

Woodland in Ayrshire: 2011 profile and future softwood availability forecast

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Summary

This report is a digest of the published 2011 NFI forecast reports for Ayrshire.

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Approach

The approach taken in the derivation and to be used in the interpretation of these results is described in the full suite of 2011 forecast reports which can be found at www.forestry.gov.uk/forecast.

Standing volume and stocked area of Scots pine, Corsican pine and lodgepole pine may be susceptible to *Dothistroma* needle blight. Standing volume and stocked area of larches may be susceptible to *Phytophthora*. Please refer to the *Interpreting NFI timber volume forecasts* report for a full discussion of how *Dothistroma* needle blight and *Phytophthora* may influence the scheduling of production within the UK.

Results

The results presented are those for Ayrshire. This comprises the area covered by the three Ayrshire Councils:

- North Ayrshire;
- East Ayrshire; and
- South Ayrshire.

In the following tables, estimates and forecasts for the Forestry Commission estate are derived from information recorded in the Forestry Commission's sub-compartment database, while those for the Private sector are derived from results of the National Forest Inventory field survey. This survey is using a statistically designed sample of all British woodlands and the estimates and forecasts derived from this survey are subject to sampling error. This is expressed in the tables in the form of relative standard errors ($SE\%$) which shows the size of the sampling error as a proportion of the value of the estimate or forecast. High relative standard errors attached to these estimates and forecasts indicate low accuracy and reliability of the estimated values, which should consequently be viewed with caution. Relative standard errors cannot be calculated for estimates with zero values and are therefore not quoted (indicated with -) in the tables. See the main forecast reports for further information.

2011 stocked area and standing volume

Refer to the *Standing timber volume in coniferous trees in Britain* and *NFI preliminary estimates of quantities of broadleaved species in British Woodlands with special focus on ash* reports for a description of the underlying methodologies and interpretation, also for the Scotland and GB context. See the glossaries in the same reports for definitions of technical terms used, including that of stocked area (which is different to woodland area) and standing volume.

In Tables 1-6, the figures for the Forestry Commission are based on harvesting regimes derived from Forestry Commission felling and thinning plans as of 31 March 2011. The Private sector information for these tables is based on a regime that has no harvesting.

Table 1 Stocked area by principal species at 31 March 2011

Principal species	FC	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
Ayrshire				
All conifers	23.9	15.8	9	39.8
Sitka spruce	21.0	13.5	11	34.4
Scots pine	0.2	0.4	48	0.6
Corsican pine	0.0	0.0	-	0.0
Norway spruce	0.2	0.3	66	0.5
Larches	1.0	0.8	40	1.9
Douglas fir	0.0	0.0	-	0.0
Lodgepole pine	1.5	0.6	73	2.1
Other conifers	0.1	0.1	111	0.2
All broadleaves	0.9	9.5	12	10.4
Oak	0.0	1.3	47	1.3
Beech	0.0	0.8	44	0.8
Sycamore	0.0	1.0	42	1.0
Ash	0.0	1.0	43	1.0
Birch	0.0	2.0	33	2.0
Sweet chestnut	0.0	0.0	-	0.0
Hazel	0.0	0.4	87	0.4
Hawthorn	0.0	2.0	44	2.0
Alder	0.0	0.1	42	0.2
Willow	0.0	0.5	38	0.5
Other broadleaves	0.8	0.5	47	1.3
All species	24.8	25.4	6	50.2

Table 2 Stocked area by age class at 31 March 2011

Age class (years)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
Conifers				
0-10	3.0	1.4	54	4.4
11-20	3.1	4.7	23	7.8
21-40	14.1	8.1	20	22.2
41-60	3.6	1.6	46	5.2
61-80	0.1	0.0	-	0.1
81-100	0.0	0.0	-	0.0
100+	0.0	0.0	-	0.0
Total	23.9	15.8	9	39.8
Broadleaves				
0-10	0.4	1.0	46	1.4
11-20	0.3	1.4	34	1.7
21-40	0.2	4.6	24	4.9
41-60	0.0	1.8	34	1.8
61-80	0.0	0.0	88	0.0
81-100	0.0	0.6	93	0.6
100+	0.0	0.0	-	0.0
Total	0.9	9.5	12	10.4
All species				
0-10	3.4	2.4	36	5.8
11-20	3.4	6.1	20	9.5
21-40	14.3	12.7	15	27.1
41-60	3.6	3.5	30	7.1
61-80	0.1	0.0	88	0.1
81-100	0.0	0.6	93	0.6
100+	0.0	0.0	-	0.0
Total	24.8	25.4	6	50.2

Table 3 Stocked area by mean stand dbh class at 31 March 2011

Mean stand DBH (cm)	FC	Private sector		Total
	area (000 ha)	area (000 ha)	SE%	area (000 ha)
Conifers				
0-7	4.1	2.1	41	6.3
7-10	1.3	2.7	27	4.0
10-15	6.3	1.9	43	8.2
15-20	8.9	5.7	21	14.6
20-30	3.2	2.6	32	5.8
30-40	0.1	0.4	62	0.5
40-60	0.0	0.1	107	0.1
60-80	0.0	0.3	111	0.3
80+	0.0	0.0	-	0.0
Total	23.9	15.8	9	39.8
Broadleaves				
0-7	0.4	1.3	36	1.7
7-10	0.4	3.7	28	4.2
10-15	0.0	0.9	36	0.9
15-20	0.0	0.5	77	0.5
20-30	0.0	0.7	48	0.7
30-40	0.0	0.6	58	0.6
40-60	0.0	1.2	52	1.2
60-80	0.0	0.6	69	0.6
80+	0.0	0.0	-	0.0
Total	0.9	9.5	12	10.4
All species				
0-7	4.5	3.5	28	8.0
7-10	1.7	6.5	19	8.2
10-15	6.3	2.8	31	9.1
15-20	8.9	6.1	20	15.1
20-30	3.2	3.2	28	6.4
30-40	0.1	1.0	43	1.2
40-60	0.0	1.3	48	1.3
60-80	0.0	0.9	58	0.9
80+	0.0	0.0	-	0.0
Total	24.8	25.4	6	50.2

Table 4 Standing volume by principal species at 31 March 2011

Principal species	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
Ayrshire				
All conifers	4,290	3,851	14	8,140
Sitka spruce	3,972	3,174	18	7,147
Scots pine	3	213	65	216
Corsican pine	0	0	-	0
Norway spruce	29	80	70	109
Larches	107	193	62	300
Douglas fir	1	0	-	1
Lodgepole pine	167	158	76	325
Other conifers	9	22	111	32
All broadleaves	14	2,051	38	2,065
Oak	0	1,004	51	1,004
Beech	0	277	47	278
Sycamore	0	238	62	238
Ash	0	286	82	286
Birch	0	92	66	93
Sweet chestnut	0	0	-	0
Hazel	0	14	102	14
Hawthorn	0	71	42	71
Alder	2	4	101	6
Willow	0	15	55	15
Other broadleaves	12	50	46	61
All species	4,304	5,902	16	10,206

Table 5 Standing volume by age class at 31 March 2011

Age class (years)	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
Conifers				
0-10	0	0	-	0
11-20	73	275	39	348
21-40	2,972	2,657	22	5,629
41-60	1,208	918	54	2,126
61-80	35	0	-	35
81-100	2	0	-	2
100+	0	0	-	0
Total	4,290	3,851	14	8,140
Broadleaves				
0-10	0	0	64	0
11-20	2	15	42	17
21-40	8	800	34	808
41-60	1	834	54	835
61-80	1	11	90	12
81-100	0	390	93	390
100+	3	0	-	3
Total	14	2,051	38	2,065
All species				
0-10	0	0	66	0
11-20	75	290	38	365
21-40	2,980	3,456	19	6,436
41-60	1,209	1,754	39	2,962
61-80	35	11	90	46
81-100	2	390	93	392
100+	3	0	-	3
Total	4,304	5,902	16	10,206

Table 6 Standing volume by mean stand dbh class at 31 March 2011

Mean stand DBH (cm)	FC	Private sector		Total
	volume (000 m ³ obs)	volume (000 m ³ obs)	SE%	volume (000 m ³ obs)
Conifers				
0-7	0	5	70	5
7-10	25	90	28	114
10-15	617	187	40	804
15-20	2,359	1,948	25	4,306
20-30	1,251	1,352	38	2,603
30-40	33	101	74	134
40-60	5	57	109	62
60-80	0	112	111	112
80+	0	0	-	0
Total	4,290	3,851	14	8,140
Broadleaves				
0-7	0	3	82	3
7-10	8	108	30	117
10-15	3	78	31	81
15-20	1	81	73	82
20-30	0	184	52	184
30-40	2	413	62	415
40-60	0	631	56	631
60-80	0	552	81	552
80+	0	0	-	0
Total	14	2,051	38	2,065
All species				
0-7	0	8	53	8
7-10	33	199	20	232
10-15	620	266	29	885
15-20	2,360	2,029	24	4,389
20-30	1,251	1,533	34	2,785
30-40	35	514	52	549
40-60	5	689	52	693
60-80	0	665	70	665
80+	0	0	-	0
Total	4,304	5,902	16	10,206

25-year forecast of softwood timber availability

Refer to the *25-year forecast of softwood timber availability* report for a description of the underlying methodology and interpretation, and also for the Scotland and GB context.

In Tables 7-10 the figures for the Forestry Commission are based on harvesting regimes derived from Forestry Commission felling and thinning plans as of 31 March 2011. The Private sector information for these tables is based on a scenario which assumes felling at age of maximum mean annual increment with moderate wind risk measures. Like-for-like restocking assumptions have been made.

NFI Report

Table 7 25-year forecast of softwood availability broken down by time period and principal species

Principal species	2012-16			2017-21			2022-26			2027-31			2032-36		
	FC	Private sector		FC	Private sector		FC	Private sector		FC	Private sector		FC	Private sector	
	volume (000m ³ obs)		SE%	volume (000m ³ obs)		SE%	volume (000m ³ obs)		SE%	volume (000m ³ obs)		SE%	volume (000m ³ obs)		SE%
Ayrshire															
All conifers	298	119	56	242	216	46	241	364	36	207	352	32	239	216	49
Sitka spruce	274	82	77	225	203	49	232	351	38	200	312	35	229	170	60
Scots pine	0	5	63	0	5	63	0	5	64	0	16	68	0	4	70
Corsican pine	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
Norway spruce	2	3	96	2	4	79	0	4	81	1	3	96	1	3	96
Larches	6	26	91	4	1	55	3	1	52	5	18	83	7	11	71
Douglas fir	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
Lodgepole pine	16	3	106	10	3	106	5	3	106	2	3	106	2	16	93
Other conifers	0	0	-	0	0	-	1	0	-	0	0	-	0	11	111

Table 8 25-year forecast of softwood availability broken down by time period and size class

Top diameter class (cm)	2012-16						2017-21					
	FC			Private sector			FC			Private sector		
	volume (000 m ³ obs)	% spruce		volume (000 m ³ obs)	SE%	% spruce	volume (000 m ³ obs)	% spruce		volume (000 m ³ obs)	SE%	% spruce
Ayrshire												
Total	298	93		119	56	71	242	94		216	46	96
7-14	85	87		19	40	80	57	88		28	31	92
14-16	37	91		10	48	79	28	92		13	39	93
16-18	38	93		10	51	76	29	93		16	43	94
18-24	92	95		35	65	76	79	96		77	52	97
24-34	41	97		32	70	66	44	98		69	55	98
34-44	4	97		9	61	53	6	99		7	58	95
44-54	1	100		2	63	23	0	100		3	87	93
54+	0	100		2	87	76	0	100		2	87	95

Table 8 (cont'd) 25-year forecast of softwood availability broken down by time period and size class

Top diameter class (cm)	2022-26					2027-31				
	FC		Private sector			FC		Private sector		
	volume (000 m ³ obs)	% spruce	volume (000 m ³ obs)	SE%	% spruce	volume (000 m ³ obs)	% spruce	volume (000 m ³ obs)	SE%	% spruce
Ayrshire										
Total	241	96	364	36	98	207	97	352	32	89
7-14	52	93	56	36	97	37	94	36	34	82
14-16	26	95	32	37	98	20	96	22	35	89
16-18	29	96	41	37	98	22	96	27	35	89
18-24	79	97	139	36	98	68	97	115	37	92
24-34	47	99	86	39	98	49	98	102	37	92
34-44	7	100	7	54	93	9	99	20	42	84
44-54	1	100	1	67	67	2	100	6	71	66
54+	0	100	2	99	88	0	100	23	98	88

Top diameter class (cm)	2032-36				
	FC		Private sector		
	volume (000 m ³ obs)	% spruce	volume (000 m ³ obs)	SE%	% spruce
Ayrshire					
Total	239	96	216	49	80
7-14	46	93	28	64	80
14-16	24	94	15	62	81
16-18	27	95	17	58	81
18-24	77	97	62	48	82
24-34	51	98	68	59	83
34-44	10	99	20	71	79
44-54	2	99	4	68	47
54+	1	98	1	88	0

Volume not in the forecast

The following stands, volumes and areas have not been included in the main forecast results. Due to their specific nature they are treated as 'special cases' and are assessed separately. Dependent on the perspective taken on their nature, the likelihood of these stands being harvested or not can be assessed and a view taken as to whether or not these volumes should be added to the figures already quoted in the main forecasts in terms of a total assessment of standing volume, increment and production.

Overdue timber

Overdue volume relates to that volume which is held within trees and stands that are currently beyond the fell age set by the harvesting scenario.

Table 9 Overdue volumes and areas

Principal species	FC	Private sector	
	volume (000 m ³ obs)		SE%
Ayrshire			
All conifers	87	281	56
Sitka spruce	73	49	100
Scots pine	0	0	-
Corsican pine	0	0	-
Norway spruce	4	0	-
Larches	4	50	111
Douglas fir	0	0	-
Lodgepole pine	5	0	-
Other conifers	0	179	77

Principal species	FC	Private sector	
	area (000 ha)		SE%
Ayrshire			
All conifers	0.3	0.3	53
Sitka spruce	0.3	0.1	96
Scots pine	0.0	0.0	-
Corsican pine	0.0	0.0	-
Norway spruce	0.0	0.0	-
Larches	0.0	0.1	111
Douglas fir	0.0	0.0	-
Lodgepole pine	0.0	0.0	-
Other conifers	0.0	0.1	77

Refer to the *25-year forecast of softwood timber availability* report for a description of the underlying methodology and interpretation of overdue volume and area.

Forestry Commission sales of land

Forestry Commission flag the year of any planned disposals within the sub-compartment database and these areas continue to contribute to the Forestry Commission forecast until the date of disposal. After that point these areas and any standing volume are removed from the FC forecast. Table 10 summarises the area and standing volume at the time of disposal as indicated within the sub-compartment database.

Table 10 Standing volume and stocked area of Forestry Commission land marked for disposal

FC	Conifers	Broadleaves	Conifers	Broadleaves
	volume (000 m ³ obs)		area (000 ha)	
Ayrshire				
Total			0.6	0.0
2012	42.5	0.0	0.1	0.0
2013	73.9	0.5	0.5	0.0
2014	0.0	0.0	0.0	0.0
2015	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0
2017	0.0	0.0	0.0	0.0
2018	0.0	0.0	0.0	0.0
2019	0.0	0.0	0.0	0.0
2020	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0
2022	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0
2033	0.0	0.0	0.0	0.0
2034	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0
2036	0.0	0.0	0.0	0.0

Refer to the *25-year forecast of softwood timber availability* report for a description of the underlying methodology and interpretation of standing volume and stocked area of land marked for disposal.

Currently clearfelled area

Mapped forest areas were identified as clearfelled by aerial photography and subsequently updated by satellite imagery. Areas of clearfell that were observed in the NFI field survey (2010 to 2011) are not included in these forecasts. The assumption is made that these areas are not replanted in the future. This assumption is conservative and is used because the NFI has no information on what was planted on these sites before felling and therefore the replanted crop on the 'like-for-like' replanting assumption that is applied for the rest of the forecast period cannot be determined. It is probable that a high proportion of this area will be replanted and will contribute to standing volume, increment, production, carbon sequestered and biomass. Assuming no replanting on these areas will create a small underestimate in most forecasts, especially in later years. There will be much less impact on the production forecast than on standing volume, biomass and carbon forecasts, as such stands, if replanted, would come to full maturity after the forecast period. However, with the increased harvesting without replanting associated with wind farms, open habitat restoration and the current low proportion of coniferous species that are being replanted in some areas, this conservative approach may be appropriate, and is consistent with the approach taken by all previous forecasts. Future forecasts will provide more options on how this land may be utilised in future.

Although Forestry Commission records are available providing information on the stand structure from the previous rotation, currently clearfelled land on the Forestry Commission estate has also been excluded from the forecast of softwood availability to give a consistent approach with the Private sector methodology.

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

Each theme has a series of associated 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