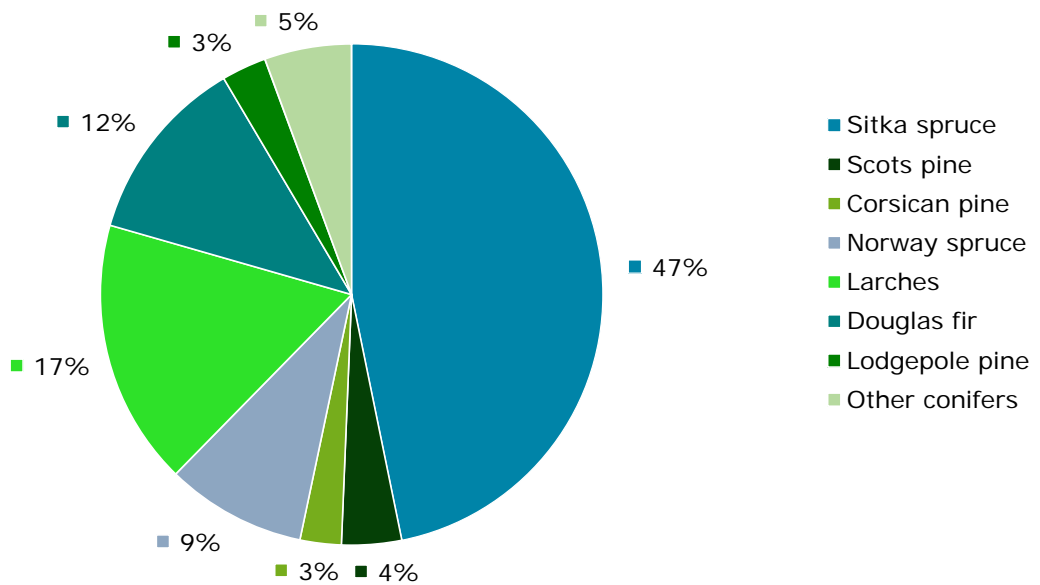


Figure 2b Principal conifer tree species composition by standing volume at 31 March 2012



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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	5,876	4,241	17	10,117
Scots pine	483	712	26	1,195
Corsican pine	333	663	27	996
Norway spruce	1,133	2,422	18	3,555
Larches	2,151	2,614	16	4,765
Douglas fir	1,514	1,401	20	2,915
Lodgepole pine	361	116	66	477
Other conifers	704	2,498	28	3,202
All conifers	12,555	14,711	7	27,266
Broadleaves				
Oak	777	9,663	10	10,440
Beech	517	2,221	18	2,738
Sycamore	14	1,517	18	1,531
Ash	131	9,111	15	9,242
Birch	105	1,347	13	1,452
Sweet chestnut	48	875	28	923
Hazel	12	1,305	12	1,317
Hawthorn	0	690	13	690
Alder	27	1,512	16	1,539
Willow	0	581	21	581
Other broadleaves	589	1,938	14	2,527
All broadleaves	2,219	30,774	5	32,993
All species				
All species	14,774	45,459	4	60,233

NFI Provisional Report

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	3	0	65	3
11–20 years	333	233	24	566
21–40 years	3,383	3,433	16	6,816
41–60 years	7,208	8,520	11	15,729
61–80 years	1,446	2,044	30	3,490
81–100 years	159	447	43	607
100+ years	22	34	55	56
Total	12,555	14,711	7	27,266
All broadleaves				
0–10 years	0	32	33	33
11–20 years	18	1,066	11	1,083
21–40 years	148	4,857	7	5,004
41–60 years	477	5,413	9	5,891
61–80 years	544	6,115	10	6,659
81–100 years	261	7,911	18	8,172
100+ years	771	5,380	16	6,151
Total	2,219	30,774	5	32,993
All species				
0–10 years	3	33	32	36
11–20 years	351	1,299	10	1,650
21–40 years	3,531	8,254	8	11,785
41–60 years	7,686	13,920	8	21,605
61–80 years	1,990	8,169	10	10,159
81–100 years	420	8,363	17	8,783
100+ years	793	5,422	16	6,216
Total	14,774	45,459	4	60,233

NFI Provisional Report

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	77	2
7–10 cm	67	73	24	140
10–15 cm	945	452	28	1,397
15–20 cm	2,611	1,503	22	4,114
20–30 cm	4,898	3,584	16	8,482
30–40 cm	2,218	4,267	15	6,485
40–60 cm	1,662	4,070	18	5,732
60–80 cm	133	657	61	790
80+ cm	20	103	63	123
Total	12,555	14,711	7	27,266
All broadleaves				
0–7 cm	7	90	19	96
7–10 cm	95	960	7	1,055
10–15 cm	318	2,594	8	2,912
15–20 cm	564	2,068	12	2,632
20–30 cm	576	4,695	9	5,271
30–40 cm	334	4,386	10	4,720
40–60 cm	278	7,396	11	7,674
60–80 cm	47	3,895	15	3,942
80+ cm	1	4,690	30	4,691
Total	2,219	30,774	5	32,993
All species				
0–7 cm	8	91	19	99
7–10 cm	162	1,035	6	1,197
10–15 cm	1,263	3,050	8	4,313
15–20 cm	3,175	3,576	12	6,751
20–30 cm	5,474	8,244	9	13,717
30–40 cm	2,552	8,655	9	11,207
40–60 cm	1,940	11,454	9	13,393
60–80 cm	180	4,554	16	4,735
80+ cm	21	4,801	29	4,822
Total	14,774	45,459	4	60,233

25-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, Wales 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, Wales and GB context.

In **Tables 8 and 9** and **Figures 3-6** the estimates for the Forestry Commission and Natural Resources Wales are based on harvesting regimes derived from their felling and thinning plans as of 31 March 2012.

For the Private sector, information for **Tables 8 and 9** and **Figures 3-6** is based on a scenario which assumes felling at age of maximum mean annual increment with moderate wind risk measures for conifers and broadleaves.

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

- 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 provide for:

- No reduction in stocked area.
- Like for like species choices are used for broadleaves.
- That 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 FC, NRW and Private sector forecasts.

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

NFI Provisional Report

25-year forecast of timber availability

Table 8 25-year forecast of timber availability by time period and principal species; average annual volumes within period

Principal species	2017–21			2022–26			2027–31					
	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)			
All conifers	617	764	13	1,382	587	739	17	1,327	553	528	12	1,081
Sitka spruce	347	269	32	616	330	204	33	534	317	126	33	443
Scots pine	23	17	22	40	17	30	38	47	12	54	48	67
Corsican pine	18	32	46	50	14	47	41	61	10	8	36	18
Norway spruce	54	130	35	185	48	162	38	210	43	128	26	171
Larches	69	126	18	196	64	88	17	152	59	84	19	142
Douglas fir	61	68	25	129	73	43	33	116	73	32	29	105
Lodgepole pine	15	3	59	18	13	3	59	16	12	3	59	14
Other conifers	29	116	32	146	29	159	53	188	28	92	32	120
All broadleaves	44	1,535	6	1,579	21	740	5	761	42	689	9	730
Oak	17	102	37	119	6	108	23	114	16	177	23	192
Beech	15	38	32	52	8	32	17	40	12	36	22	48
Sycamore	0	146	23	147	0	51	20	51	1	48	23	49
Ash	2	648	10	650	1	225	11	226	3	88	11	90
Birch	2	127	16	128	1	67	20	68	2	61	25	63
Sweet chestnut	2	34	36	36	1	20	26	22	2	74	43	76
Hazel	0	130	15	130	0	55	13	55	0	35	22	35
Hawthorn	0	28	13	28	0	26	12	26	0	30	18	30
Alder	1	132	16	132	0	56	17	56	1	40	37	40
Willow	0	26	23	26	0	18	15	18	0	32	46	32
Other broadleaves	6	125	20	130	3	81	14	84	6	69	19	75
All species	661	2,301	6	2,962	608	1,471	9	2,079	595	1,216	7	1,811

NFI Provisional Report

Table 8 (cont'd) 25-year forecast of timber availability by time period and principal species; average annual volumes within period

Principal species	2032–36			2037–41			Total	
	FC/NRW	Private sector		FC/NRW	Private sector			
	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)		
All conifers	637	780	15	1,418	467	472	16	939
Sitka spruce	410	381	27	791	224	112	37	336
Scots pine	13	50	40	63	10	39	59	49
Corsican pine	6	8	35	14	5	5	35	10
Norway spruce	41	145	29	186	42	139	38	181
Larches	54	86	22	141	72	48	19	120
Douglas fir	89	29	25	119	82	48	39	130
Lodgepole pine	5	3	59	7	5	22	83	27
Other conifers	19	76	28	95	27	57	27	84
All broadleaves	15	596	8	610	44	622	8	666
Oak	4	45	17	48	15	150	31	165
Beech	2	56	42	58	12	36	19	48
Sycamore	0	39	18	40	0	40	21	41
Ash	1	152	14	154	2	120	8	122
Birch	1	53	19	54	2	38	19	40
Sweet chestnut	1	45	51	46	2	11	25	13
Hazel	0	57	22	57	0	55	19	55
Hawthorn	0	23	12	23	0	37	30	37
Alder	0	31	25	31	1	43	29	44
Willow	0	17	14	17	0	23	23	23
Other broadleaves	4	78	18	82	9	68	11	77
All species	652	1,377	9	2,030	511	1,089	8	1,600

NFI Provisional Report

Table 9 25-year forecast of timber availability by period, top-diameter class and conifer or broadleaved

Top diameter class (cm)	2017–21			2022–26			2027–31			2032–36			2037–41		
	FC/NRW	Private sector		FC/NRW	Private sector		FC/NRW	Private sector		FC/NRW	Private sector		FC/NRW	Private sector	
	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%
All conifers															
7–14	113	71	15	103	51	13	82	47	21	105	68	18	94	55	14
14–16	48	32	17	44	23	15	39	23	23	47	36	21	35	19	22
16–18	51	38	19	44	28	15	44	25	22	55	44	21	37	21	27
18–24	157	159	19	144	138	19	141	92	17	181	185	21	112	86	25
24–34	153	246	17	149	242	17	140	140	12	150	241	16	105	126	17
34–44	57	114	16	57	123	22	57	86	14	51	101	14	39	72	22
44–54	24	52	18	24	64	28	26	48	17	23	49	16	18	39	24
54+	15	54	23	19	70	33	24	66	22	25	56	21	26	53	28
Total	617	764	13	587	739	17	553	528	12	637	780	15	467	472	16

Top diameter class (cm)	2017–21			2022–26			2027–31			2032–36			2037–41		
	FC/NRW	Private sector		FC/NRW	Private sector		FC/NRW	Private sector		FC/NRW	Private sector		FC/NRW	Private sector	
	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%	(000 m ³)	(000 m ³)	SE%
All broadleaves															
7–14	12	296	6	6	187	4	10	183	5	9	199	4	15	219	4
14–16	3	78	7	1	39	6	3	36	9	1	36	7	3	42	7
16–18	3	79	6	1	38	6	3	34	10	1	33	8	3	40	10
18–24	10	258	6	5	128	7	9	109	11	2	91	9	8	111	13
24–34	10	379	7	5	184	8	11	158	14	1	109	12	9	113	20
34–44	4	211	9	1	85	9	4	80	16	1	58	18	4	46	18
44–54	2	114	11	0	40	11	2	37	18	0	31	21	2	22	20
54+	2	120	17	0	39	19	1	53	31	0	40	28	1	28	25
Total	44	1,535	6	21	740	5	42	689	9	15	596	8	44	622	8

NFI Provisional Report

Figure 3 Overview of 25-year forecast of average annual softwood availability

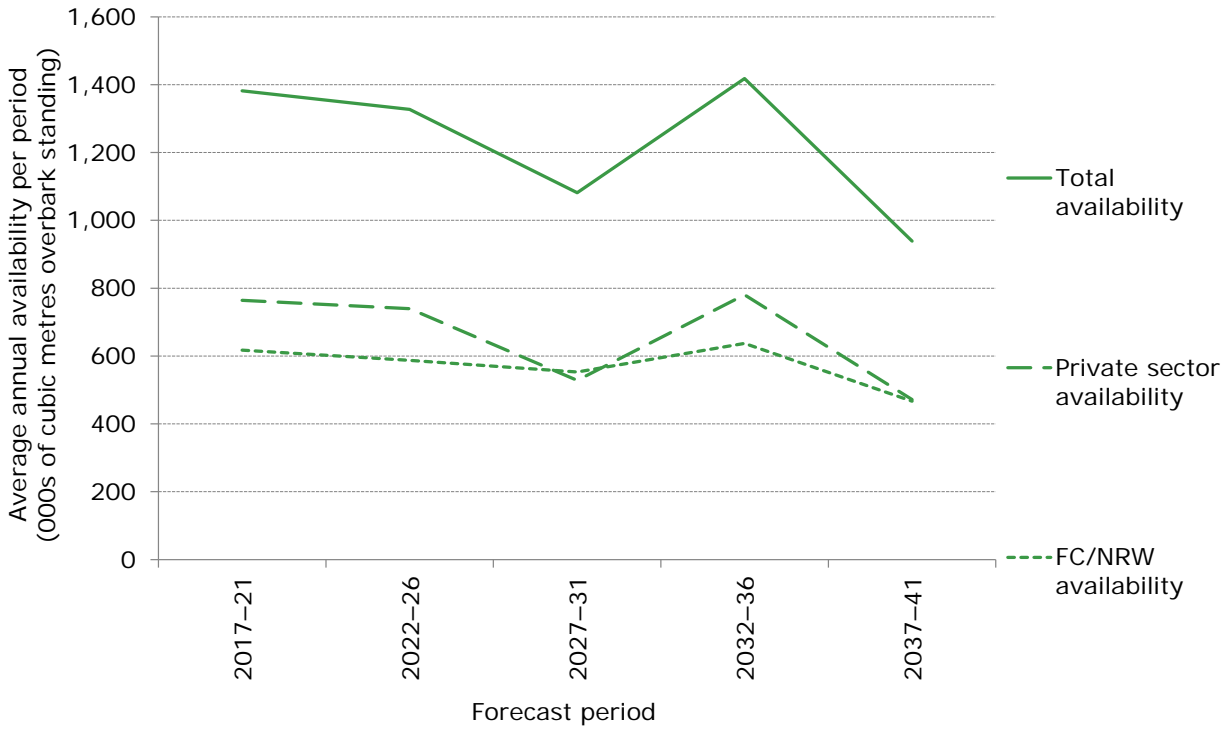
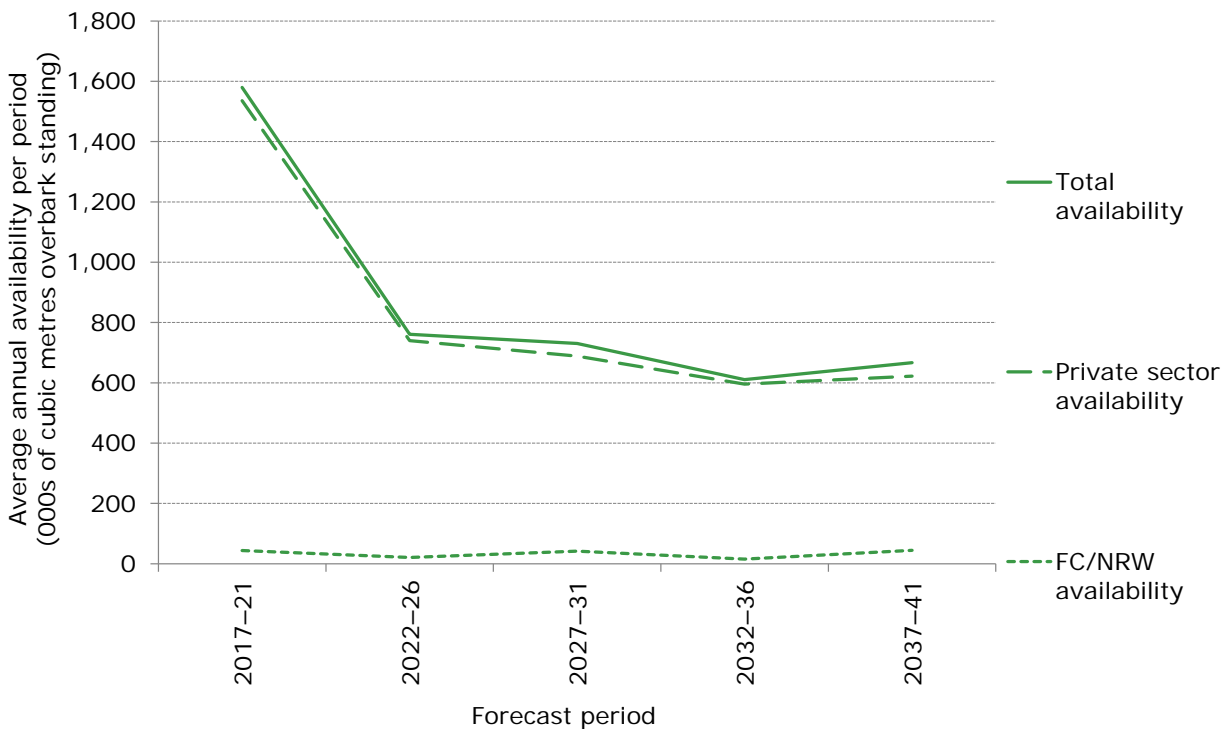


Figure 4 Overview of 25-year forecast of average annual hardwood availability



NFI Provisional Report

Figure 5 25-year forecast of average annual softwood availability

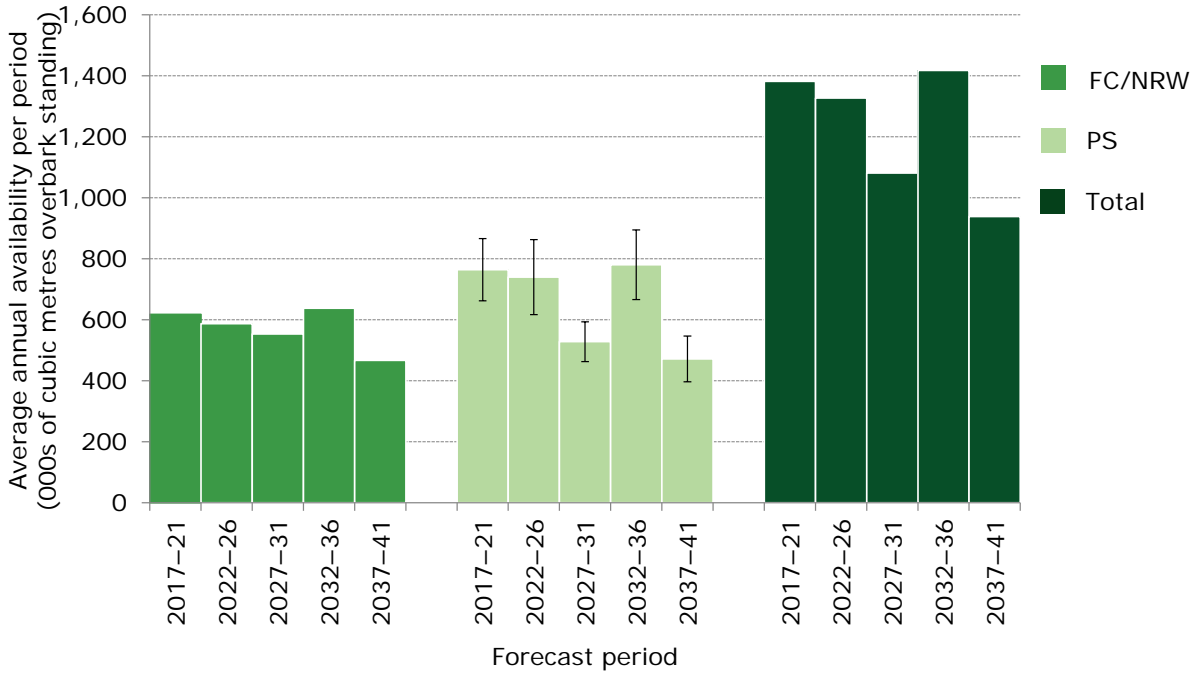
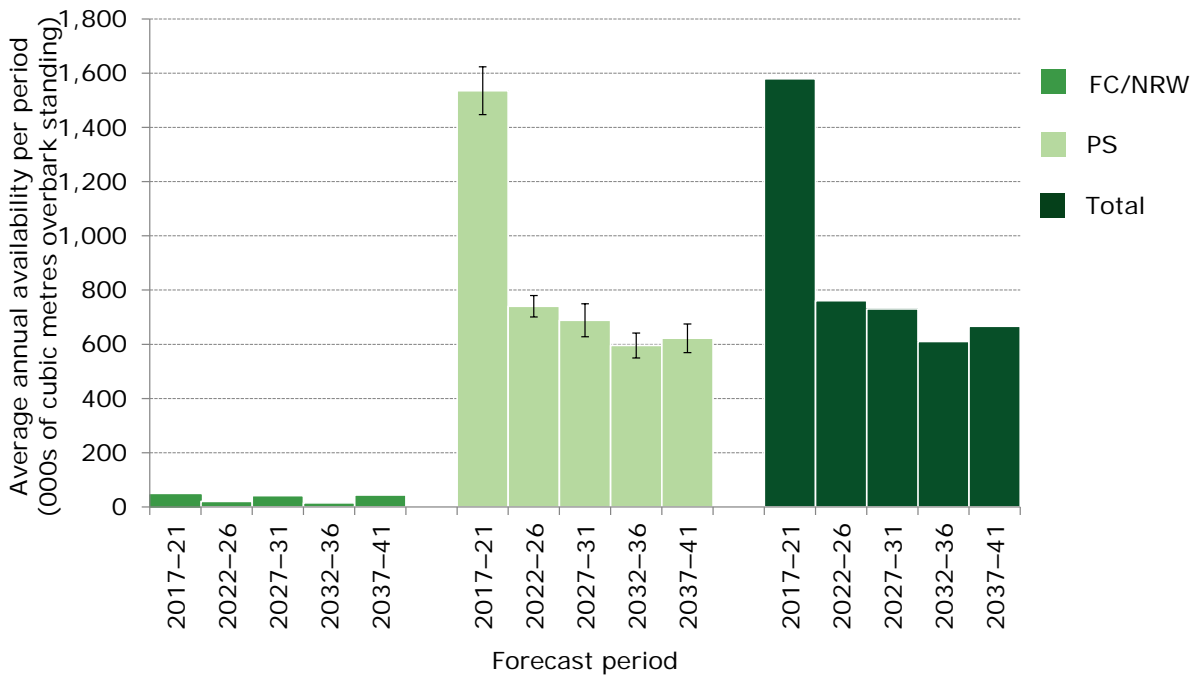


Figure 6 25-year forecast of average annual hardwood availability



NFI national reports and papers

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

- GB 2011 preliminary estimates of broadleaved species
- GB 2011 standing coniferous timber volume
- UK 25-year forecast of softwood availability
- GB 25-year forecast of coniferous standing volume and increment
- Biomass in live woodland trees in Britain
- 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 timber availability
- 50-year forecast of hardwood timber availability
- 25-year forecast of softwood availability (2016) update

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.

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This report contains a subset of the information provided in the Official Statistics reports *50-year forecast of softwood timber availability* and *50-year forecast of hardwood timber availability* publications. More information about Official Statistics and the UK Statistics Authority is available at www.statisticsauthority.gov.uk

National Forest Inventory Statistician: Alan Brewer