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Australian plantation statistics 2015 update

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Summary

Australia's total plantation estate was around 1 999 700 hectares in 2013–14, a net decrease of 12 800 hectares (0.6 per cent) from 2012–13.

In 2013–14 the total area of softwood plantations was 1 024 200 hectares, relatively unchanged from the previous year, and the total area of hardwood plantations decreased by 13 200 hectares (1.4 per cent) to 963 200 hectares. The 'other' category (mixed plantations and unknown species) remained unchanged at 12 300 hectares.

In 2013–14 hardwood plantations accounted for 48 per cent of all plantations, a 1 percentage point reduction from 2012–13.

About 1 750 hectares of new plantation areas were reported to have been established in 2013–14. This increase was more than offset by removal of existing plantation areas of around 14 600 hectares, which growers either deemed commercially unviable or did not replant at the end of their lease agreement. This resulted in a net decrease in plantation area of around 12 800 hectares in 2013–14. Most of the decrease was in Western Australia and New South Wales.

The hardwood plantation estate is dominated by southern blue gum (54.1 per cent) and shining gum (24.5 per cent), both of which are managed primarily for pulplog production.

The softwood plantation estate is dominated by radiata pine (75.4 per cent) and southern pines (14.8 per cent), both of which are managed for sawlog production.

Sandalwood plantations in Australia are not currently included in the NPI statistics. The NPI will commence surveying plantation sandalwood growers in Australia from 2015–16. It will report on new plantations established and the total area of Indian and Australian sandalwood planted in Australia.

Sandalwood and its oil are in great demand, particularly in Asia and the Middle East. Given the high value of sandalwood, sandalwood plantations are an component of Australia's plantation estate.

About this report

ABARES has prepared this report under the auspices of the National Plantation Inventory (NPI). The NPI has surveyed public and private plantation growers and managers to collect data on plantations established primarily for wood production in Australia since 1993.

The *Australian plantation statistics update* is published every year. It supports strategic forest industry planning and decision-making by presenting information on total plantation area, new planting and ownership. These updates complement two other NPI information products published by ABARES: the five-yearly comprehensive spatial stocktake of Australia's industrial plantation estate and the five-yearly comprehensive log supply forecast report. NPI data are subsequently reported in other national publications, including the six-monthly ABARES *Australian forest and wood products statistics* (ABARES 2014), the five-yearly *Australia's State of the Forests Report* (MIG&NFI 2013) and the annual Australian Bureau of Statistics *Year Book Australia* (ABS 2012).

In this report plantation areas are presented by NPI regions (Map 1) for softwood and hardwood plantation types, species, jurisdiction, based on data collected from private growers and grower representatives and public state and territory agencies. The survey that underpins this report collects information on the total plantation estate and newly established plantations on land not previously used for plantations. Plantations are added if they have not been previously recorded, revised if earlier data were in error and removed if the land has been converted to another use such as agriculture.

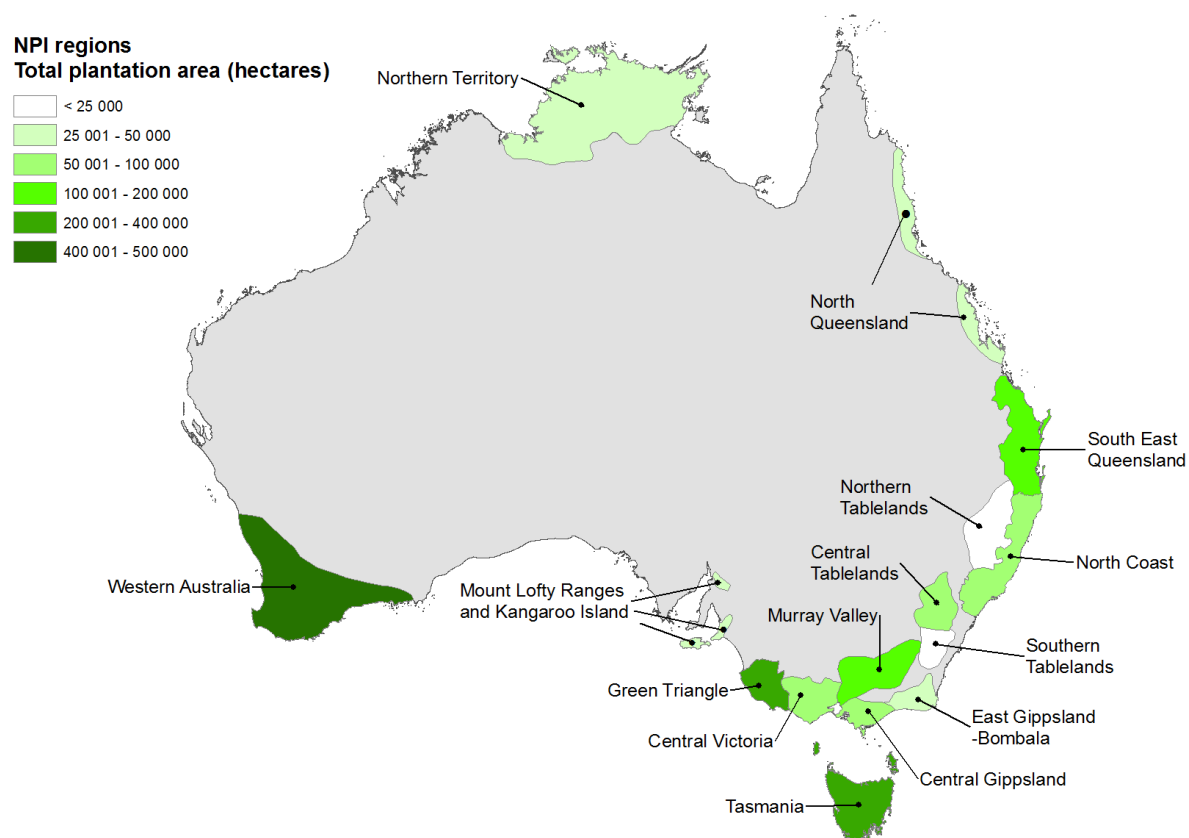
In this report 2013–14 data are compared with data from the 2003–04 and 2012–13 annual update reports.

A substantial area of plantations is harvested each year and some areas are not replanted. Replanting might not take place for some time after harvesting; unless advised of a change in land use, the NPI records such fallow land as plantation. Although all care is taken to reconcile data, discrepancies may occur in area reported from year to year.

Grower information submitted to the NPI is confidential. For reporting purposes, data from individual growers are aggregated within regions or states and territories and are not provided individually to other parties without the consent of the data owner.

The data presented in this report do not capture all small-scale and farm forestry plantings but do include farm forestry plantings reported in *Australian plantation statistics 2011* (Gavran & Parsons 2011).

Map 1 National Plantation Inventory regions



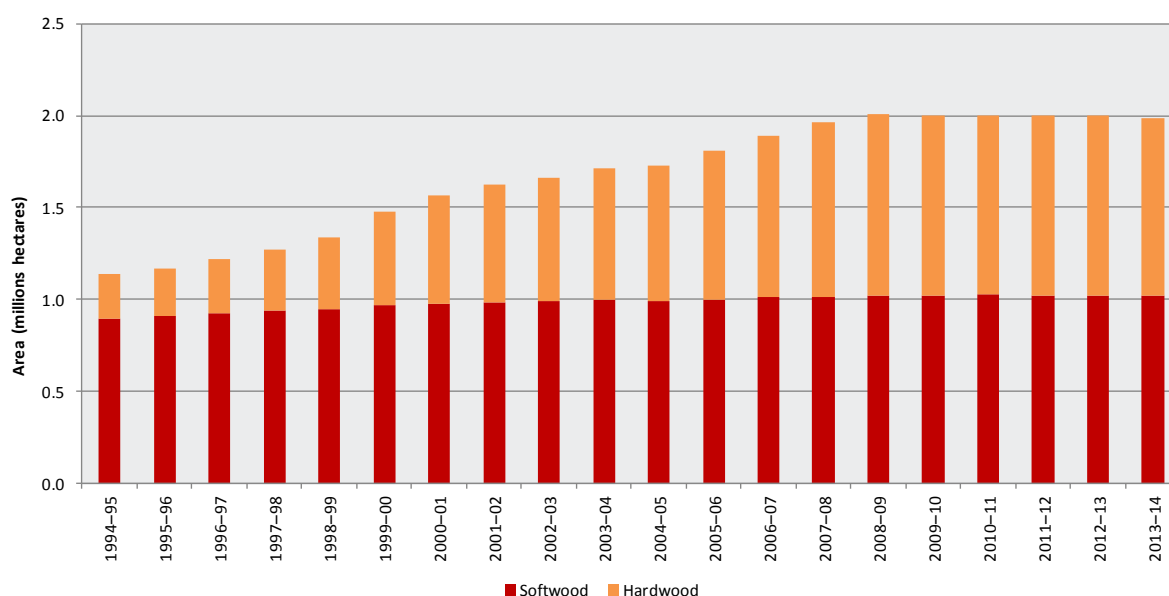
Source: ABARES

1 Characteristics of the plantation estate

Total plantation estate

Australia's total plantation area was around 1 999 700 hectares in 2013–14, as reported by plantation managers (Figure 1), a net decrease of 12 800 hectares (0.6 per cent) from 2012–13. This is the first period that the plantation area has been below 2 million hectares since 2007–08. Most of this decrease was from the removal of hardwood plantations managed for pulplogs.

Figure 1 Total Australian plantation area, by type, 1994–95 to 2013–14



Note: Data for 1994–95 to 2004–05 are for calendar years 1994 to 2005; data for 2005–06 to 2013–14 are for financial years. 'Other' category plantations are not included.

Source: ABARES

In 2013–14 the total area of softwood plantations was 1 024 200 hectares, which was relatively unchanged from 1 023 800 hectares in 2012–13. In contrast, the total area of hardwood plantations decreased by 13 200 hectares (1.4 per cent) from 976 400 hectares in 2012–13 to 963 200 hectares in 2013–14 (Table 1).

From 2012–13 to 2013–14 the state plantation area declined in Western Australia, Victoria and New South Wales (particularly in the North Coast NPI region). There was an increase in the plantation area in the Northern Australia in 2013–14 (Table 2). Table 3 provides a further breakdown of plantation area by NPI regions.

In 2013–14 hardwood plantation area accounted for 48 per cent of total plantation area, a 1 percentage point reduction from 2012–13.

Table 1 Overview of Australia's plantation estate, 2003–04, 2012–13 and 2013–14

Overview of total plantation area	2003–04 (’000 ha)	2012–13 (’000 ha)	2013–14 (’000 ha)	Change between 2012–13 and 2013–14 (%)
Hardwood	715.5	976.4	963.2	–1.4
Softwood	1 000.6	1 023.8	1024.2	0.0
Other ^a	0.0	12.3	12.3	0.0
Total	1 716.2	2 012.5	1999.7	–0.6

^a Other includes mixed hardwood and softwood species and plantations for which species were not reported.

Note: 2003–04 is a calendar year representing 2004; 2012–13 and 2013–14 are financial years. All columns and rows have been rounded so column totals may not tally.

Source: ABARES

Table 2 Plantation area by states and territories, Australia, 2003–04, 2012–13 and 2013–14

Plantation area by state/territory	2003–04 (’000 ha)	2012–13 (’000 ha)	2013–14 (’000 ha)	Change between 2012–13 and 2013–14 (%)
New South Wales	341.2	392.2	390.0	–0.6
Victoria	383.3	433.5	433.0	–0.1
Queensland	214.6	233.4	233.5	0.1
South Australia	163.8	188.5	188.5	0.0
Western Australia	369.8	402.9	391.5	–2.8
Tasmania	225.7	310.7	310.7	0.0
Northern Territory	12.3	43.5	44.7	2.7
Australian Capital Territory	5.4	7.7	7.7	0.0

Note: 2003–04 is a calendar year representing 2004; 2012–13 and 2013–14 are financial years.

Source: ABARES

Table 3 Plantation area by National Plantation Inventory region, 2004–05, 2012–13 and 2013–14

Plantation area by region a	2004–05 (’000 ha) b	2012–13 (’000 ha)	2013–14 (’000 ha)	Change between 2012–13 and 2013–14 (%)
Western Australia	377.6	402.9	391.5	–2.8
Northern Territory	16.3	43.5	44.7	2.7
Mount Lofty Ranges and Kangaroo Island (South Australia)	28.8	34.1	34.1	0.0
Green Triangle (South Australia/Victoria)	298.8	348.1	347.7	–0.1
North Queensland	29.3	38.4	38.4	0.0
South East Queensland	193.8	194.4	194.5	0.1
Northern Tablelands (New South Wales)	17.5	24.4	24.4	0.0
North Coast (New South Wales)	66.6	101.0	98.7	–2.3
Central Tablelands (New South Wales)	80.4	82.4	82.5	0.1
Southern Tablelands (New South Wales)	22.2	22.1	22.1	0.0
Murray Valley (New South Wales/Victoria)	184.6	195.3	195.3	0.0
Central Victoria	57.2	68.8	68.7	–0.1
Central Gippsland (Victoria)	92.9	95.0	94.9	–0.1
East Gippsland–Bombala (Victoria/New South Wales)	46.1	51.5	51.5	0.0
Tasmania	227.2	310.7	310.7	0.0

a Region locations are shown in Map 1. **b** 2003–04 data not available.

Note: 2004–05 is a calendar year representing 2005; 2012–13 and 2013–14 are financial years.

Source: ABARES

State and territory highlights

In 2013–14 Victoria continued to have the largest total area of plantations of Australian states and territories, followed by Western Australia and New South Wales (Table 4). Western Australia had the largest area of hardwood plantations and New South Wales had the largest area of softwood plantations in Australia.

Table 4 Plantation areas, by state and territory, 2013–14

State/territory	Hardwood (’000 ha)	Softwood (’000 ha)	Other (’000 ha)	Total (’000 ha)
New South Wales	90.6	296.7	2.7	390.0
Victoria	206.0	226.0	1.1	433.0
Queensland	41.6	189.4	2.5	233.5
South Australia	59.7	128.5	0.3	188.5
Western Australia	287.3	98.5	5.7	391.5
Tasmania	235.6	75.1	0.0	310.7
Northern Territory	42.3	2.4	0.0	44.7
Australian Capital Territory	0.0	7.7	0.0	7.7
Total	963.2	1 024.2	12.3	1 999.7

Note: All columns and rows have been rounded, so totals may not tally.

Source: ABARES

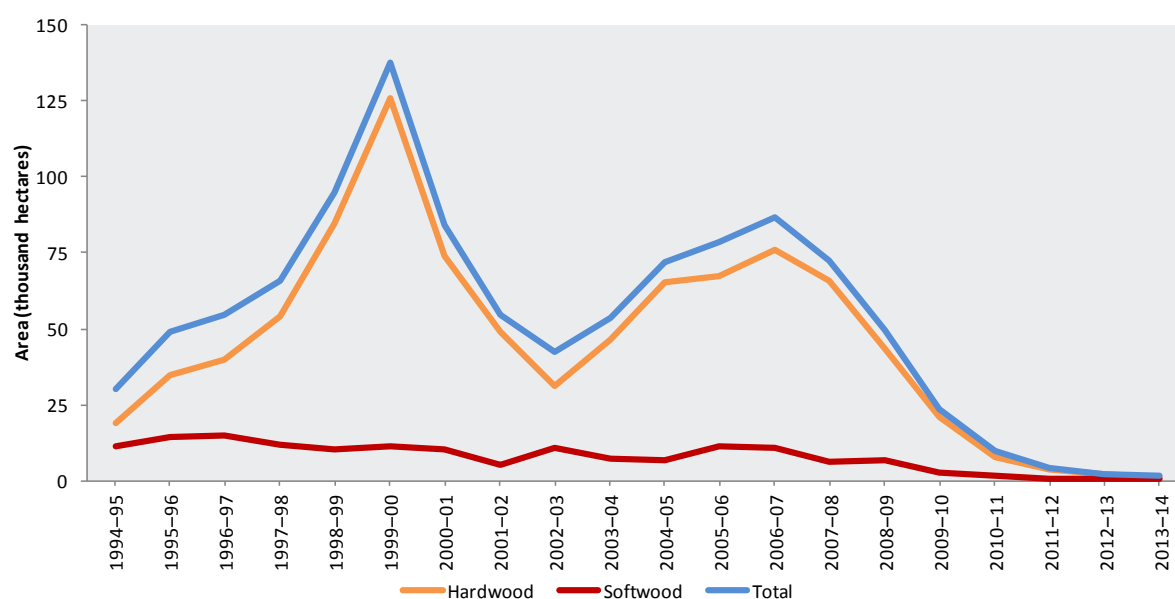
New plantations

New plantations are those established on land not previously used for plantation forestry. About 1 750 hectares of new plantation areas were reported as being established in 2013–14 (Figure 2).

This increase was more than offset by the removal of 14 600 hectares of existing plantation area, which growers either deemed commercially unviable or did not replant at the end of their lease agreement. Therefore, the net decrease in total plantation area was around 12 800 hectares in 2013–14.

Removal of some plantation areas is expected to continue over the next five years as some lease agreements end and commercially unviable plantations are not replanted.

In 2013–14 institutional investors funded 75 per cent of new plantations, the public sector funded around 19 per cent of new plantations and managed investment schemes funded the remaining 6 per cent.

Figure 2 New plantations, 1994–95 to 2013–14

Note: Data for 1994–95 to 2004–05 are for calendar years representing 1994 to 2005; data for 2005–06 to 2013–14 are for financial years.

Source: ABARES

Over the 10 years to 2013–14, the annual plantation establishment rate has changed significantly (Figure 2). The establishment rate increased from 53 600 hectares in 2003–04 to a peak of 86 600 hectares in 2006–07. Since then, the establishment rate has declined each year to reach 1 750 hectares in 2013–14 (Table 5), the lowest ever recorded under the NPI.

Table 5 New plantation areas, by state and territory, 2003–04, 2012–13 and 2013–14

State/territory	2003–04 (’000 ha)	2012–13 (’000 ha)	2013–14 (’000 ha)
New South Wales	6.5	0.26	0.22
Victoria	12.3	0.02	0.05
Queensland	5.5	0.12	0.12
South Australia	4.0	0.01	0.00
Western Australia	9.0	0.02	0.17
Tasmania	11.9	0.04	0.00
Northern Territory	4.5	1.74	1.19
Australian Capital Territory	0.0	0.00	0.00
Total	53.6	2.22	1.75

Note: New plantations are those established on land not previously used for plantation forestry. 2003–04 is a calendar year representing 2004; 2012–13 and 2013–14 are financial years. All columns and rows have been rounded, so totals may not tally.

Source: ABARES

Compared with 2003–04, annual establishment of new hardwood plantations decreased by around 45 000 hectares in 2013–14 (a decline of 97.2 per cent), and annual establishment of new softwood plantations decreased by around 6 900 hectares in 2013–14 (a decline of 94.5 per cent) (Table 6).

Table 6 New plantation areas, by species, Australia, 2003–04, 2012–13 and 2013–14

New plantations established a	2003–04 (’000 ha)	2012–13 (’000 ha)	2013–14 (’000 ha)
Hardwood	46.3	1.9	1.3
Softwood	7.3	0.3	0.4

a New plantations are those established on land not previously used for plantation forestry.

Note: 2003–04 is a calendar year representing 2004; 2012–13 and 2013–14 are financial years.

Source: ABARES

Plantation ownership

Private plantations decreased from 1 561 300 hectares in 2012–13 to around 1 550 700 hectares in 2013–14, representing 77.5 per cent of the total plantation estate. The reduction was mainly the result of the removal of low yielding hardwood plantations managed for pulplog production. Public plantations accounted for 18.8 per cent and jointly-owned (public and private) plantations represented 3.6 per cent of the total plantation estate (Table 7).

New South Wales had the largest share of Australia’s total public plantations (64.8 per cent); Victoria had the largest share of Australia’s total private plantations (27.6 per cent); and Western Australia accounted for most of Australia’s total jointly-owned (joint partnerships between state forest agencies and leasehold and freehold farmers) plantations (60.7 per cent) (Table 7).

Table 7 Total plantation area, by states and territories and ownership, 2013–14

State/territory	Unit	Joint a	Private	Public	Total
New South Wales	’000 ha	5.1	141.0	244.0	390.0
Victoria	’000 ha	0.2	427.7	5.1	432.9
Queensland	’000 ha	0.1	233.4	0.0	233.5
South Australia	’000 ha	0.0	174.3	14.1	188.4
Western Australia	’000 ha	43.9	276.5	71.1	391.5
Tasmania	’000 ha	23.1	253.0	34.7	310.8
Northern Territory	’000 ha	0.0	44.7	0.0	44.7
Australian Capital Territory	’000 ha	0.0	0.0	7.7	7.7
Total	’000 ha	72.4	1 550.7	376.7	1 999.7
Proportion of tree ownership	%	3.6	77.5	18.8	100.0

a Includes some small areas for which ownership details were not reported.

Note: All columns and rows have been rounded, so column and row totals may not tally.

Source: ABARES

The ownership structure of plantations remained unchanged between 2012–13 and 2013–14 (Table 8). Only 1 750 hectares of new plantations were established; around 14 600 hectares of plantation was converted to another land use; and no substantial sales of plantations were finalised in 2013–14. In 2013–14 institutional investors owned about 40 per cent of the total plantation estate. These figures do not account for any purchases of plantations in 2014–15.

Table 8 Plantation ownership, 2004–05, 2012–13 and 2013–14

Plantation owner	2004–05 (%) a	2012–13 (%)	2013–14 (%)
Institutional investors	12	40	40
Timber industry companies	15	13	13
Farm foresters and other private owners	13	8	8
Managed investment schemes	23	20	20
Governments	37	19	19

a 2003–04 data not available.

Note: 2004–05 is a calendar year representing 2005; 2012–13 and 2013–14 are financial years. Joint venture plantations are not included.

Source: ABARES

Major plantation species

Hardwood plantation species

The hardwood plantation estate is dominated by southern blue gum (54.1 per cent) and shining gum (24.5 per cent), both of which are managed primarily for pulplog production (Table 9). These proportions are similar to those reported in previous years. Most southern blue gum plantations are in Western Australia and the Green Triangle. Most shining gum plantations are in Tasmania.

Other hardwood plantation species include Dunn's white gum, which is managed primarily for pulplog production in South East Queensland and managed for sawlog and pulplog production in the North Coast (New South Wales) region. Most blackbutt, flooded gum and spotted gum are in the North Coast (New South Wales) region and are managed primarily for sawlog production.

Softwood plantation species

The softwood plantation estate is dominated by radiata pine (75.4 per cent) and southern pine (14.8 per cent). Both are managed for sawlog production (Table 10). These proportions are similar to those reported in previous years. Most radiata pine plantations are in the Murray Valley, the Green Triangle, the Central Tablelands and the Tasmania NPI regions. Most southern pine plantations are in the South East Queensland region. Other regionally important softwood species are maritime pine in Western Australia and hoop pine in South East Queensland.

Table 9 Major hardwood species, by National Plantation Inventory region, 2013–14

Region	Unit	Southern blue gum	Blackbutt/ flooded gum	Shining gum	Spotted gum	Dunn's white gum	Other eucalypts	Other species	Total
Western Australia	'000 ha	263.4	0.0	0.0	1.0	0.0	22.3	0.6	287.3
Northern Territory	'000 ha	0.0	0.0	0.0	0.0	0.0	0.0	42.3	42.3
Mount Lofty Ranges and Kangaroo Island (South Australia)	'000 ha	12.4	0.0	0.0	0.3	0.0	1.4	0.1	14.2
Green Triangle (South Australia/Victoria)	'000 ha	170.7	0.0	0.0	0.0	0.0	0.2	0.2	171.1
North Queensland	'000 ha	0.0	1.0	0.0	0.9	1.2	4.4	2.7	10.2
South East Queensland	'000 ha	0.0	2.5	0.0	6.2	18.5	3.5	0.5	31.3
Northern Tablelands (New South Wales)	'000 ha	0.0	0.2	5.3	0.2	0.0	1.1	0.0	6.9
North Coast (New South Wales)	'000 ha	0.7	21.6	3.8	12.3	26.7	10.6	5.0	80.7
Central Tablelands (New South Wales)	'000 ha	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3
Central Victoria	'000 ha	33.1	0.0	2.5	0.0	0.0	1.7	0.1	37.5
Southern Tablelands (New South Wales)	'000 ha	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.4
Murray Valley (New South Wales/Victoria)	'000 ha	5.7	0.0	0.6	0.0	0.0	0.5	0.0	6.8
Central Gippsland (Victoria)	'000 ha	14.1	0.0	11.0	0.0	0.0	7.6	0.0	32.7
East Gippsland–Bombala ^a (Victoria/New South Wales)	'000 ha	0.5	0.0	4.6	0.0	0.0	0.6	0.0	5.7
Tasmania	'000 ha	20.4	0.0	208.4	0.0	0.0	0.5	6.3	235.6
Total	'000 ha	521.0	25.4	236.2	21.0	46.5	54.7	58.3	963.2
Proportion of hardwood species	%	54.1	2.6	24.5	2.2	4.8	5.7	6.1	100.0

^a Provisional data. Unknown plantations are not included.

Note: All columns and rows have been rounded, so totals may not tally.

Source: ABARES

Table 10 Major softwood species, by National Plantation Inventory region, 2013–14

Region	Unit	Radiata pine	Southern pines	Maritime pine	Hoop pine	Other pines	Other species	Total
Western Australia	'000 ha	56.6	0.0	41.7	0.0	0.3	0.0	98.5
Northern Territory	'000 ha	0.0	2.4	0.0	0.0	0.0	0.0	2.4
Mount Lofty Ranges and Kangaroo Island (South Australia)	'000 ha	19.4	0.0	0.3	0.0	0.2	0.0	20.0
Green Triangle (South Australia/Victoria)	'000 ha	176.3	0.0	0.1	0.0	0.0	0.0	176.4
North Queensland	'000 ha	0.0	25.0	0.0	1.1	0.1	1.3	27.4
South East Queensland	'000 ha	0.8	111.7	0.0	42.5	0.9	4.1	160.1
Northern Tablelands (New South Wales)	'000 ha	16.3	0.2	0.0	0.0	0.5	0.3	17.4
North Coast (New South Wales)	'000 ha	0.3	11.8	0.0	0.9	2.5	0.0	15.5
Central Tablelands (New South Wales)	'000 ha	81.3	0.0	0.0	0.0	0.1	0.1	81.4
Central Victoria	'000 ha	30.8	0.0	0.0	0.0	0.1	0.2	31.2
Southern Tablelands (New South Wales)	'000 ha	21.6	0.0	0.0	0.0	0.0	0.0	21.6
Murray Valley (New South Wales/Victoria)	'000 ha	185.7	0.0	0.0	0.0	1.4	1.5	188.6
Central Gippsland (Victoria)	'000 ha	62.0	0.0	0.2	0.0	0.0	0.0	62.3
East Gippsland–Bombala a (Victoria/New South Wales)	'000 ha	46.3	0.0	0.0	0.0	0.0	0.0	46.3
Tasmania	'000 ha	74.9	0.0	0.0	0.0	0.0	0.2	75.1
Total	'000 ha	772.3	151.1	42.4	44.5	6.1	7.8	1 024.2
Proportion of softwood species	%	75.4	14.8	4.1	4.3	0.6	0.8	100.0

a Provisional data. Unknown plantations are not included.

Note: All columns and rows have been rounded, so totals may not tally.

Source: ABARES

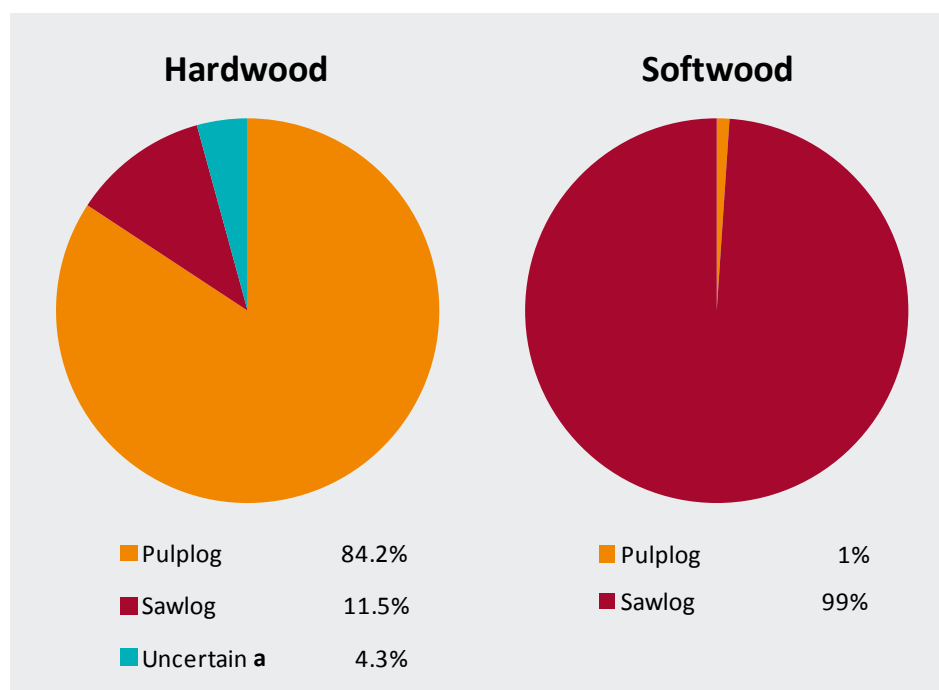
2 Logs harvested from plantation forests

Plantations managed for sawlogs and pulplogs

In 2013–14, 99 per cent of softwood plantations were managed to produce sawlogs for sawn timber—for products such as building and construction materials (Figure 3). Softwood pulplogs produced from thinnings and low-quality parts of the stem are used to produce engineered wood products, landscaping products and paper products.

The proportion of Australian hardwood plantations managed primarily to produce pulplogs for products such as woodchips and paper decreased marginally in 2013–14 to 84.2 per cent (Figure 3). In 2013–14, 11.5 per cent of hardwood plantations were managed to produce sawlogs, mainly from the public plantation estate.

Figure 3 Proportion of plantations managed for sawlogs and pulplogs, 2013–14



a Information on plantation management was insufficient, so it was not always possible to ascertain the main products.

Source: ABARES

3 Sandalwood case study

Sandalwood plantations in Australia are not currently included in the NPI statistics. The NPI will commence surveying Australian sandalwood plantation growers in 2015–16 to report on new plantations and total area of Indian and Western Australian sandalwood plantations. Under the NPI program, statistics on commercially managed plantations are collected and aggregated to provide estimates of Australia's plantation estate.

Sandalwood trees are highly valued for their fragrant heartwood. The wood is used for religious and customary purposes and is also used for cosmetics and perfumery products.

Sandalwood and its oil are in great demand, particularly in Asia and the Middle East. Globally, overharvesting from the wild and insufficient plantation establishment have led to rapid decline of sandalwood resources worldwide (Subasinghe 2013). Sandalwood production in India is estimated to have dropped from around 4 000 tonnes of heartwood a year in the 1950s to around 500 tonnes in 2007 (Subasinghe 2013).

In Australia native sandalwoods are found in Western Australia (*Santalum spicatum*) and in Queensland (*Santalum lanceolatum*). Around 2 000 tonnes of native *Santalum spicatum* is licensed for harvest in Western Australia each year (FPC 2011). In Queensland, 550 tonnes of native *Santalum lanceolatum* is available annually for harvesting from state lands (MIG&NFI 2013).

Indian sandalwood (*Santalum album*) and Western Australian sandalwood (*Santalum spicatum*) plantations complement the wild-grown sandalwood resource in Western Australia.

Indian sandalwood plantations have been grown in Australia since 2006, with approximately 12 000 hectares planted, mainly around Kununurra, in northern Western Australia.

The Forest Products Commission, Western Australia, and WA Sandalwood Plantations Pty Ltd together manage around 15 000 hectares of Australian sandalwood plantations throughout the Western Australia wheat belt. An estimated additional 6 000 hectares of Australian sandalwood plantations in Western Australia are managed or owned by private landowners or private companies.

Figure 4 Sandalwood seedling with host tree

Source: ABARES

The first commercial harvest of Australian plantation grown Indian sandalwood is reported to have occurred in 2013. Australia's sandalwood industry involves exports of unprocessed wood, oil distillation and processing of sandalwood into perfumery, cosmetic and other products.

In 2011–12 the value of Australian sandalwood commodity exports was estimated at around \$6 500 a tonne of raw sandalwood and around \$1 000 a kilogram of sandalwood oil (MIG&NFI 2013). Given the high value of the species, sandalwood plantations are an emerging and important component of Australia's plantation estate.

Glossary

Australian sandalwood	<i>Santalum spicatum, Santalum lanceolatum</i>
blackbutt	<i>Eucalyptus pilularis</i>
Dunn's white gum	<i>Eucalyptus dunnii</i>
flooded gum	<i>Eucalyptus grandis</i>
hoop pine	<i>Araucaria cunninghamii</i>
Indian sandalwood	<i>Santalum album</i>
maritime pine	<i>Pinus pinaster</i>
radiata pine	<i>Pinus radiata</i>
shining gum	<i>Eucalyptus nitens</i>
southern blue gum	<i>Eucalyptus globulus</i>
southern pines	<i>Pinus caribaea, Pinus elliottii</i>
spotted gum	<i>Corymbia maculate</i>

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