



ABARE 2007 sawmill survey report

ABARE report to the Australian Government Department of Agriculture,
Fisheries and Forestry and Forest and Wood Products Australia

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April 2009

abare.gov.au

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ISBN 978-1-921448-39-3

Kevin Burns, Phillip Sledge and Santhi Wicks 2009, *ABARE 2007 sawmill survey report*, ABARE report to the Australian Government Department of Agriculture, Fisheries and Forestry and Forest and Wood Products Australia, Canberra, April.

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ABARE is a professionally independent government economic research agency.

ABARE project 3231

Acknowledgements

The authors would like to thank Patrick Doupe and Eden O'Mara for assistance in undertaking surveys of the sawmills, and Walter Shafron and Veronica Rodriguez for assistance with the statistical analysis of the survey. The survey received significant support from many Australian forest industry associations, in particular the Australian Plantation Products and Paper Industry Council (A3P), the National Association of Forest Industries (NAFI), the New South Wales Forest Products Association (NSW FPA), the Victorian Association of Forest Industries (VAFI), the Forest Industries Association of Tasmania (FIATAS), Timber Queensland (TQL) and the Forest Industries Federation WA (FIFWA). ABARE would also like to thank the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) and Forest and Wood Products Australia (FWPA) for ongoing support in the collection and publication of Australian forestry data.

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Summary

- This report presents detailed results from ABARE's 2007 sawmill survey. Between July and October 2007, ABARE undertook a survey of Australian sawmills in order to resolve concerns regarding the reliability of sawnwood production data collected in Australia. In particular, since the cancellation of a number of state-based surveys by the Australian Bureau of Statistics (ABS) and state government agencies in 2004, there have been no consistent estimates of sawnwood production available for Australia.
- The results from this survey provide consistent and reliable estimates of broadleaved and coniferous sawnwood production, using a standardised approach and definitions across each state of Australia. The survey also provides a valuable link in ABARE's forest sector database, and allows cross-checking with other data collections, such as log harvest estimates.
- The compiled sawmill population list used for the survey estimated there are more than 600 sawmills in Australia, more than half of which are small processors of broadleaved sawlogs (processing less than 3000 cubic metres of sawlog each year). In total, it is estimated there are 502 broadleaved and 108 coniferous sawmills in Australia. The number of sawmills in Australia has fallen significantly over the past decade, with the estimated number of broadleaved sawmills falling by 43 per cent and coniferous mills by 58 per cent. The changing structure of the industry reflects changes to government policy regarding the harvesting of native forests, as well as the economics of sawnwood processing.
- The results of the survey show that around 3 million cubic metres of broadleaved sawlogs, and more than 8.5 million cubic metres of coniferous sawlogs, were processed in Australian sawmills during 2006-07.
- The survey provides estimates of sawnwood production for each quarter of 2006-07, for each state and species. The survey estimated broadleaved sawnwood production in 2006-07 at almost 1.2 million cubic metres and coniferous sawnwood production at around 4 million cubic metres.
- The data indicates that almost one-third of broadleaved sawnwood output from Australian sawmills was produced as green structural sawnwood, as well as a large proportion produced as dry appearance grade sawnwood. In contrast, more than half of all coniferous sawnwood output was produced as dry structural timber.
- There are significant differences in the structure of Australia's sawnwood industry in each state. The broadleaved sawmilling industry is characterised by a large number of relatively small mills in New South Wales and Queensland, which have generally higher recovery rates than in states with larger average mill size. The coniferous industry is more uniform across states, although the inclusion of cypress pine sawmills in New South Wales and Queensland contributes to lower average mill size in these states. Compared with other states, both average mill size and sawnwood recovery rates are relatively low in Tasmania.
- Although additional work is needed to improve the consistency of sawmill data collected in Australia, this survey is an important step in the ongoing data quality improvement process. To be useful in the long run, ongoing funding commitment is required to produce time series of sawnwood production and recovery rates so as to understand trends in the industry.

1 Introduction

In 2004, Jaakko Pöyry Consulting (JP Management Consulting 2004) conducted a survey of the principal users of forest industry statistics and concluded that more reliable sawnwood production data was a key requirement for policy-making and commercial decisions.

After examining a number of alternative approaches to address this concern, ABARE undertook a survey of Australian sawmills between July and October 2007 to remedy concerns regarding the reliability of sawnwood production data collected in Australia and published in ABARE's Australian Forest and Wood Product Statistics (AFWPS) (ABARE 2008). Since the cancellation of a number of state-based surveys by the Australian Bureau of Statistics (ABS) and state government agencies, there have been no consistent estimates of sawnwood production for Australia.

The results of the survey provide consistent and reliable estimates of broadleaved and coniferous sawnwood production, using a standardised approach and definitions for each state. The survey also provides a valuable link in ABARE's forest sector database, and allows cross-checking with other data collections, such as log harvest estimates.

The survey received advice and assistance from the Forest Industries Branch of the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF), Forest and Wood Products Australia (formerly the Forest and Wood Products Research and Development Corporation), the Australian Plantation Products and Paper Industry Council (A3P) and the National Association of Forest Industries (NAFI). Assistance was also provided by DAFF's Levies Revenue Service (LRS) and most state forest agencies and state-based industry associations. Ongoing surveys will depend on the future support of these organisations.

2 Methodology

This section discusses the approach taken to estimate sawnwood production in Australia. This task involved the estimation of the sawmill population in Australia, the determination of an appropriate sample to derive statistically robust results, and the development of the survey questionnaire.

Collection of sawmill population

To compile a database of sawmills in Australia, ABARE consulted a variety of sources, including state forest agency licence records, available industry association records and private consultant databases.

Data collected for use in the sampling process included contact details and the approximate size of each sawmill. Although every effort was made to include all mill sizes in the survey, estimating the number of small mills was difficult as many mobile mills may not belong to existing mill registers. In addition, there were some definitional concerns regarding the difference between small sawmills and other manufacturers which essentially produce craft products. ABARE received invaluable assistance from several state-based industry associations in identifying mills to survey.

Table 1 contains the final population estimates compiled by ABARE for 2006-07, along with previous estimates of sawmill numbers in Australia. The historical data was published previously in the AFWPS and are based on state government records, which in some cases

1 Number of sawmills in Australia, by log intake

	broadleaved			coniferous ^a			total		
	1996 -97	1999 -00	2006 -07	1996 -97	1999 -00	2006 -07	1996 -97	1999 -00	2006 -07
Log intake (m³/yr)									
Less than 3 000	672	602	337	146	151	13	818	753	350
3 000 to less than 15 000	160	180	101	61	68	41	221	248	142
15 000 to less than 45 000	40	59	55	26	27	21	66	86	76
45 000 to less than 75 000	10	12	7	1	8	8	11	20	15
75 000 to less than 100 000	4	4	1	7	3	3	11	7	4
More than 100 000	0	5 ^b	1	15	22	22	15	27	23
Total	886	862	502	256	279	108	1 142	1 141	610

^a Includes cypress pine. ^b This is likely to be an error in past data.
Source: ABARE datasets.

were not maintained regularly. As a result, data between 1996 and 2000 may contain some errors. Nevertheless, the data indicates a dramatic decline in the estimated number of sawmills over the ten years to 2006-07.

The total number of broadleaved sawmills is estimated to have fallen by 43 per cent over the past decade. The reduction in broadleaved mill numbers occurred principally amongst the smaller mills. This trend is a result of consolidation in the native broadleaved industry from the Regional Forest Agreement (RFA) process between 1997 and 2001. These agreements led the Australian Government and four state governments (New South Wales, Victoria, Tasmania and Western Australia) to sign agreements to conserve and sustainably manage native forests. The Queensland Government signed an agreement with the Wilderness Society and the Queensland Timber Board to cease native forest logging by 2020 (EPA 2008).

The number of coniferous sawmills declined by almost 58 per cent between 1996-97 and 2006-07, reflecting a restructuring of the industry toward large volume production processes. The decline in coniferous sawmill numbers resulted from the closure of smaller coniferous sawmills, as is evident from the 91 per cent decline in the estimated number of mills in the 'less than 3000' cubic metres of log input category. Against the decline in the number of smaller coniferous sawmills since 1996-97, the number of coniferous mills processing more than 45 000 cubic metres of sawlog increased from 23 to 33.

The sawmill population data also indicates a significant difference in the structure of the broadleaved and coniferous sawnwood industries in Australia. While 98 per cent of broadleaved sawmills processed less than 45 000 cubic metres of log in 2006-07, more than 20 per cent of coniferous mills processed greater than 100 000 cubic metres of sawlog. The different structures of these sectors largely reflect the economies of scale inherent in coniferous processing.

Table 2 contains the sawmill population estimates for each state of Australia in 2006-07. New South Wales and Queensland account for the majority of broadleaved mills in Australia. In both states, a larger proportion of these mills are in the smallest size category. In contrast, the broadleaved sawmill structure in Victoria, Western Australia and Tasmania is less weighted to the smallest size category.

Queensland has the greatest number of coniferous sawmills in Australia, although more than half of these are cypress pine mills, which tend to be smaller in scale than coniferous sawmills processing pine plantations. New South Wales and South Australia have the second and third highest number of coniferous sawmills, respectively, however a relatively large proportion of these are smaller scale (less than 45 000 cubic metres of log input in 2006-07). In contrast, Victoria has a relatively low number of coniferous sawmills, but has the highest number of sawmills processing more than 100 000 cubic metres of sawlog.

Twenty-three mills are estimated to be in the 'more than 100 000' cubic metres of input size category; one broadleaved sawmill and the remainder processing coniferous logs. While this category represents a small proportion of the sawmill population, it accounts for a significant proportion of total coniferous sawnwood production. In addition, the category represents a variety of mill sizes, and there are estimated to be four mills with more than 500 000 cubic

2 Number of sawmills in Australia, by log intake and state, 2006-07

	New South Wales ^a Victoria		Queensland	South Australia	Western Australia	Tasmania	Australia
Broadleaved							
Log intake (m³/yr)							
Less than 3 000	123	33	124	0	11	46	337
3 000 to less than 15 000	39	16	27	0	6	13	101
15 000 to less than 45 000	19	16	7	0	1	12	55
45 000 to less than 75 000	2	1	0	0	3	1	7
75 000 to less than 100 000	1	0	0	0	0	0	1
More than 100 000	0	1	0	0	0	0	1
Total	184	67	158	0	21	72	502
Coniferous ^b							
Log intake (m³/yr)							
Less than 3 000	4	1	5	1	0	2	13
3 000 to less than 15 000	6	4	26	4	0	1	41
15 000 to less than 45 000	7	0	10	2	1	1	21
45 000 to less than 75 000	4	1	0	1	1	1	8
75 000 to less than 100 000	1	0	0	2	0	0	3
More than 100 000	4	8	4	3	1	2	22
Total	26	14	45	13	3	7	108

^a Includes ACT. ^b Includes cypress pine.

Source: ABARE datasets.

metres of input in this category. The diversity and significance of this stratum imply that representative sampling and weighting are critical to deriving meaningful results.

Development of the survey questionnaire

The survey questionnaire was developed by ABARE in consultation with industry associations, state forest agencies and other industry stakeholders. Several questions were considered for inclusion in the survey which would have provided valuable information for policy-makers and industry stakeholders. However, for the initial survey the questions were limited to those required for estimating total sawnwood production in Australia. This reduced the survey burden for sawmills and hence is likely to have improved the response rate. A copy of the questionnaire is provided in appendix A.

In addition to improving the quality of state sawnwood production estimates, this survey filled some important gaps in existing data, including the volume of quarterly sawnwood production and the types of sawnwood products produced. Publication of comprehensive quarterly data in the *AFWPS* ceased in 2005, but identification of seasonal trends in production have been cited as a priority for many in the industry (JP Management Consulting 2004).

The survey also collected respondents' estimates of the tenure of the logs they process. For this survey, public logs refer to those derived from forests managed by government agencies

or public corporations on either public or private land. Thus, logs derived from a private forest on farmland which is managed by a state forest agency, are regarded as public logs for this survey.

Private logs are those sourced from forests managed by private companies, on both public and private land. Thus, coniferous plantations in Victoria which were planted by government agencies and remain on public land, but which are now managed by HVP Plantations, are regarded as private logs in this survey.

It should also be noted that the figures presented here represent survey respondents' estimates of the provenance of the logs, and have not been otherwise verified. Nevertheless, by estimating the volume of logs used from public and private native forests, the survey results can be compared with other ABARE data, both to check the quality of the sawmill survey results (public forest sawlog input should roughly equal volumes in the gross value of production estimates) and to improve ABARE datasets.

This survey also presents an opportunity to estimate the type of sawnwood produced in Australian sawmills, such as the share of broadleaved and coniferous going to structural or appearance timbers. This information will be useful to industry analysts estimating the end use of sawnwood (for example, between construction and furniture) and examining trends between these uses over time.

Several techniques were used to improve the quality of data collected. These included adopting a consistent methodology, using a statistically significant sample size, and using a common survey method and definition of sawnwood production.

Previously, sawnwood production in Australia was estimated by different state agencies, using their own survey methods for the coverage of the mill population and definitions. Not surprisingly there was some inconsistency across states. For example, there are a number of definitions of sawnwood production, owing to the changes in the dimensions of the product through the different stages of processing and drying. Sawnwood may be defined as 'green off sawn' (GOS or the 'target' yield), the 'nominal' yield (which is around 10 per cent smaller than the GOS and is the intended dimension of the dry roughsawn board), or as the 'actual' yield (which is around 30 per cent smaller than the GOS and represents the dry dressed dimension of the sawnwood). The questionnaire accounted for these limitations to improve the quality of data estimated, and collected consistent estimates of the nominal volumes of sawnwood production.

The questionnaire was designed to be brief but provide valuable information to estimate activity levels and related policy issues in Australia's forest industry. Additional information is becoming increasingly important to policy-makers for regional development and energy policy, which relates to employment in the industry and the production and use of sawmill residues. There is scope to include questions in future surveys to collect this information.

Drawing the sample and undertaking the survey

A random sample of mills was chosen from each stratum to derive a statistically significant estimate of log input and sawnwood production for each strata. The estimated mill population of 614 was stratified into 57 groups (or strata) based on three criteria: the species of log processed (broadleaved, coniferous and cypress pine); the state or territory (excluding the Northern Territory, which does not have a significant sawnwood industry); and six categories of mill size (as shown in table 1). Mill size was based on the estimated volume log input, not capacity. When surveys indicated that the actual mill size differed from the before survey expectation, the mill was put into the correct strata and another was selected from the original strata to be surveyed.

Collaboration with NAFI and A3P was sought to maximize industry participation in the survey. A letter was then sent on behalf of ABARE, NAFI and A3P to sampled sawmills to seek sawmill operators' involvement in the survey and to outline the data to be requested. A copy of the questionnaire was included in this letter. Before commencing the survey, ABARE received approval for the survey from the Australian Government Statistical Clearing House.

Phone interviews were undertaken between July and October 2007 with a high response rate achieved. This result is believed to be because of the participation of the major industry associations. Nevertheless, it was difficult to attain the required samples for each strata because of difficulty contacting some mills. Overall, around 26 per cent of broadleaved mills and 68 per cent of coniferous mills were surveyed (table 3).

It was possible to infer some data for some large coniferous sawmills which did not respond to the survey, based on other ABARE datasets and industry experts. These mills are not included in table 3, however the inferred data is included in the survey results presented. While using ABARE datasets is not as accurate as actual survey data and will not provide good estimates of seasonal or annual trends, the process enabled the robustness of the sample to be improved.

3 Sawmill population, sample and number surveyed

	population no.	surveyed no.	population surveyed %
Broadleaved			
New South Wales a	184	38	21
Victoria	67	21	31
Queensland	158	33	21
South Australia	0	0	na
Western Australia	21	10	48
Tasmania	72	31	43
Australia	502	133	26
Coniferous b			
New South Wales a	26	19	73
Victoria	14	7	50 ^c
Queensland	45	27	60
South Australia	13	11	85 ^c
Western Australia	3	3	100
Tasmania	7	6	86
Australia	108	73	68

a Includes ACT. **b** Includes cypress pine. **c** For the survey results, data for additional mills which did not participate in the survey, and hence are not represented in this table, was inferred from alternative sources to improve the robustness of the results.

3 Survey results

The following section presents results for ABARE's 2007 sawmill survey. Some survey results have been aggregated to ensure confidentiality is maintained, that individual mills are not identifiable, and to ensure reported results are statistically robust.

It should be noted that all estimates of forest tenure (public and private) and forest type (native and plantations), from which sawlogs are sourced, are based on survey respondents' estimates and may in some cases be assumed or incorrect.

Estimated log input

Values in table 4 present the estimated volume of sawlogs processed by sawmills in each state in 2006-07. The results show that around 3 million cubic metres of broadleaved sawlogs and 8.6 million cubic metres of coniferous sawlogs were processed in Australian sawmills in 2006-07. New South Wales sawmills processed the largest amount, accounting for more than 37 per cent of broadleaved sawlog processing and 29 per cent of coniferous sawlogs. In addition to New South Wales, Victoria and Tasmania were also significant processors of broadleaved sawlogs, while South Australia, Victoria and Queensland were significant processors of coniferous logs.

The survey results also provide respondents' estimates of the forest tenure from which their processed logs were harvested. For this survey, public logs are referred to as those derived from forests managed by government agencies or public corporations on either public or private land. Thus, logs harvested from private farmland, which is managed by a state forest agency, are regarded as public logs for this survey. Private logs are those sourced from forests

4 Survey results – sawmill log input, by source and state, 2006-07

	broadleaved			coniferous ^b			total		
	private '000m ³	public '000m ³	total '000m ³	private '000m ³	public '000m ³	total '000m ³	private '000m ³	public '000m ³	total '000m ³
New South Wales ^a	318 (17)	798 (11)	1 116 (7)	644 (26)	1 881 (7)	2 526 (1)	962 (18)	2 679 (6)	3 642 (2)
Victoria	118 (33)	615 (16)	733 (12)	1 510 (8)	178 (33)	1 688 (5)	1 628 (8)	793 (14)	2 421 (5)
Queensland	116 (18)	281 (11)	397 (5)	95 (17)	1 607 (1)	1 701 (1)	210 (12)	1 887 (2)	2 098 (1)
South Australia	0 (na)	0 (na)	0 (na)	421 (53)	1 349 (26)	1 770 (21)	421 (53)	1 349 (26)	1 770 (21)
Western Australia	38 (47)	204 (5)	243 (6)	63 (in)	415 (in)	478 (in)	101 (18)	619 (1)	721 (2)
Tasmania	87 (23)	441 (5)	528 (4)	115 (35)	332 (3)	447 (9)	202 (22)	773 (3)	974 (4)
Australia	677 (11)	2 339 (6)	3 015 (4)	2 848 (11)	5 763 (6)	8 610 (4)	3 524 (9)	8 101 (5)	11 626 (3)

^a Includes ACT. ^b Includes cypress pine. ⁱⁿ Insufficient data. ^{na} Not applicable.

Note: Private and public split based on respondents' estimates; figures in parentheses are relative standard errors, expressed as a percentage of the estimates.

managed by private companies, on both public and private land. Therefore, coniferous plantations in Victoria which were planted by government agencies and remain on public land, are regarded as private logs in this survey because they are managed privately by HVP Plantations. The figures presented here are survey respondents' estimates of the provenance of the logs and results have not been cross-checked.

Across Australia, 22 per cent of broadleaved sawlogs were sourced from private forests in 2006-07. By far the majority of broadleaved sawlogs in Australia continue to be sourced from native forests. Queensland and New South Wales had the highest share of broadleaved sawlogs sourced from private forests.

box 1 Note on relative standard errors

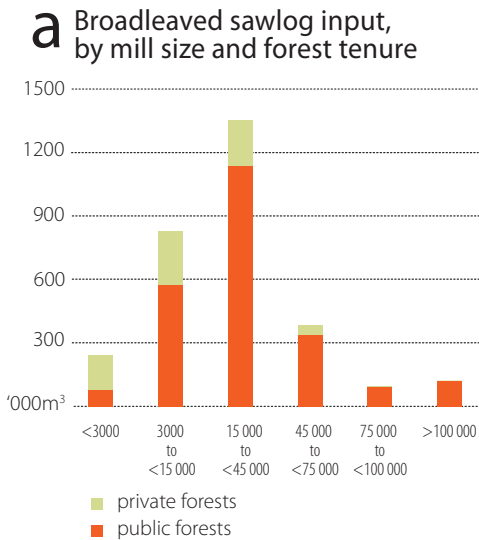
To obtain the standard error from the relative standard error, multiply the relative standard error by the survey estimate and divide by 100.

There is roughly a two in three chance that the 'census value' (the value which would have been obtained if all mills in the target population had been surveyed) is within one standard error of the survey estimate.

There is roughly a 19 in 20 chance that the census value is within two standard errors of the survey estimates.

One-third of coniferous sawlogs processed in Australia were harvested from private forests in 2006-07. The majority of these logs were sourced from coniferous plantations, the data presented here includes cypress pine logs from native forests. Victoria accounted for the largest share of private coniferous sawlogs, which are principally sourced from the coniferous estate operated by HVP Plantations. A large proportion of HVP Plantations was formerly a state-owned plantation and was privatised in 1998.

Figure a contains information on the total broadleaved log input, sourced from private and public forests (both native forests and plantations) by each mill size category. This figure shows that the proportion of broadleaved sawlogs sourced from private forests is inversely related to the size of mills, so that small mills have a relatively large share of private forests. In total, mills which processed less than 45 000 cubic metres of sawlogs accounted for 93 per cent of aggregate private broadleaved log processing in Australia in 2006-07. The share of private broadleaved logs, in total mill intake, is highest in mills processing less than 3000 cubic metres and diminishes for each successive mill size category.



Comparison of results with other data

These results have been collected in a consistent and robust manner and are the only national sawmill production data currently available. Nevertheless, it is important to assess the consistency of these results with other available data.

Each year, ABARE publishes updated estimates of log harvest levels from Australia's forests in the Australian Forest and Wood Products Statistics (AFWPS) (ABARE 2008). This data is collected to estimate the annual gross value of production (GVP) of logs in Australia reported in the AFWPS. The log harvest data is collected from the principal forest growers and major log purchasers in Australia. This data includes estimates of public forest harvest volumes from state forest agency records, private forest harvest volumes from private companies, and estimates from state agencies, industry associations and other sources where available.

Results from the sawmill survey have been cross-checked with data estimated for the GVP, to assess the reliability of the survey data and the GVP estimates. A comparison of the estimates is provided in table 5. Note that there are some differences in the definitions of the survey and GVP variables presented in the table. In particular, the state-based GVP data refers to the state in which the logs were harvested, while the sawmill survey data refers to the state in which sawlogs were processed. Hence, some state by state differences in the survey and the GVP data may be reconciled by assuming interstate trade of logs. In some cases there may be differing definitions of log type, such that the sawmill survey assumes all logs processed by sawmills are sawlogs, whereas in the GVP data these logs may have been initially sold as another log type, such as pulplogs or veneer logs.

In table 5, the high volume of logs harvested relative to the estimated volume processed in Victoria, is likely to reflect the volume of logs sold interstate, principally to South Australia but also to New South Wales. However, the excess of logs harvested in Western Australia cannot be reconciled on this basis, as it is unlikely that sawlogs would be sold interstate.

In table 5 there are some significant discrepancies in the estimates of broadleaved sawlog harvest and processing estimates. This is principally apparent in Victoria and Tasmania, where

5 Comparison of survey results with GVP sawlog harvest estimates

	broadleaved			coniferous ^b		
	survey '000m ³	GVP ^c '000m ³	difference '000m ³	survey '000m ³	GVP ^c '000m ³	difference '000m ³
New South Wales ^a	1 116	1 179	-63	2 526	2 122	404
Victoria	733	607	125	1 688	2 309	-621
Queensland	397	362	34	1 701	1 736	-35
South Australia	0	0	0	1 770	1 334	437
Western Australia	243	242	0	478	566	-88
Tasmania	528	422	105	447	488	-42
Australia	3 015	2 813	203	8 610	8 554	56

^a Includes ACT. ^b Includes cyprus pine. ^c Excludes sawlog export estimates.

estimates of broadleaved processing significantly exceed the GVP estimates of sawlog harvest levels. Overall, the sawmill survey estimates of broadleaved log availability in Australia are 7 per cent above the GVP estimates, while the sawmill survey coniferous log availability estimate is only around 1 per cent above the GVP estimate.

The discrepancy in the broadleaved log estimates in Victoria can be partly explained by interstate movement of logs. Based on past estimates of log harvest levels and sawnwood production in New South Wales, there is some trade of broadleaved sawlogs from New South Wales to Victoria. In recent years the volume of trade has been estimated at around 60 000 cubic metres (ABARE data, derived from Forests NSW estimates). This is consistent with the surplus of New South Wales GVP log harvest levels and the survey logs processed estimate in table 5, and accounts for a large proportion of the discrepancy in the Victorian estimates.

An analysis of the survey results and the GVP data also indicates that the sawmill survey estimates a significantly higher volume of broadleaved sawlogs harvested from private forests (both native and plantation) in Victoria, compared with the estimates collected for the GVP data. There are no official or reliable estimates of private forest removals in Victoria, although VicForests estimates have suggested total broadleaved sawlog removals (including native and plantations) have declined in recent years, from more than 139 000 cubic metres in 2004-05 to 68 000 cubic metres in 2006-07 (M Crapp 2007, pers. comm., 2 November). The survey results indicate that private broadleaved sawlog removals may not have undergone this decline in recent years.

The discrepancy in estimates of broadleaved logs from Tasmania is more difficult to explain. The GVP estimates of public broadleaved harvest levels are taken from Forestry Tasmania's annual reports, while private forest data is collected by Private Forests Tasmania. This is the only state where private forest removal estimates have been considered reliable. In fact, the survey and the GVP estimates for private forest removals are both around 60 000 cubic metres. There is, therefore, a significant discrepancy in the estimated volumes from public broadleaved forests. Part of this discrepancy may relate to the definition of logs, in that some pulplogs or veneer logs may be used by sawmills in Tasmania.

Estimates of sawnwood production

The survey estimated broadleaved sawnwood production in 2006-07 at almost 1.2 million cubic metres, and coniferous sawnwood production at more than 4 million cubic metres (table 6). The state distribution of output is consistent with the log input estimates described above. The variation in quarterly production is based on respondents' estimates.

Australian broadleaved sawnwood production declined over the December and March quarters, principally because of lower output from New South Wales and Tasmania. There was an increase in broadleaved output in most states in the June 2007 quarter. Coniferous sawnwood output also declined markedly in the December quarter across all states. The increase in national coniferous output in the March 2007 quarter was principally led by New South Wales, and in the June 2007 quarter output again rose in all states except Tasmania.

6 Sawnwood production, by state and quarter, 2006-07

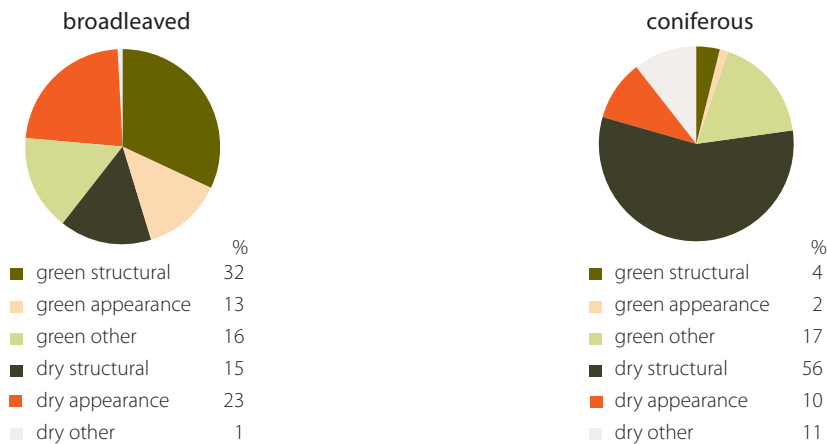
	September 2006	December 2006	March 2007	June 2007	total
	'000 m ³	'000 m ³	'000 m ³	'000 m ³	'000 m ³
Broadleaved					
New South Wales a	121.1 (7)	109.8 (7)	101.1 (8)	114.7 (8)	446.8 (7)
Victoria	70.7 (13)	71.0 (13)	70.5 (14)	72.0 (13)	284.2 (12)
Queensland	39.8 (6)	40.2 (6)	41.0 (6)	41.0 (5)	161.9 (5)
South Australia	0.0 (na)	0.0 (na)	0.0 (na)	0.0 (na)	0.0 (na)
Western Australia	23.3 (14)	20.3 (13)	18.8 (9)	18.2 (6)	80.6 (6)
Tasmania	48.7 (5)	43.0 (4)	42.2 (4)	44.2 (4)	178.1 (4)
Australia	303.6 (4)	284.2 (4)	273.7 (5)	290.2 (4)	1 151.5 (4)
Coniferous b					
New South Wales a	308.3 (1)	269.9 (4)	295.8 (in)	316.8 (1)	1 190.8 (1)
Victoria	208.2 (6)	196.7 (7)	194.9 (7)	210.1 (6)	810.0 (5)
Queensland	198.5 (1)	178.8 (1)	181.7 (1)	192.8 (1)	751.9 (1)
South Australia	219.5 (21)	211.9 (22)	209.9 (21)	221.8 (21)	863.2 (21)
Western Australia	55.4 (in)	49.3 (in)	51.0 (in)	61.0 (in)	216.6 (in)
Tasmania	49.0 (3)	46.3 (6)	39.4 (7)	44.6 (12)	179.3 (9)
Australia	1 038.9 (4)	952.9 (5)	972.7 (4)	1 047.2 (4)	4 011.7 (4)

a Includes ACT. **b** Includes cypress pine. **in** Insufficient data.

Note: Sawnwood production measured in nominal volumes; figures in parentheses are relative standard errors, expressed as a percentage of the estimates.

Shown in figure b are the types of sawnwood products produced by Australian sawmills in 2006-07. The 'other' forest product category includes products such as pallets, fencing and wooden stakes. The data indicates that almost one-third of broadleaved sawnwood output

b Estimated sawnwood production, by product type, Australia



from Australian sawmills was produced as green structural sawnwood, while there was also a large proportion of dry appearance grade sawnwood produced, principally in New South Wales and Queensland. In Victoria, a large proportion of broadleaved logs was used to produce dry structural sawnwood. In total, 39 per cent of broadleaved sawnwood was produced as dried product.

In contrast to the broadleaved situation, more than half of all coniferous sawnwood output was produced as dry structural timber. This result was consistent across all states except Queensland, where a significant proportion of production was also for green structural and dry appearance sawnwood. The importance of cypress pine in Queensland, of which around 55 per cent is produced as green structural and 24 per cent is produced as dry appearance sawnwood explains the deviation from the national average. In total, more than three-quarters of coniferous sawnwood was produced as dried product.

Structure of Australia's sawmill industry

There are significant differences in the structure of the broadleaved and coniferous sawnwood industries in Australia. Table 7 shows that the average size of broadleaved mills in 2006-07 (in terms of log intake) was 5959 cubic metres, compared with 79 723 cubic metres for coniferous mills. By far the majority of broadleaved sawnwood is produced by smaller mills, with 82 per cent produced by mills with less than 45 000 cubic metres of log intake (497 mills). In contrast,

7 Broadleaved and coniferous sawmill characteristics, by size, 2006-07

	no. mills	average log intake m ³ /mill	recovery rate ^c %	average output m ³ /mill	total output ^c '000 m ³	share of national output %
Broadleaved						
Log intake (m³/yr)						
Less than 3 000	337	711	44	314	105.7	9
3 000 to less than 15 000	101	8 185	39	3 224	325.7	28
15 000 to less than 45 000	55	24 596	38	9 258	509.2	44
More than 45 000 ^a	9	66 280	35	23 445	211.0	18
Total	502	6 007	38	2 294	1 151.5	100
Coniferous ^b						
Log intake (m³/yr)						
Less than 3 000	13	983	59	580	7.5	0
3 000 to less than 15 000	41	10 026	46	4 566	187.2	5
15 000 to less than 45 000	21	21 399	48	10 176	213.7	5
45 000 to less than 75 000	8	54 525	41	22 066	176.5	4
75 000 to less than 100 000	3	82 569	48	39 861	119.6	3
More than 100 000	22	320 582	47	150 326	3 307.2	82
Total	108	79 723	47	37 146	4 011.7	100

^a Categories above 45 000 cubic metres aggregated to protect confidentiality of sawmills.

^b Includes cypress pine. ^c Reflecting the 'nominal' volume of sawnwood output.

the same proportion of coniferous sawnwood (82 per cent) was produced by only 22 mills which operated at more than 100 000 cubic metres of log throughput.

For broadleaved sawmills, there is a notable inverse relationship between the size of the mill and the recovery rate, which measures the proportion of log volume converted into sawnwood. In the numbers presented in this survey, the recovery rate is consistently estimated as the 'nominal' volume of sawnwood produced divided by the volume of sawlog input, and hence is not affected by the proportion of green or dried product produced by each mill.

The coniferous industry, on the other hand, is dominated by large-scale mills suited to processing large volumes of uniform coniferous plantation timber. As a result, the survey results indicate that there is no apparent relationship between mill size and recovery rates for most coniferous mills.

The exception to this is cypress pine from native forests, which is included in the coniferous data above. Cypress pine mills are mainly found in the 3000 to 15 000 cubic metres category of log intake, and have an average recovery rate of around 40 per cent, which led to the lower average recovery rate for that log intake category in table 7.

There are also significant differences in the structure of Australia's sawnwood industry in each state. The broadleaved sawmilling industry is characterised by a large number of relatively small mills in New South Wales and Queensland, which also have generally higher recovery

8 Sawmill characteristics, by state, 2006-07

	no. mills	average log intake m ³ /mill	recovery rate ^c %	average output m ³ /mill	total output ^c '000 m ³	share of national output %
Broadleaved						
New South Wales ^a	184	6 065	40	2 428	447	39
Victoria	67	10 935	39	4 241	284	25
Queensland	158	2 510	41	1 025	162	14
South Australia	0	na	na	na	0	0
Western Australia	21	11 552	33	3 837	81	7
Tasmania	72	7 327	34	2 474	178	16
Australia	502	6 007	38	2 294	1 152	100
Coniferous ^b						
New South Wales ^a	26	97 142	47	45 798	1 191	30
Victoria	14	120 586	48	57 857	810	20
Queensland	45	37 803	44	16 709	752	19
South Australia	13	136 191	49	66 397	863	22
Western Australia	3	159 312	45	72 194	217	5
Tasmania	7	63 807	40	25 618	179	5
Australia	108	79 723	47	37 146	4 012	100

^a Includes ACT. ^b Includes cypress pine. ^c Based on the 'nominal' volume of sawnwood output. **na** Not applicable.

rates than in states with larger average mill size. Also contributing to differences in relative recovery rates, the species and size of native broadleaved log in each state can affect the sawing technology employed by each mill, and hence the potential recovery rates achievable.

The recovery rates presented here represent the 'nominal' volume (equivalent to the dry rough sawn volume) of sawnwood produced from an equivalent volume of sawlog. No estimates have been made of the use of the residual timber (eg sawdust, woodchips), although these waste products may be critical to some sawmills as a source of energy or additional revenue.

The coniferous industry is more uniform across states, although the inclusion of cypress pine sawmills in New South Wales and Queensland contributes to lower average mill size. Compared with other states, average mill size and sawnwood recovery rates are both relatively low in Tasmania.

4 Conclusion

The 2007 ABARE survey provides useful insights into the understanding of Australia's forest industry. It represents the most consistent estimates of sawnwood production in each state of Australia for 2006-07, and also provides valuable information about the characteristics of the sawmill industry.

There are a number of issues regarding the consistency of these results with alternative datasets that must be resolved. However, this process is an important step in ongoing data quality assessment and the results from this survey are likely to lead to improvements in other datasets.

To be useful in the long run, ongoing funding commitment is required to produce time series of sawnwood production and recovery rates so as to understand trends in the industry. In addition, other valuable information can be collected through this survey, particularly relating to employment, sawmill residues and energy use.

A Survey questionnaire

ABARE sawmill survey 2006-07

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Mill Name:	Mill No.:	Location:	Log species:	Contact Name:	Phone:
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Question 1: Logs processed onsite

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		September quarter 2006	December quarter 2006	March quarter 2007	June quarter 2007
Total log input	m ³				
Public native	%				
Private native	%				
Public plantation	%				
Private plantation	%				

Question 2: Sawnwood output

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		September quarter 2006	December quarter 2006	March quarter 2007	June quarter 2007
Total sawnwood produced onsite ^a	nominal m ³				
Green Structural	nominal m ³				
Green Appearance	nominal m ³				
Green other (specify)	nominal m ³				
Dry Structural	nominal m ³				
Dry Appearance	nominal m ³				
Dry other (specify)	nominal m ³				
Purchased as GOS and dried onsite	nominal m ³				

^a Only include sawnwood produced from logs sawn onsite. Do not include sawnwood purchased from other mills.
 Note: sum of output volume should add to 'Total sawnwood produced'; Dry output refers to timber sawn in current period; 'Nominal' refers to the intended dimension of the dry roughsawn board.

This survey has been approved by the Australian Government Statistical Clearing House. Approval number: 01920-01

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RESEARCH FUNDING ABARE relies on financial support from external organisations to complete its research program. As at the date of this publication, the following organisations had provided financial support for ABARE's research program in 2007-08 and in 2008-09. We gratefully acknowledge this assistance.

02.09

AusAid	Fisheries Research and Development Corporation
Australian Fisheries Management Authority	Fisheries Resources Research Fund
Australian Government Department of Climate Change	Forest and Wood Products Australia
Australian Government Department of the Environment, Water , Heritage and the Arts	Grains Research and Development Corporation
Australian Government Department of Resources, Energy and Tourism	Grape and Wine Research and Development Corporation
CRC Plant Biosecurity	Horticulture Australia
CSIRO (Commonwealth Scientific and Industrial Research Organisation)	International Food Policy Research Institute
Dairy Australia	Land and Water Australia
Department of Primary Industries, Victoria	Meat and Livestock Australia
DN Harris and Associates	National Australia Bank
European commission	OECD
	Rural Industries Research and Development Corporation
	The Treasury