NFI provisional estimates for woodland within 75 miles of Southampton

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Summary

This report provides a detailed picture of the stocked area in woodland, the standing volume of timber and the associated live biomass and carbon stocks for woodland within a 75-mile radius of Southampton. These estimates are a subset of those published as part of the 2012 growing stock information presented in the National Forest Inventory (NFI) *50-year forecast of softwood timber availability* (2014) and *50-year forecast of hardwood timber availability* (2014). NFI reports are published at www.forestry.gov.uk/inventory.

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

The estimates provided in this report are provisional in nature.

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Approach

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

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

Results

The results presented in this report are estimates of standing volumes and stocked areas at 31 March 2012, and 50-year forecasts of softwood and hardwood availability under the 'headline' harvesting scenario and also under a scenario assuming all hardwoods are harvested in Private sector woodland within 75 miles of Southampton. The data sources used for the compilation of these estimates are the same as described in the NFI reports *Standing timber volume for coniferous trees in Britain* (2012), the *50-year forecast of softwood availability* (2014) and the *50-year forecast of hardwood availability* (2014). Estimates for the Forestry Commission (FC) estate are derived from the FC's SCDB, while those for the Private sector (i.e. non-FC) estate are derived from information collected in the NFI field survey. A fuller description of these data sources and how they are used in the production of estimates, including sampling standard errors (SEs) attached to the Private sector estimates, is provided in the earlier documents.

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

(**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

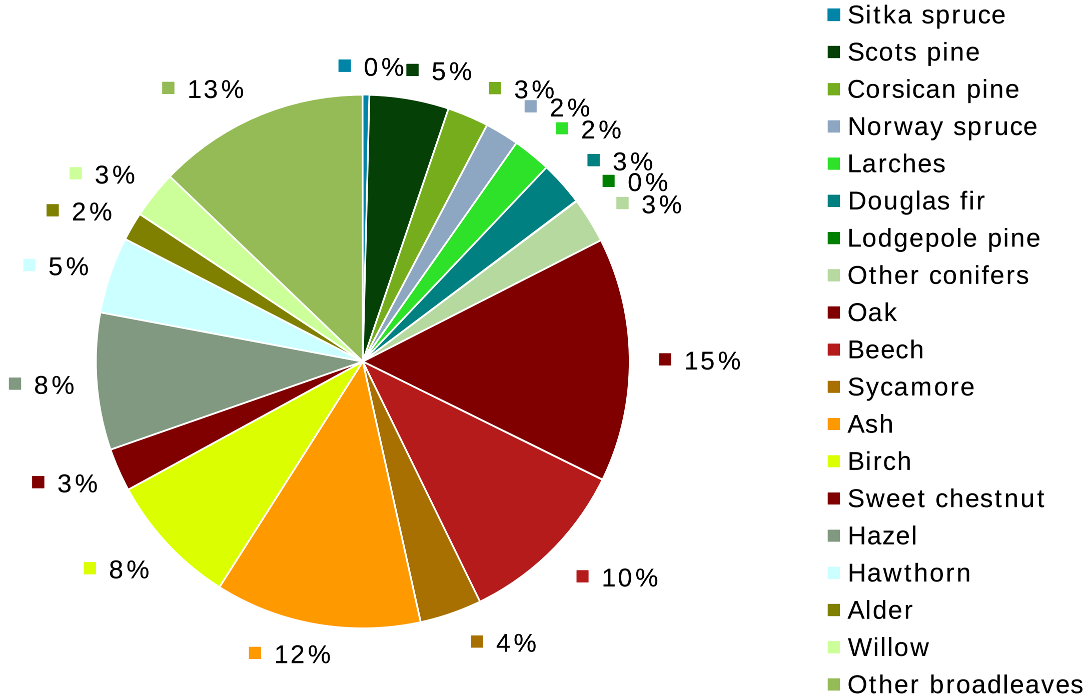


Figure 1a Principal conifer tree species composition by stocked area at 31 March 2012

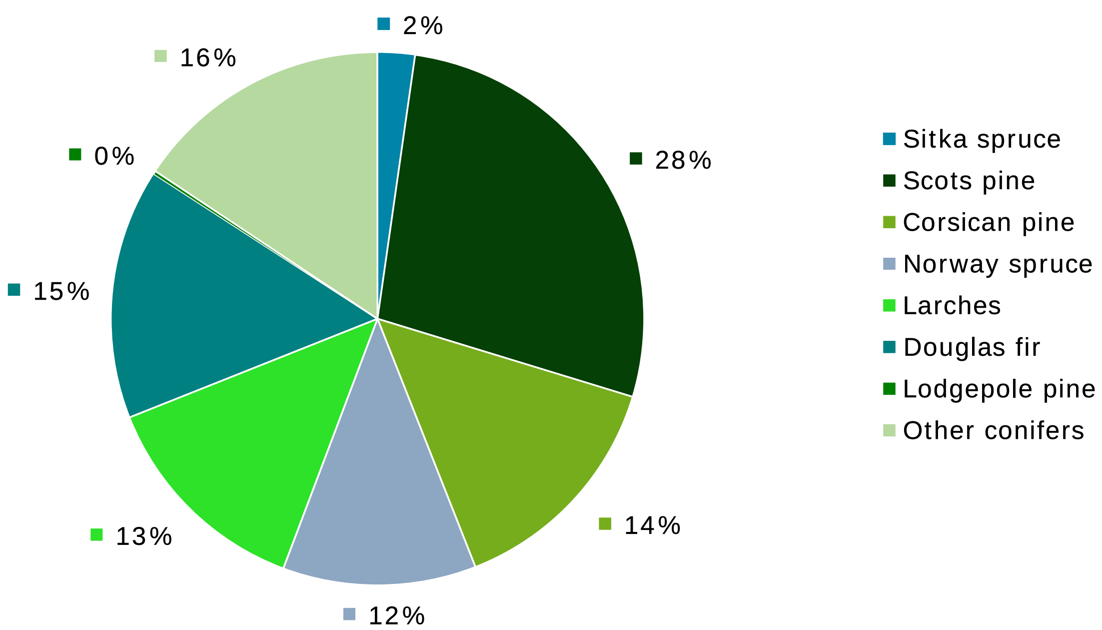


Table 1 Stocked area by principal tree species at 31 March 2012

Principal species	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
Conifers				
Sitka spruce	0.6	0.9	*34*	**1.4**
Scots pine	3.4	13.9	*8*	**17.3**
Corsican pine	5.3	3.7	*17*	**9.0**
Norway spruce	1.6	5.7	*11*	**7.4**
Larches	1.6	6.7	*10*	**8.3**
Douglas fir	3.4	6.1	*12*	**9.5**
Lodgepole pine	0.1	0.1	*67*	**0.1**
Other conifers	1.7	8.1	*9*	**9.8**
All conifers	**17.6**	**45.2**	***3***	**62.9**
Broadleaves				
Oak	8.0	45.2	*4*	**53.2**
Beech	8.8	28.9	*6*	**37.7**
Sycamore	0.2	13.2	*8*	**13.4**
Ash	1.0	43.8	*4*	**44.8**
Birch	1.3	27.6	*5*	**28.9**
Sweet chestnut	0.4	9.0	*11*	**9.4**
Hazel	0.1	29.7	*5*	**29.8**
Hawthorn	0.0	16.6	*7*	**16.6**
Alder	0.2	6.0	*12*	**6.2**
Willow	0.0	10.3	*9*	**10.3**
Other broadleaves	3.6	42.4	*4*	**46.0**
All broadleaves	**23.5**	**273.3**	***1***	**296.8**
All species				
All species	**41.2**	**318.3**	***1***	**359.5**

Table 2 Stocked area by age class at 31 March 2012

Age class	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
All conifers				
0–10 years	1.2	1.7	*24*	**2.9**
11–20 years	1.8	1.4	*23*	**3.2**
21–40 years	3.4	10.6	*9*	**14.0**
41–60 years	7.5	23.9	*6*	**31.4**
61–80 years	2.5	5.2	*12*	**7.7**
81–100 years	0.9	1.4	*26*	**2.3**
100+ years	0.4	1.1	*26*	**1.4**
Total	**17.6**	**45.2**	***3***	**62.9**
All broadleaves				
0–10 years	0.5	31.8	*6*	**32.4**
11–20 years	0.6	34.8	*5*	**35.4**
21–40 years	1.2	69.2	*3*	**70.4**
41–60 years	5.5	45.0	*4*	**50.4**
61–80 years	5.7	35.3	*5*	**41.0**
81–100 years	1.6	32.9	*5*	**34.6**
100+ years	8.3	24.3	*6*	**32.6**
Total	**23.5**	**273.3**	***1***	**296.8**
All species				
0–10 years	1.7	33.6	*6*	**35.3**
11–20 years	2.4	36.2	*5*	**38.6**
21–40 years	4.7	79.9	*3*	**84.5**
41–60 years	13.0	68.9	*3*	**81.9**
61–80 years	8.2	40.5	*5*	**48.7**
81–100 years	2.5	34.3	*5*	**36.8**
100+ years	8.7	25.0	*6*	**33.7**
Total	**41.2**	**318.3**	***1***	**359.5**

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

Mean stand DBH	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
All conifers				
0–7 cm	1.4	1.7	*21*	**3.1**
7–10 cm	0.6	1.7	*19*	**2.4**
10–15 cm	1.8	3.0	*15*	**4.8**
15–20 cm	1.2	4.2	*13*	**5.4**
20–30 cm	3.4	12.0	*8*	**15.4**
30–40 cm	4.6	11.4	*8*	**16.0**
40–60 cm	3.9	9.0	*9*	**12.9**
60–80 cm	0.6	1.4	*22*	**2.0**
80+ cm	0.2	0.8	*35*	**1.0**
Total	**17.6**	**45.2**	***3***	**62.9**
All broadleaves				
0–7 cm	0.9	40.2	*5*	**41.1**
7–10 cm	1.2	48.4	*4*	**49.6**
10–15 cm	2.0	35.6	*4*	**37.5**
15–20 cm	2.5	26.4	*5*	**28.9**
20–30 cm	7.9	38.6	*4*	**46.5**
30–40 cm	5.6	27.3	*5*	**32.8**
40–60 cm	2.6	33.6	*5*	**36.2**
60–80 cm	0.6	14.6	*7*	**15.2**
80+ cm	0.2	8.8	*12*	**9.0**
Total	**23.5**	**273.3**	***1***	**296.8**
All species				
0–7 cm	2.3	41.9	*5*	**44.2**
7–10 cm	1.9	50.1	*4*	**52.0**
10–15 cm	3.7	38.6	*4*	**42.4**
15–20 cm	3.7	30.7	*4*	**34.4**
20–30 cm	11.3	50.6	*3*	**61.9**
30–40 cm	10.2	38.7	*4*	**48.8**
40–60 cm	6.5	42.3	*4*	**48.8**
60–80 cm	1.2	15.8	*7*	**17.0**
80+ cm	0.4	9.6	*11*	**10.0**
Total	**41.2**	**318.3**	***1***	**359.5**

Table 4 Felled area at 31 March 2012

Clearfelled area	FC	Private sector		Total
	area (000 ha)	area (000 ha)	*SE%*	area (000 ha)
	1.1	2.2	*25*	**3.3**

Standing volume at 31 March 2012

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

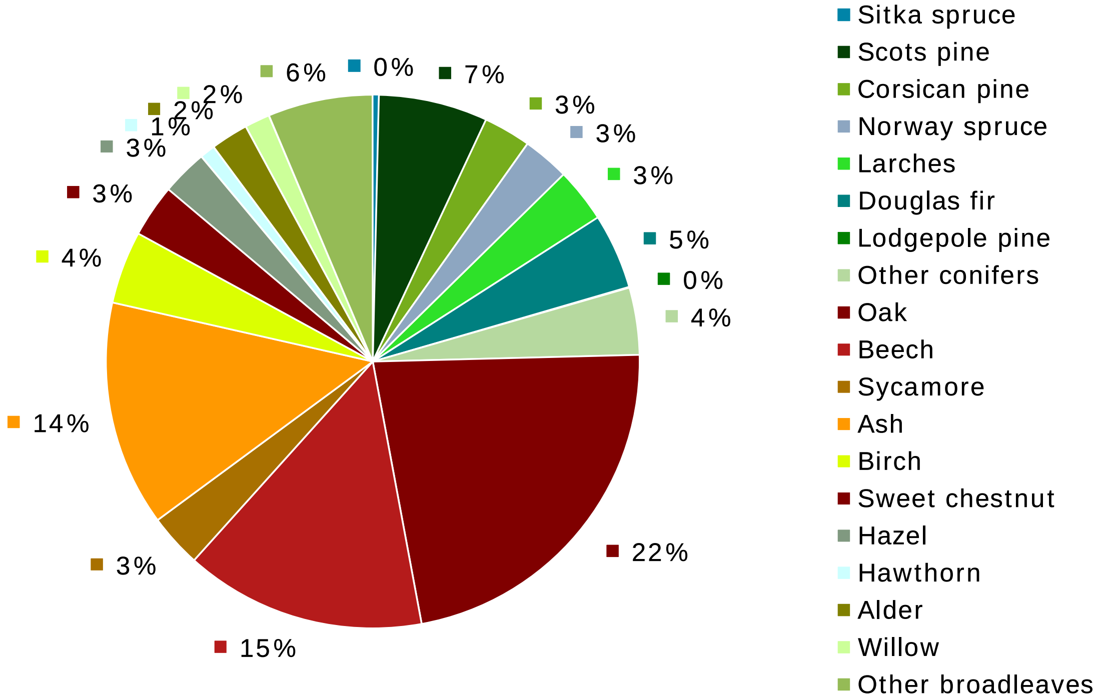


Figure 2a Principal conifer tree species composition by standing volume at 31 March 2012

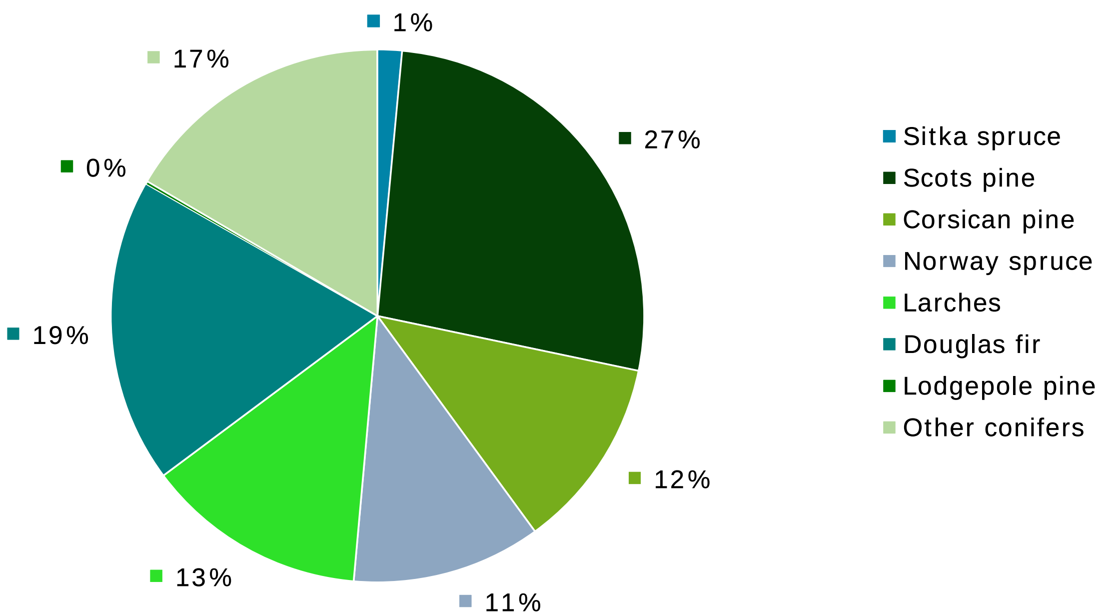


Table 5 Standing volume by principal tree species at 31 March 2012

Principal species	FC volume (000 m^3 obs)	Private sector volume (000 m^3 obs)	Private sector *SE%*	Total volume (000 m^3 obs)
Conifers				
Sitka spruce	114	204	*31*	**319**
Scots pine	966	4,825	*9*	**5,792**
Corsican pine	1,159	1,357	*17*	**2,516**
Norway spruce	468	2,007	*13*	**2,475**
Larches	320	2,568	*10*	**2,888**
Douglas fir	1,048	2,942	*15*	**3,990**
Lodgepole pine	15	22	*76*	**37**
Other conifers	637	2,937	*11*	**3,574**
All conifers	**4,729**	**16,884**	***4***	**21,612**
Broadleaves				
Oak	2,110	17,620	*5*	**19,729**
Beech	2,150	10,646	*8*	**12,796**
Sycamore	29	2,808	*11*	**2,838**
Ash	150	11,839	*6*	**11,989**
Birch	150	3,712	*7*	**3,861**
Sweet chestnut	72	2,740	*12*	**2,812**
Hazel	9	2,422	*7*	**2,431**
Hawthorn	0	808	*10*	**808**
Alder	29	1,972	*14*	**2,001**
Willow	0	1,333	*14*	**1,333**
Other broadleaves	548	5,032	*7*	**5,579**
All broadleaves	**5,247**	**60,946**	***2***	**66,192**
All species				
All species	**9,975**	**77,753**	***2***	**87,729**

Table 6 Standing volume by age class at 31 March 2012

Age class	FC volume (000 m^3 obs)	Private sector volume (000 m^3 obs)	Private sector *SE%*	Total volume (000 m^3 obs)
All conifers				
0–10 years	1	2	*55*	**3**
11–20 years	92	68	*27*	**160**
21–40 years	661	2,544	*10*	**3,205**
41–60 years	2,447	9,793	*6*	**12,240**
61–80 years	934	2,784	*13*	**3,718**
81–100 years	376	1,106	*36*	**1,482**
100+ years	217	586	*26*	**803**
Total	**4,729**	**16,884**	***4***	**21,612**
All broadleaves				
0–10 years	0	69	*26*	**69**
11–20 years	10	1,427	*8*	**1,437**
21–40 years	76	8,905	*4*	**8,981**
41–60 years	871	10,957	*5*	**11,828**
61–80 years	1,139	11,901	*6*	**13,040**
81–100 years	355	14,628	*6*	**14,983**
100+ years	2,796	13,059	*8*	**15,855**
Total	**5,247**	**60,946**	***2***	**66,192**
All species				
0–10 years	1	71	*25*	**72**
11–20 years	102	1,498	*8*	**1,599**
21–40 years	737	11,438	*4*	**12,174**
41–60 years	3,318	20,760	*4*	**24,078**
61–80 years	2,074	14,673	*6*	**16,747**
81–100 years	732	15,748	*6*	**16,480**
100+ years	3,013	13,565	*8*	**16,578**
Total	**9,975**	**77,753**	***2***	**87,729**

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

Mean stand DBH	FC	Private sector		Total
	volume (000 m^3 obs)	volume (000 m^3 obs)	*SE%*	volume (000 m^3 obs)
All conifers				
0–7 cm	0	0	*49*	**1**
7–10 cm	15	58	*22*	**74**
10–15 cm	179	350	*20*	**528**
15–20 cm	241	1,005	*13*	**1,246**
20–30 cm	1,089	4,103	*9*	**5,192**
30–40 cm	1,533	4,842	*8*	**6,375**
40–60 cm	1,346	4,972	*10*	**6,318**
60–80 cm	237	804	*20*	**1,042**
80+ cm	87	750	*47*	**838**
Total	**4,729**	**16,884**	***4***	**21,612**
All broadleaves				
0–7 cm	6	148	*13*	**155**
7–10 cm	57	1,947	*5*	**2,004**
10–15 cm	303	3,965	*5*	**4,269**
15–20 cm	509	4,539	*5*	**5,048**
20–30 cm	2,136	9,923	*4*	**12,058**
30–40 cm	1,480	9,295	*6*	**10,776**
40–60 cm	575	14,085	*5*	**14,660**
60–80 cm	139	9,424	*7*	**9,563**
80+ cm	40	7,620	*13*	**7,661**
Total	**5,247**	**60,946**	***2***	**66,192**
All species				
0–7 cm	7	149	*13*	**155**
7–10 cm	73	2,008	*5*	**2,081**
10–15 cm	482	4,323	*5*	**4,805**
15–20 cm	750	5,564	*5*	**6,314**
20–30 cm	3,225	14,016	*4*	**17,241**
30–40 cm	3,013	14,171	*5*	**17,184**
40–60 cm	1,922	18,996	*5*	**20,917**
60–80 cm	377	10,134	*7*	**10,511**
80+ cm	128	8,392	*12*	**8,520**
Total	**9,975**	**77,753**	***2***	**87,729**

Biomass and carbon stocks at 31 March 2012

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

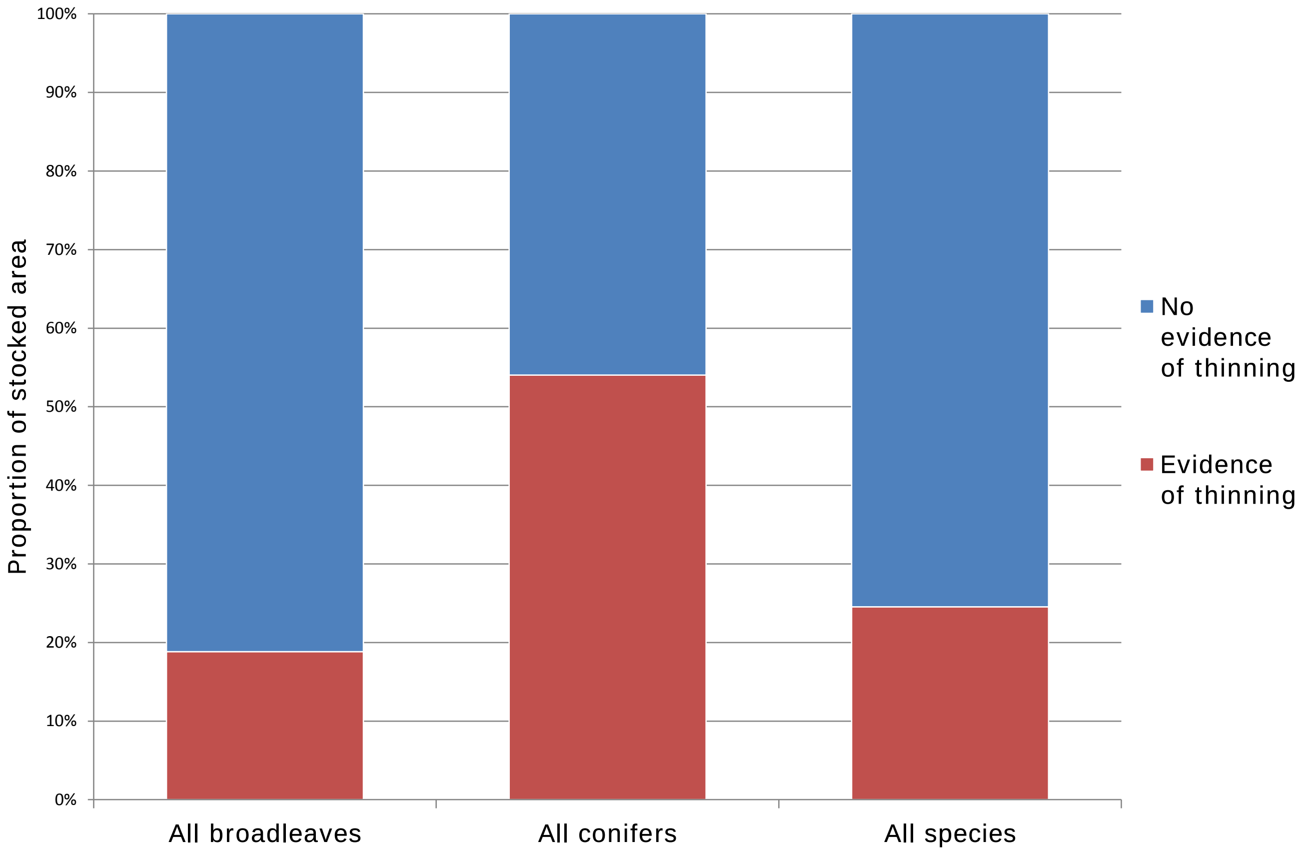
Principal species	FC	Private sector		Total
	biomass (000 odt)	biomass (000 odt)	*SE%*	biomass (000 odt)
Conifers				
Sitka spruce	71	123	*31*	**194**
Scots pine	670	3,240	*9*	**3,911**
Corsican pine	699	765	*17*	**1,465**
Norway spruce	258	1,055	*13*	**1,313**
Larches	203	1,531	*10*	**1,734**
Douglas fir	700	1,852	*15*	**2,552**
Lodgepole pine	10	14	*75*	**24**
Other conifers	351	1,681	*11*	**2,032**
All conifers	**2,962**	**10,276**	***4***	**13,238**
Broadleaves				
Oak	1,875	14,678	*5*	**16,553**
Beech	2,031	9,103	*8*	**11,134**
Sycamore	27	2,342	*11*	**2,369**
Ash	140	9,685	*6*	**9,825**
Birch	145	3,439	*6*	**3,584**
Sweet chestnut	70	2,141	*12*	**2,211**
Hazel	9	2,366	*7*	**2,375**
Hawthorn	0	983	*10*	**983**
Alder	24	1,465	*14*	**1,489**
Willow	0	1,377	*13*	**1,377**
Other broadleaves	494	4,560	*6*	**5,054**
All broadleaves	**4,814**	**52,164**	***2***	**56,978**
All species				
All species	**7,776**	**62,415**	***2***	**70,192**

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

Principal species	FC carbon (000 t)	Private sector carbon (000 t)	Private sector *SE%*	Total carbon (000 t)
Conifers				
Sitka spruce	35	62	*31*	**97**
Scots pine	335	1,620	*9*	**1,955**
Corsican pine	350	383	*17*	**732**
Norway spruce	129	528	*13*	**656**
Larches	101	766	*10*	**867**
Douglas fir	350	926	*15*	**1,276**
Lodgepole pine	5	7	*75*	**12**
Other conifers	175	841	*11*	**1,016**
All conifers	**1,481**	**5,138**	***4***	**6,619**
Broadleaves				
Oak	938	7,339	*5*	**8,277**
Beech	1,015	4,552	*8*	**5,567**
Sycamore	13	1,171	*11*	**1,185**
Ash	70	4,843	*6*	**4,913**
Birch	73	1,719	*6*	**1,792**
Sweet chestnut	35	1,070	*12*	**1,105**
Hazel	4	1,183	*7*	**1,187**
Hawthorn	0	491	*10*	**491**
Alder	12	733	*14*	**744**
Willow	0	688	*13*	**688**
Other broadleaves	247	2,280	*6*	**2,527**
All broadleaves	**2,407**	**26,082**	***2***	**28,489**
All species				
All species	**3,888**	**31,208**	***2***	**35,096**

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

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

Principal species	2013–16				2017–21				2022–26				2027–31			
	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total
	volume (000 m³ obs)		*SE%*	volume (000 m³ obs)	volume (000 m³ obs)		*SE%*	volume (000 m³ obs)	volume (000 m³ obs)		*SE%*	volume (000 m³ obs)	volume (000 m³ obs)		*SE%*	volume (000 m³ obs)
All conifers	**206**	**876**	***8***	**1,081**	**186**	**827**	***7***	**1,013**	**151**	**789**	***8***	**940**	**142**	**761**	***8***	**903**
Sitka spruce	7	7	*39*	15	4	14	*26*	18	4	20	*70*	24	4	7	*44*	11
Scots pine	29	201	*19*	230	27	176	*15*	203	20	218	*16*	238	20	262	*16*	282
Corsican pine	64	114	*25*	177	57	90	*28*	148	52	95	*34*	146	34	27	*30*	61
Norway spruce	22	72	*13*	94	22	105	*24*	126	15	121	*24*	136	17	163	*23*	180
Larches	13	144	*19*	157	11	157	*15*	168	10	86	*13*	96	8	81	*15*	89
Douglas fir	44	186	*21*	230	36	139	*19*	176	31	121	*21*	152	37	94	*23*	131
Lodgepole pine	1	0	*71*	1	0	0	*87*	1	1	5	*81*	5	0	0	*87*	0
Other conifers	26	150	*20*	176	28	145	*16*	173	18	122	*16*	140	20	126	*16*	146
All broadleaves	**96**	**773**	***9***	**868**	**16**	**717**	***12***	**733**	**76**	**355**	***9***	**432**	**16**	**334**	***15***	**350**
Oak	21	106	*19*	127	3	126	*21*	129	16	91	*26*	108	3	86	*24*	89
Beech	59	132	*25*	191	8	240	*29*	248	47	96	*16*	144	7	128	*34*	134
Sycamore	1	71	*34*	73	0	35	*34*	35	1	12	*25*	13	0	6	*18*	7
Ash	4	262	*14*	266	1	159	*13*	160	3	50	*14*	53	1	27	*20*	28
Birch	2	69	*21*	71	1	69	*18*	69	1	40	*22*	42	1	20	*21*	21
Sweet chestnut	2	41	*59*	43	1	8	*19*	9	2	17	*27*	19	1	10	*26*	12
Hazel	0	11	*39*	11	0	13	*34*	13	0	11	*19*	11	0	13	*33*	13
Hawthorn	0	4	*28*	4	0	3	*24*	3	0	3	*15*	3	0	3	*17*	3
Alder	0	10	*68*	11	0	5	*39*	5	0	3	*40*	3	0	5	*70*	5
Willow	0	2	*22*	2	0	2	*19*	2	0	3	*16*	3	0	6	*50*	6
Other broadleaves	7	60	*25*	67	3	56	*20*	59	5	27	*13*	32	3	28	*13*	30
All species	**301**	**1,641**	***6***	**1,943**	**202**	**1,541**	***7***	**1,743**	**227**	**1,134**	***6***	**1,361**	**158**	**1,098**	***7***	**1,255**

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

Principal species	2032–36				2037–41				2042–46				2047–51			
	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)
All conifers	**127**	**639**	***9***	**766**	**131**	**525**	***11***	**656**	**171**	**486**	***12***	**657**	**141**	**361**	***9***	**502**
Sitka spruce	9	12	*23*	20	6	11	*17*	17	9	19	*24*	28	9	17	*13*	26
Scots pine	14	264	*16*	278	21	181	*22*	202	21	133	*24*	155	18	106	*20*	124
Corsican pine	37	11	*27*	47	34	46	*57*	80	68	20	*43*	89	36	2	*31*	38
Norway spruce	12	102	*27*	113	13	76	*23*	89	10	109	*27*	119	15	48	*23*	63
Larches	8	69	*19*	77	10	39	*14*	49	14	31	*15*	46	14	44	*27*	58
Douglas fir	36	77	*21*	113	32	63	*20*	95	33	60	*23*	94	31	53	*13*	85
Lodgepole pine	0	0	*87*	0	0	0	*45*	0	0	1	*82*	1	0	0	*37*	0
Other conifers	12	105	*30*	117	14	109	*29*	123	15	112	*34*	126	19	90	*17*	108
All broadleaves	**68**	**327**	***12***	**394**	**62**	**280**	***9***	**342**	**112**	**391**	***9***	**503**	**42**	**414**	***11***	**457**
Oak	14	53	*18*	67	10	43	*15*	53	41	48	*14*	89	14	93	*33*	108
Beech	42	145	*25*	186	41	96	*23*	137	53	109	*26*	162	17	106	*29*	123
Sycamore	1	7	*18*	8	1	8	*18*	9	1	15	*14*	16	1	18	*20*	19
Ash	3	39	*22*	42	2	41	*11*	42	4	57	*9*	62	3	59	*10*	61
Birch	1	19	*20*	20	1	23	*13*	24	2	39	*15*	41	1	35	*13*	37
Sweet chestnut	1	18	*35*	19	1	8	*22*	9	2	37	*40*	39	1	13	*42*	14
Hazel	0	9	*16*	9	0	14	*21*	14	0	17	*21*	17	0	21	*14*	21
Hawthorn	0	4	*12*	4	0	5	*10*	5	0	5	*9*	5	0	6	*17*	6
Alder	0	1	*32*	2	0	2	*34*	2	0	4	*27*	4	0	3	*36*	3
Willow	0	4	*13*	4	0	5	*19*	5	0	9	*31*	9	0	4	*17*	4
Other broadleaves	5	27	*9*	32	6	33	*11*	39	8	49	*14*	57	5	53	*23*	58
All species	**195**	**966**	***7***	**1,161**	**193**	**800**	***8***	**992**	**283**	**866**	***8***	**1,148**	**183**	**775**	***7***	**959**

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

Principal species	2052–56				2057–61			
	FC	Private sector		Total	FC	Private sector		Total
	volume (000 m^3 obs)		SE%	volume (000 m^3 obs)	volume (000 m^3 obs)		SE%	volume (000 m^3 obs)
All conifers	**122**	**381**	***13***	**503**	**129**	**350**	***6***	**478**
Sitka spruce	9	23	*10*	32	8	26	*10*	34
Scots pine	17	88	*21*	105	21	109	*17*	130
Corsican pine	29	2	*28*	31	25	2	*30*	26
Norway spruce	9	107	*41*	116	12	40	*18*	52
Larches	11	30	*15*	42	10	32	*13*	42
Douglas fir	33	62	*13*	95	35	64	*10*	98
Lodgepole pine	0	0	*34*	0	1	0	*34*	1
Other conifers	13	68	*11*	82	17	78	*10*	95
All broadleaves	**74**	**415**	***9***	**489**	**49**	**361**	***11***	**410**
Oak	20	69	*23*	89	13	64	*27*	78
Beech	43	117	*22*	160	24	132	*24*	156
Sycamore	1	15	*18*	16	0	6	*24*	7
Ash	2	69	*11*	72	2	54	*22*	56
Birch	1	34	*21*	35	2	27	*14*	29
Sweet chestnut	2	27	*59*	29	2	14	*45*	16
Hazel	0	10	*16*	10	0	8	*15*	8
Hawthorn	0	6	*9*	6	0	7	*20*	7
Alder	0	3	*36*	3	0	3	*48*	3
Willow	0	8	*32*	8	0	5	*27*	5
Other broadleaves	5	54	*15*	59	5	38	*25*	43
All species	**196**	**796**	***8***	**991**	**178**	**710**	***7***	**888**

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

Forecast period	FC volume (000 m^3 obs)	Private sector volume (000 m^3 obs)	Private sector *SE%*	Total volume (000 m^3 obs)
All conifers				
2013–16	4,650	15,691	*4*	**20,341**
2017–21	4,774	14,390	*4*	**19,164**
2022–26	4,893	12,232	*5*	**17,126**
2027–31	5,040	10,295	*5*	**15,335**
2032–36	5,195	8,405	*6*	**13,600**
2037–41	5,317	7,579	*6*	**12,896**
2042–46	5,302	6,729	*6*	**12,031**
2047–51	5,230	6,816	*6*	**12,047**
2052–56	5,283	7,339	*5*	**12,622**
2057–61	5,299	7,898	*5*	**13,197**
All broadleaves				
2013–16	5,178	61,811	*2*	**66,989**
2017–21	5,412	64,533	*2*	**69,946**
2022–26	5,569	69,118	*2*	**74,688**
2027–31	5,779	74,819	*2*	**80,599**
2032–36	5,964	80,325	*2*	**86,289**
2037–41	6,047	85,781	*2*	**91,828**
2042–46	6,030	90,441	*2*	**96,471**
2047–51	6,004	94,510	*2*	**100,514**
2052–56	6,068	98,207	*2*	**104,275**
2057–61	6,109	101,206	*2*	**107,315**
All species				
2013–16	9,828	77,441	*2*	**87,269**
2017–21	10,187	78,863	*2*	**89,049**
2022–26	10,463	81,329	*2*	**91,791**
2027–31	10,819	85,084	*2*	**95,904**
2032–36	11,158	88,684	*2*	**99,843**
2037–41	11,364	93,310	*2*	**104,674**
2042–46	11,331	97,161	*2*	**108,492**
2047–51	11,234	101,329	*2*	**112,563**
2052–56	11,350	105,541	*2*	**116,892**
2057–61	11,408	109,088	*2*	**120,496**

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

Forecast period	FC volume (000 m³ obs)	Private sector volume (000 m³ obs)	Private sector *SE%*	Total volume (000 m³ obs)
All conifers				
2013–16	190	533	*4*	**723**
2017–21	188	487	*4*	**674**
2022–26	173	405	*5*	**578**
2027–31	164	359	*5*	**523**
2032–36	154	327	*5*	**481**
2037–41	150	349	*5*	**499**
2042–46	144	377	*5*	**521**
2047–51	138	426	*4*	**564**
2052–56	135	477	*4*	**612**
2057–61	134	519	*4*	**653**
All broadleaves				
2013–16	84	1,221	*3*	**1,305**
2017–21	83	1,365	*2*	**1,448**
2022–26	82	1,452	*2*	**1,534**
2027–31	82	1,462	*2*	**1,544**
2032–36	83	1,421	*2*	**1,503**
2037–41	81	1,361	*2*	**1,441**
2042–46	78	1,275	*2*	**1,353**
2047–51	74	1,179	*2*	**1,253**
2052–56	71	1,084	*2*	**1,155**
2057–61	66	995	*2*	**1,062**
All species				
2013–16	274	1,752	*2*	**2,026**
2017–21	271	1,850	*2*	**2,121**
2022–26	254	1,856	*2*	**2,110**
2027–31	246	1,819	*2*	**2,065**
2032–36	237	1,745	*2*	**1,982**
2037–41	231	1,706	*2*	**1,936**
2042–46	222	1,650	*2*	**1,872**
2047–51	211	1,603	*2*	**1,815**
2052–56	206	1,560	*2*	**1,765**
2057–61	200	1,512	*2*	**1,712**

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

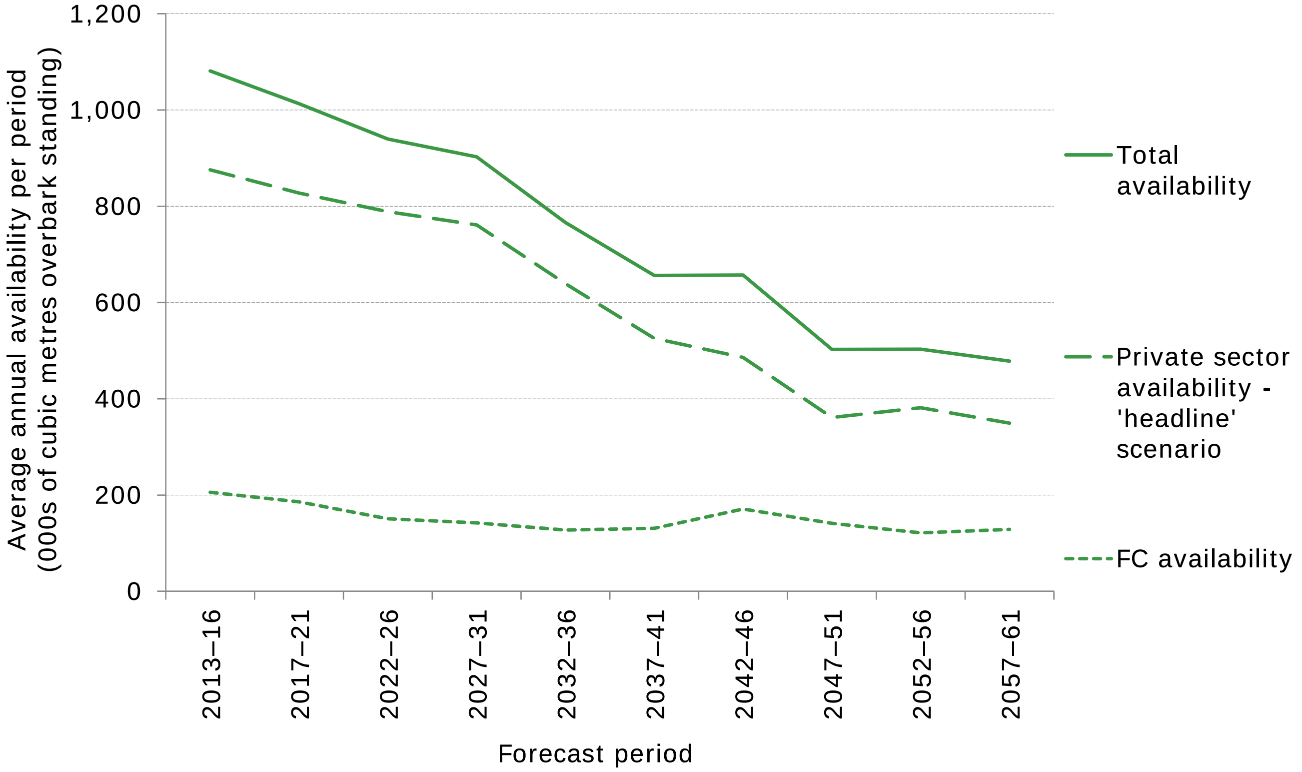


Figure 5 50-year forecast of average annual softwood availability

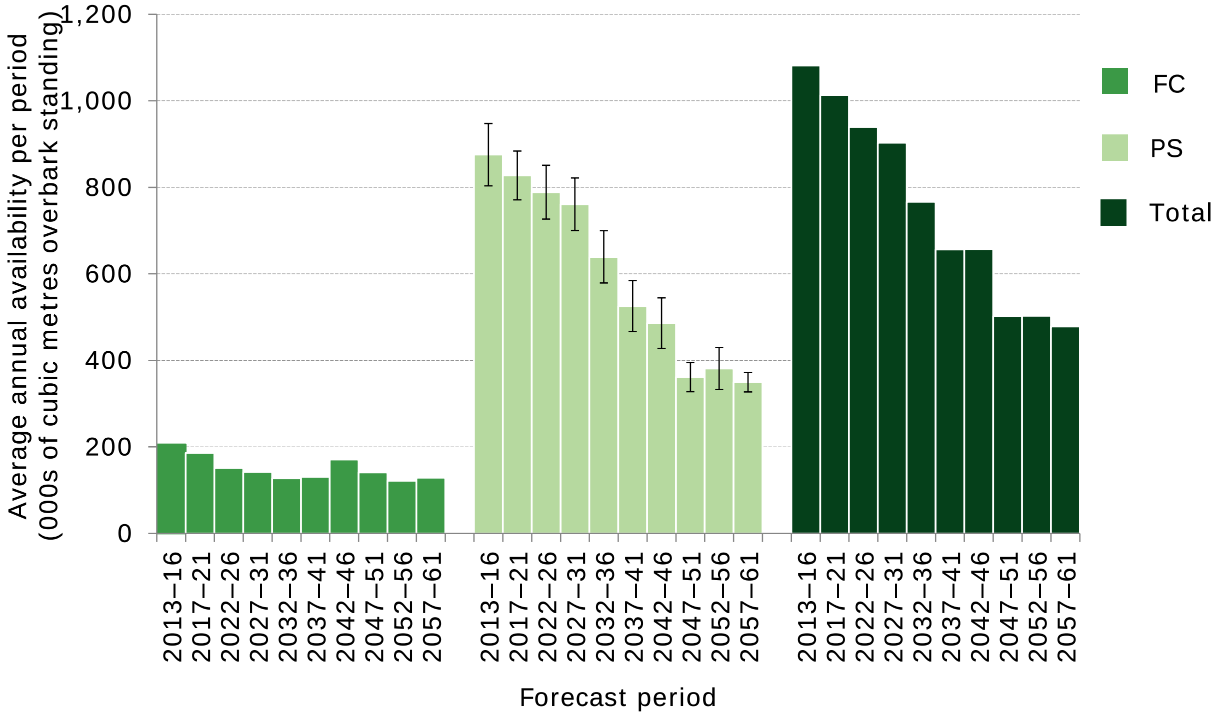


Figure 6 50-year forecast of average annual hardwood availability

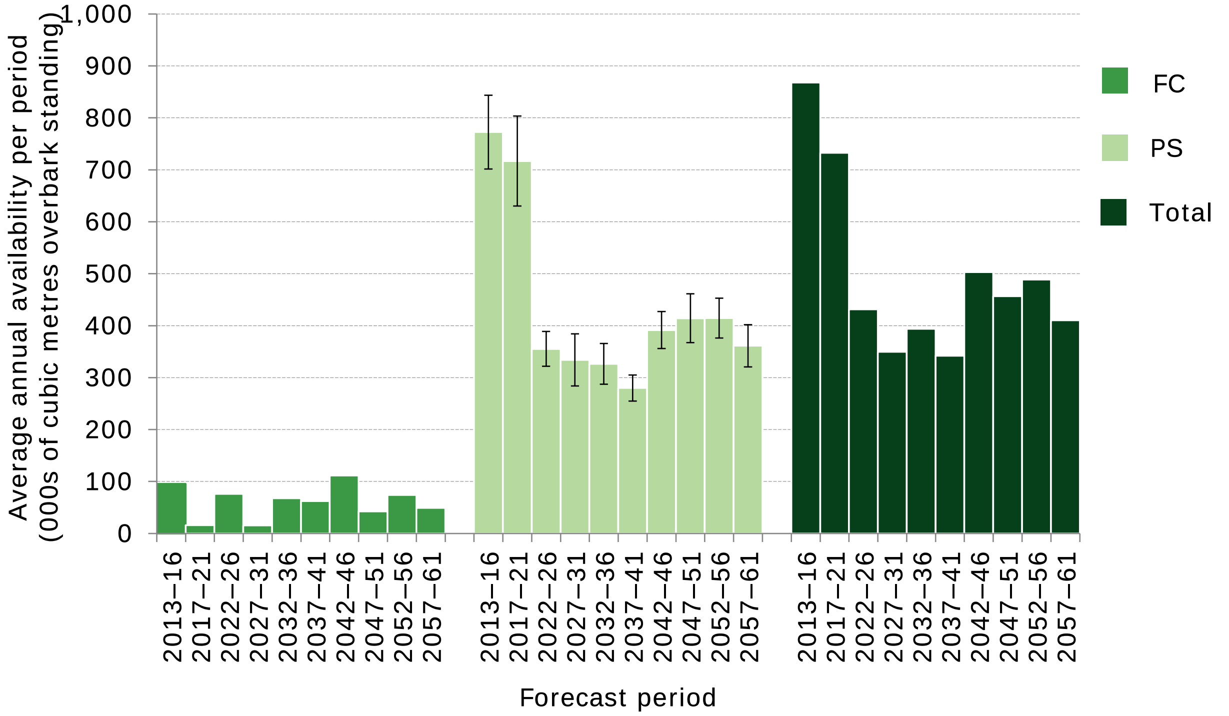


Figure 7 50-year forecast of softwood standing volume, increment and availability

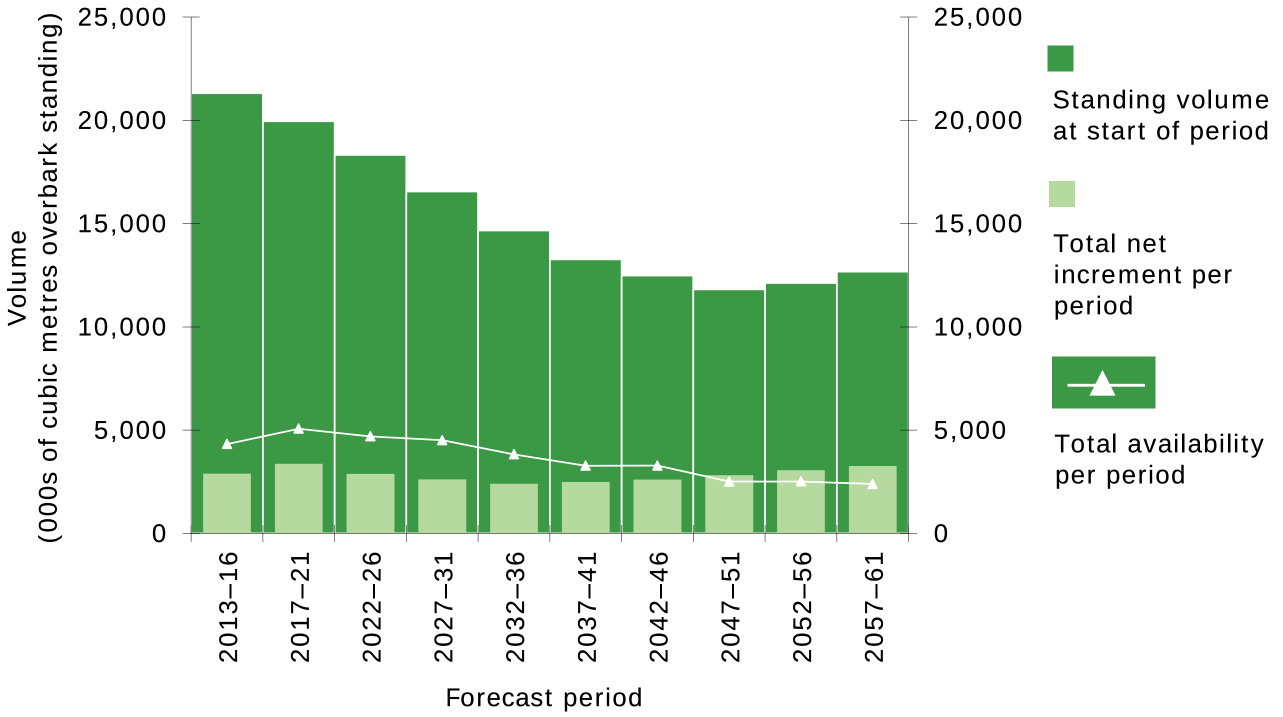
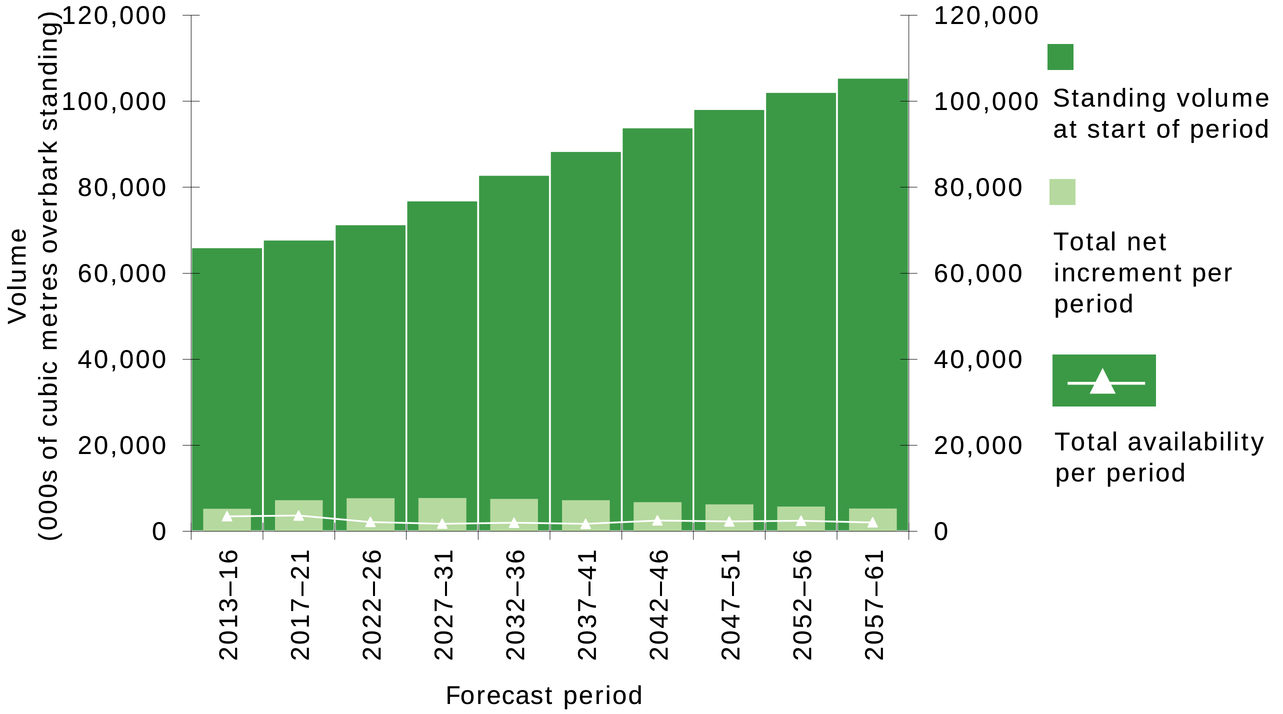


Figure 8 50-year forecast of hardwood standing volume, increment and availability



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 for Private sector hardwoods

Principal species	2013–16				2017–21				2022–26				2027–31			
	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)
All conifers	**206**	**876**	***8***	**1,081**	**186**	**827**	***7***	**1,013**	**151**	**789**	***8***	**940**	**142**	**761**	***8***	**903**
Sitka spruce	7	7	*39*	15	4	14	*26*	18	4	20	*70*	24	4	7	*44*	11
Scots pine	29	201	*19*	230	27	176	*15*	203	20	218	*16*	238	20	262	*16*	282
Corsican pine	64	114	*25*	177	57	90	*28*	148	52	95	*34*	146	34	27	*30*	61
Norway spruce	22	72	*13*	94	22	105	*24*	126	15	121	*24*	136	17	163	*23*	180
Larches	13	144	*19*	157	11	157	*15*	168	10	86	*13*	96	8	81	*15*	89
Douglas fir	44	186	*21*	230	36	139	*19*	176	31	121	*21*	152	37	94	*23*	131
Lodgepole pine	1	0	*71*	1	0	0	*87*	1	1	5	*81*	5	0	0	*87*	0
Other conifers	26	150	*20*	176	28	145	*16*	173	18	122	*16*	140	20	126	*16*	146
All broadleaves	**96**	**4,185**	***4***	**4,280**	**16**	**3,261**	***3***	**3,277**	**76**	**1,790**	***4***	**1,866**	**16**	**1,517**	***5***	**1,532**
Oak	21	474	*12*	495	3	480	*12*	483	16	376	*12*	393	3	458	*10*	461
Beech	59	284	*15*	343	8	387	*19*	395	47	281	*14*	329	7	256	*18*	263
Sycamore	1	329	*14*	330	0	222	*12*	222	1	99	*14*	100	0	55	*19*	56
Ash	4	1537	*9*	1541	1	963	*5*	964	3	320	*6*	323	1	155	*9*	157
Birch	2	348	*9*	350	1	379	*7*	380	1	182	*8*	183	1	129	*12*	129
Sweet chestnut	2	216	*25*	218	1	81	*16*	82	2	71	*18*	73	1	82	*25*	83
Hazel	0	199	*8*	199	0	209	*8*	209	0	133	*10*	133	0	82	*13*	82
Hawthorn	0	32	*12*	32	0	36	*11*	36	0	29	*9*	29	0	33	*15*	33
Alder	0	201	*16*	201	0	171	*14*	171	0	69	*23*	70	0	41	*28*	41
Willow	0	52	*17*	52	0	43	*13*	43	0	37	*12*	37	0	76	*35*	76
Other broadleaves	7	510	*12*	517	3	293	*9*	296	5	188	*9*	193	3	155	*8*	157
All species	**301**	**5,052**	***4***	**5,353**	**202**	**4,090**	***3***	**4,292**	**227**	**2,571**	***4***	**2,798**	**158**	**2,282**	***4***	**2,440**

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

Principal species	2032–36				2037–41				2042–46				2047–51			
	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total	FC	Private sector		Total
	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)	volume (000 m^3 obs)		*SE%*	volume (000 m^3 obs)
All conifers	**127**	**639**	***9***	**766**	**131**	**525**	***11***	**656**	**171**	**486**	***12***	**657**	**141**	**361**	***9***	**502**
Sitka spruce	9	12	*23*	20	6	11	*17*	17	9	19	*24*	28	9	17	*13*	26
Scots pine	14	264	*16*	278	21	181	*22*	202	21	133	*24*	155	18	106	*20*	124
Corsican pine	37	11	*27*	47	34	46	*57*	80	68	20	*43*	89	36	2	*31*	38
Norway spruce	12	102	*27*	113	13	76	*23*	89	10	109	*27*	119	15	48	*23*	63
Larches	8	69	*19*	77	10	39	*14*	49	14	31	*15*	46	14	44	*27*	58
Douglas fir	36	77	*21*	113	32	63	*20*	95	33	60	*23*	94	31	53	*13*	85
Lodgepole pine	0	0	*87*	0	0	0	*45*	0	0	1	*82*	1	0	0	*37*	0
Other conifers	12	105	*30*	117	14	109	*29*	123	15	112	*34*	126	19	90	*17*	108
All broadleaves	**68**	**1,341**	***5***	**1,409**	**62**	**1,226**	***4***	**1,288**	**112**	**1,495**	***4***	**1,607**	**42**	**1,459**	***4***	**1,501**
Oak	14	255	*11*	269	10	212	*10*	222	41	215	*9*	256	14	227	*15*	241
Beech	42	298	*18*	339	41	186	*14*	228	53	231	*16*	284	17	210	*17*	227
Sycamore	1	55	*13*	56	1	58	*11*	58	1	82	*9*	83	1	83	*11*	83
Ash	3	206	*10*	209	2	204	*6*	206	4	278	*7*	282	3	256	*9*	259
Birch	1	108	*9*	109	1	102	*8*	103	2	156	*9*	158	1	152	*8*	153
Sweet chestnut	1	76	*20*	77	1	34	*15*	35	2	96	*25*	98	1	73	*28*	74
Hazel	0	82	*16*	82	0	95	*11*	95	0	89	*11*	89	0	122	*8*	122
Hawthorn	0	31	*8*	31	0	57	*22*	57	0	37	*7*	37	0	37	*7*	37
Alder	0	23	*17*	23	0	27	*12*	27	0	38	*15*	38	0	34	*14*	34
Willow	0	34	*10*	34	0	74	*20*	74	0	47	*18*	47	0	43	*14*	43
Other broadleaves	5	169	*10*	174	6	176	*7*	182	8	220	*7*	229	5	218	*10*	223
All species	**195**	**1,981**	***5***	**2,176**	**193**	**1,747**	***4***	**1,940**	**283**	**1,969**	***4***	**2,252**	**183**	**1,821**	***4***	**2,005**

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

Principal species	2052–56				2057–61			
	FC	Private sector		Total	FC	Private sector		Total
	volume (000 m^3 obs)		SE%	volume (000 m^3 obs)	volume (000 m^3 obs)		SE%	volume (000 m^3 obs)
All conifers	**122**	**381**	***13***	**503**	**129**	**350**	***6***	**478**
Sitka spruce	9	23	*10*	32	8	26	*10*	34
Scots pine	17	88	*21*	105	21	109	*17*	130
Corsican pine	29	2	*28*	31	25	2	*30*	26
Norway spruce	9	107	*41*	116	12	40	*18*	52
Larches	11	30	*15*	42	10	32	*13*	42
Douglas fir	33	62	*13*	95	35	64	*10*	98
Lodgepole pine	0	0	*34*	0	1	0	*34*	1
Other conifers	13	68	*11*	82	17	78	*10*	95
All broadleaves	**74**	**1,530**	***4***	**1,604**	**49**	**1,439**	***5***	**1,488**
Oak	20	193	*10*	212	13	223	*12*	237
Beech	43	235	*15*	278	24	321	*16*	345
Sycamore	1	80	*13*	80	0	51	*12*	52
Ash	2	304	*6*	306	2	206	*7*	207
Birch	1	150	*9*	151	2	128	*8*	130
Sweet chestnut	2	59	*29*	61	2	84	*27*	86
Hazel	0	86	*10*	86	0	82	*8*	82
Hawthorn	0	48	*18*	48	0	62	*14*	62
Alder	0	36	*14*	36	0	30	*13*	30
Willow	0	93	*19*	93	0	66	*20*	66
Other broadleaves	5	241	*8*	245	5	179	*8*	183
All species	**196**	**1,913**	***4***	**2,109**	**178**	**1,790**	***4***	**1,968**

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

Forecast period	FC volume (000 m³ obs)	Private sector volume (000 m³ obs)	Private sector *SE%*	Total volume (000 m³ obs)
All conifers				
2013–16	4,650	15,691	*4*	**20,341**
2017–21	4,774	14,390	*4*	**19,164**
2022–26	4,893	12,232	*5*	**17,126**
2027–31	5,040	10,295	*5*	**15,335**
2032–36	5,195	8,405	*6*	**13,600**
2037–41	5,317	7,579	*6*	**12,896**
2042–46	5,302	6,729	*6*	**12,031**
2047–51	5,230	6,816	*6*	**12,047**
2052–56	5,283	7,339	*5*	**12,622**
2057–61	5,299	7,898	*5*	**13,197**
All broadleaves				
2013–16	5,178	51,475	*2*	**56,654**
2017–21	5,412	42,531	*2*	**47,943**
2022–26	5,569	35,878	*3*	**41,447**
2027–31	5,779	34,922	*3*	**40,701**
2032–36	5,964	34,980	*3*	**40,943**
2037–41	6,047	36,335	*3*	**42,383**
2042–46	6,030	37,514	*2*	**43,543**
2047–51	6,004	38,630	*2*	**44,633**
2052–56	6,068	39,423	*2*	**45,491**
2057–61	6,109	39,614	*2*	**45,722**
All species				
2013–16	9,828	67,117	*2*	**76,946**
2017–21	10,187	56,854	*2*	**67,041**
2022–26	10,463	48,065	*2*	**58,527**
2027–31	10,819	45,152	*2*	**55,972**
2032–36	11,158	43,298	*2*	**54,456**
2037–41	11,364	43,813	*2*	**55,177**
2042–46	11,331	44,180	*2*	**55,511**
2047–51	11,234	45,390	*2*	**56,624**
2052–56	11,350	46,693	*2*	**58,044**
2057–61	11,408	47,424	*2*	**58,831**

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

Forecast period	FC volume (000 m^3 obs)	Private sector volume (000 m^3 obs)	Private sector *SE%*	Total volume (000 m^3 obs)
All conifers				
2013–16	190	533	*4*	**723**
2017–21	188	487	*4*	**674**
2022–26	173	405	*5*	**578**
2027–31	164	359	*5*	**523**
2032–36	154	327	*5*	**481**
2037–41	150	349	*5*	**499**
2042–46	144	377	*5*	**521**
2047–51	138	426	*4*	**564**
2052–56	135	477	*4*	**612**
2057–61	134	519	*4*	**653**
All broadleaves				
2013–16	84	1,180	*3*	**1,264**
2017–21	83	1,204	*2*	**1,288**
2022–26	82	1,214	*2*	**1,296**
2027–31	82	1,316	*2*	**1,398**
2032–36	83	1,460	*2*	**1,542**
2037–41	81	1,617	*2*	**1,697**
2042–46	78	1,704	*2*	**1,782**
2047–51	74	1,690	*2*	**1,764**
2052–56	71	1,604	*1*	**1,675**
2057–61	66	1,521	*1*	**1,587**
All species				
2013–16	274	1,710	*2*	**1,984**
2017–21	271	1,689	*2*	**1,960**
2022–26	254	1,617	*2*	**1,872**
2027–31	246	1,673	*2*	**1,919**
2032–36	237	1,784	*2*	**2,021**
2037–41	231	1,962	*1*	**2,192**
2042–46	222	2,078	*1*	**2,300**
2047–51	211	2,114	*1*	**2,325**
2052–56	206	2,080	*1*	**2,286**
2057–61	200	2,038	*1*	**2,238**

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

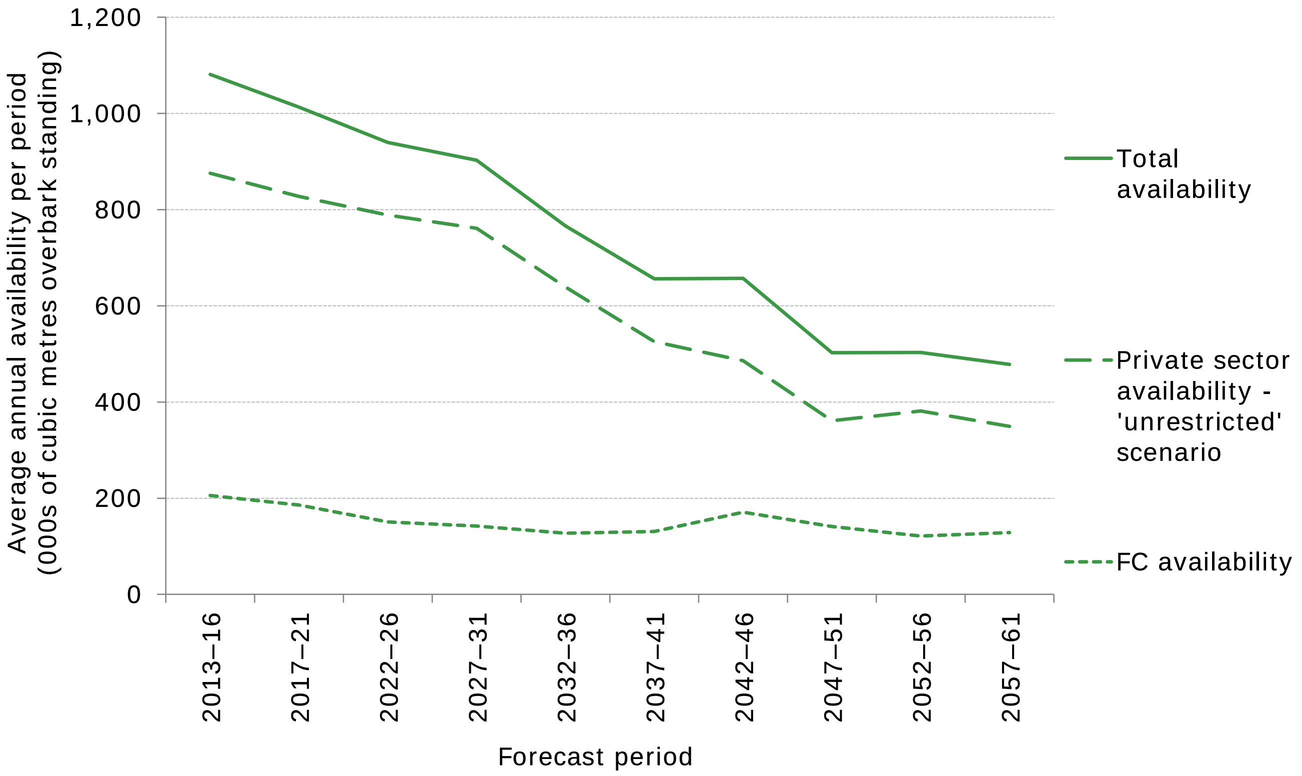


Figure 10 50-year forecast comparison of average annual softwood availability– unrestricted biological potential for Private sector hardwoods

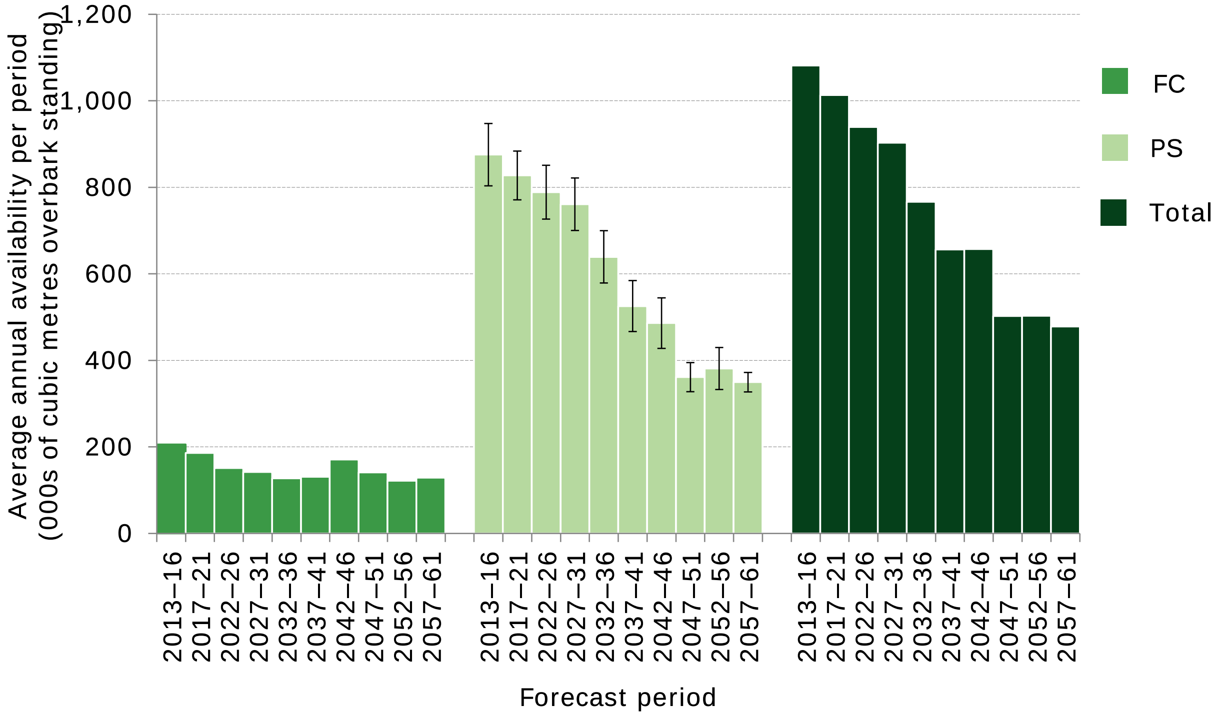


Figure 11 50-year forecast comparison of average annual hardwood availability – unrestricted biological potential for Private sector hardwoods

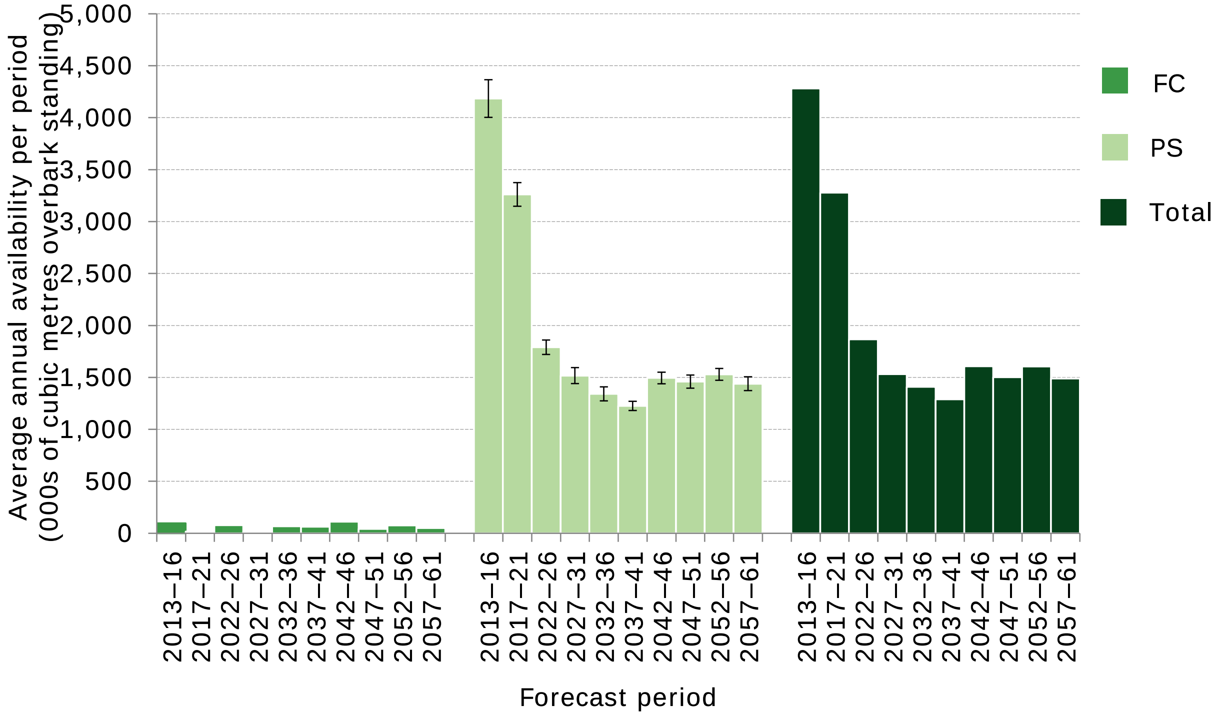


Figure 12 50-year summary of softwood standing volume, increment and availability – unrestricted biological potential for Private sector hardwoods

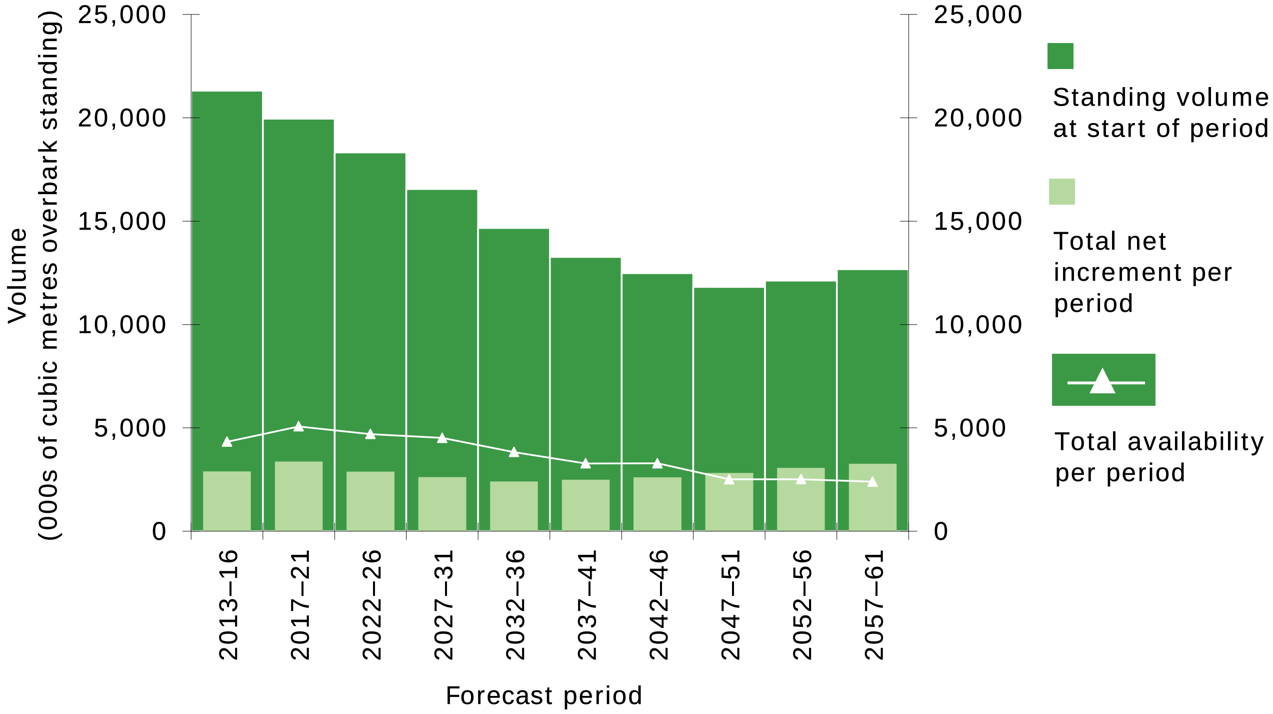
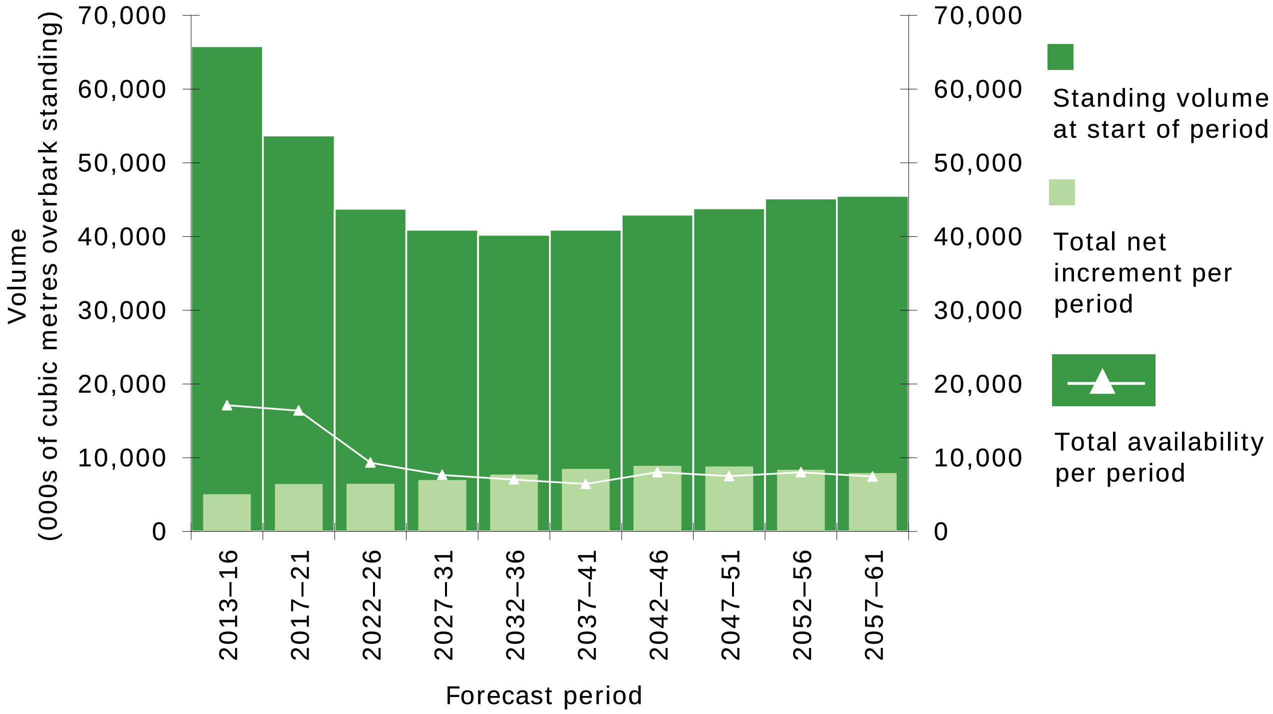


Figure 13 50-year summary of hardwood standing volume, increment and availability – unrestricted biological potential for Private sector hardwoods



Comparison of hardwood production between harvesting scenarios

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

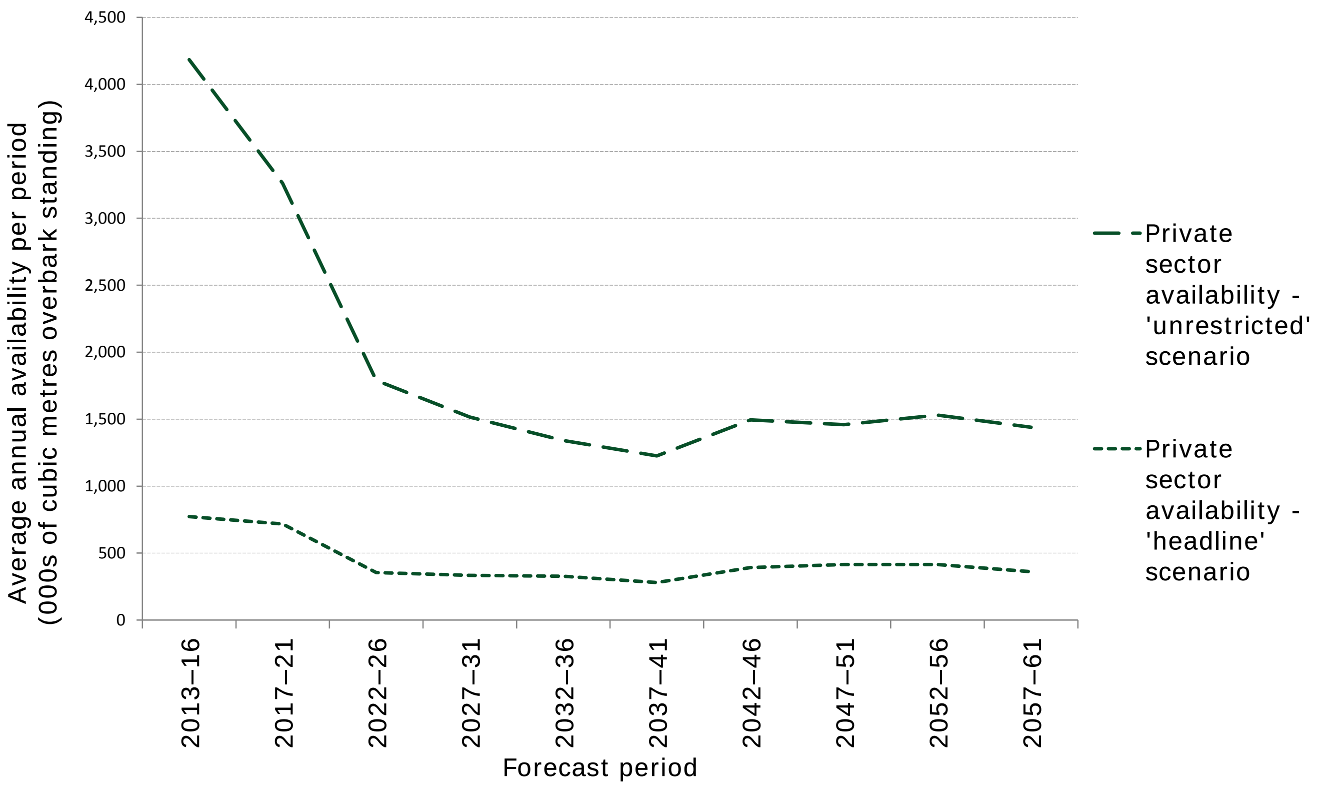


Figure 15 15-year forecast comparison of average annual hardwood timber availability

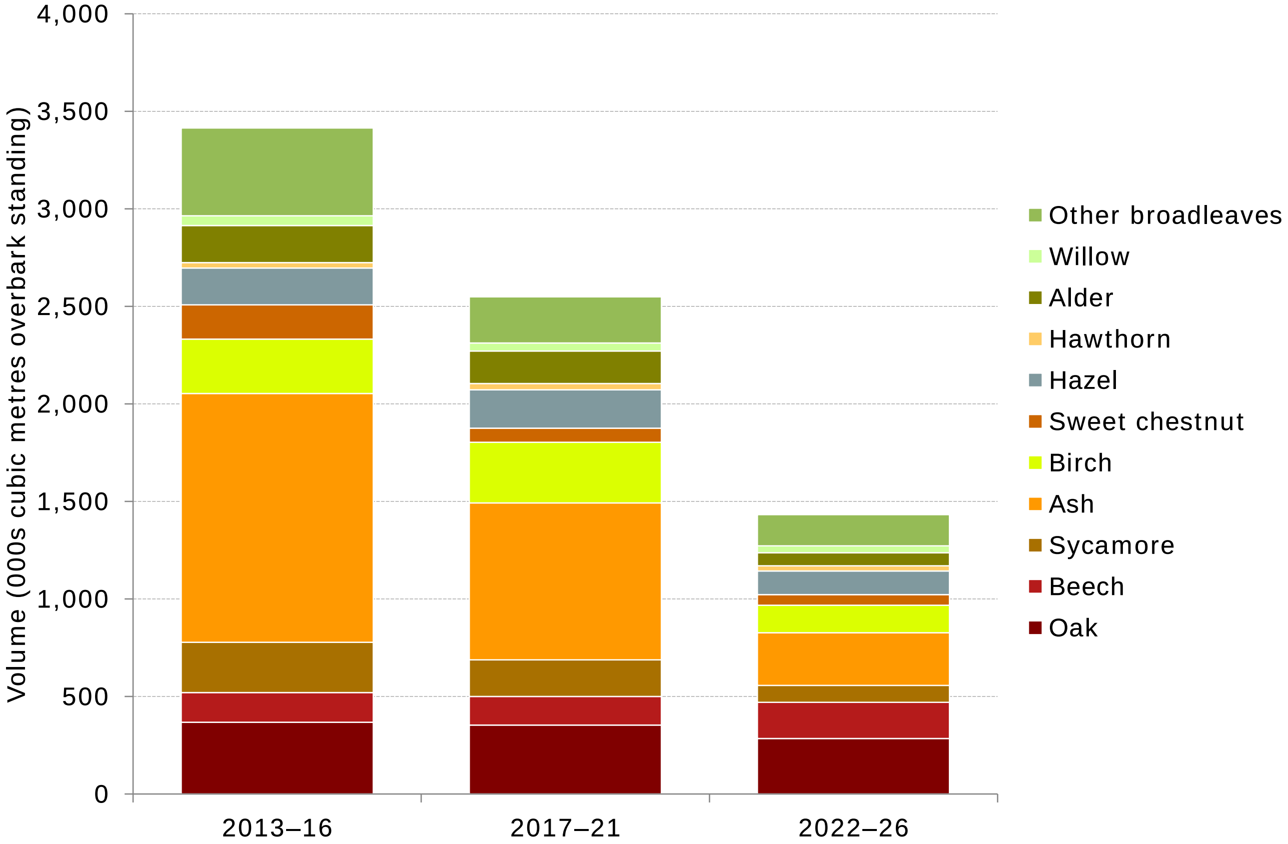


Table 16 15-year forecast comparison of average annual timber availability

Principal species	2013–16 Headline	2013–16 Unrestricted	2013–16 Difference	2017–21 Headline	2017–21 Unrestricted	2017–21 Difference	2022–26 Headline	2022–26 Unrestricted	2022–26 Difference
	volume (000 m^3 obs)			volume (000 m^3 obs)			volume (000 m^3 obs)		
All conifers	**1,081**	**1,081**	**0**	**1,013**	**1,013**	**0**	**940**	**940**	**0**
Sitka spruce	15	15	0	18	18	0	24	24	0
Scots pine	230	230	0	203	203	0	238	238	0
Corsican pine	177	177	0	148	148	0	146	146	0
Norway spruce	94	94	0	126	126	0	136	136	0
Larches	157	157	0	168	168	0	96	96	0
Douglas fir	230	230	0	176	176	0	152	152	0
Lodgepole pine	1	1	0	1	1	0	5	5	0
Other conifers	176	176	0	173	173	0	140	140	0
All broadleaves	**868**	**4,280**	**3,412**	**733**	**3,277**	**2,545**	**432**	**1,866**	**1,435**
Oak	127	495	368	129	483	354	108	393	285
Beech	191	343	152	248	395	147	144	329	185
Sycamore	73	330	257	35	222	187	13	100	87
Ash	266	1,541	1,275	160	964	804	53	323	270
Birch	71	350	279	69	380	311	42	183	141
Sweet chestnut	43	218	175	9	82	73	19	73	54
Hazel	11	199	189	13	209	197	11	133	122
Hawthorn	4	32	28	3	36	32	3	29	27
Alder	11	201	190	5	171	166	3	70	67
Willow	2	52	50	2	43	41	3	37	35
Other broadleaves	67	517	450	59	296	237	32	193	160
All species	**1,943**	**5,353**	**3,411**	**1,743**	**4,292**	**2,549**	**1,361**	**2,798**	**1,437**

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