

Australia's forests

Forests are one of Australia's greatest natural assets. They are highly valued, have many uses and provide a range of valuable products and benefits for society.

Forests provide habitat for animals and plants, protection for our water catchments and have other benefits. They provide wood for housing, furniture and paper products and, therefore, employment and export earnings for Australia.

They also produce non-wood products, such as honey, wildflowers, foliage, mushrooms and bush foods.

Both native and plantation forests provide areas for recreation, such as bushwalking and bird watching, and some forests are major tourist attractions.

To help ensure that all these aspects of our forests are properly managed, we collect, compile and analyse information about various aspects of Australia's forests. This profile explains the terms used in each of the nine forest types described in this series.

Why do we measure and classify our forests?

Forest information is used for a wide variety of purposes, such as conservation plans for threatened species, fire reduction strategies and setting harvesting limits. This information is used to meet Australia's domestic and international reporting obligations.

Information on forests is generally collected at a regional or State level and then compiled to produce national data.

This profile will answer the following questions about Australia's forests.

- what type of forests are they?
- where are they?
- what is their crown cover?
- how high are they?
- who owns or manages them?
- what are they used for?







From top to bottom: Gidgee (*Acacia cambagei*) woodland, Central Queensland; mountain ash (*Eucalyptus regnans*) and grey gum (*Eucalyptus punctata*) open forest, Kingslake, Victoria; plantation of exotic radiata pine (*Pinus radiata*)

What is a forest?

The definition of a forest in Australia is 'an area dominated by trees having usually a single stem and a mature or potentially mature height exceeding two metres and with existing or potential crown cover of overstorey about equal to or greater than 20 per cent'.

This definition covers a wide variety of forests, including small, young seedlings in a plantation forest, native eucalypt forests that are hundreds of years old, woodland forests in arid areas and lush tropical rainforests.



Peppermint forest (Agonis flexuosa) Donnelly River, Western Australia

What are Australia's main forest types?

For the purposes of this Australian forest profile series, the National Forest Inventory has classified Australia's forests according to the following nine main forest types:

- Acacia Melaleuca
- Callitris •

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- Casuarina
 - Plantation
 - Other forest

Rainforest

Eucalypt • Mangrove

The area and distribution of these forest types are shown in Table 1 and Figure 1. Separate titles in this series are available for the first eight of these forest types, which are based on dominant genus groups or are plantations.

The 'other forest' type consists of minor forest types that are too small to map effectively at a national scale or where information is limited for a variety of reasons. For example, forests with dominant genera, such as Angophora, Flindersia, Hakea, Leptospermum, Lophostemon and Lysiphyllum fall into this type. The term 'other forest' is also used to describe forests where two or more species codominate. Australia's State of the Forest Report 2003 contains more details on the forests that are classed as the 'other forest' type.



Table 1: Summary of area of Australian forest types (hectares)

Forest type ¹	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia	% total forest
Acacia	0	1 250 700	1 613 400	6 984 300	1 938 800	74 000	63 500	4 563 100	16 487 700	10%
Callitris	500	1 239 800	386 000	386 700	260 800	800	55 500	0	2 330 100	1%
Casuarina	300	999 700	14 300	216 000	762 800	1 400	3 800	40 400	2 038 900	1%
Eucalypt	116 500	22 219 300	27 911 600	38 706 200	7 848 700	2 474 900	7 562 100	20 185 200	127 024 900	77%
Mangroves	0	3 100	355 100	195 500	19 400	0	2 100	173 300	748 500	0.5%
Melaleuca	0	44 500	1 593 400	5 301 200	1 200	19 500	96 500	0	7 056 300	4%
Other forest	100	415 200	738 300	1 058 900	34 000	400	135 400	397 500	2 779 900	2%
Rainforest	0	485 700	223 600	2 885 100	0	598 200	15 900	5 100	4 213 700	3%
Total native forest	117 500	26 658 000	32 835 800	55 734 000	10 865 700	3 169 200	7 935 000	25 364 700	162 679 900	
Plantation ²	5 000	341 000	12 000	215 000	164 000	226 000	383 000	370 000	1 716 000	1%
Total forest	123 000	26 999 000	32 848 000	55 949 000	11 029 000	3 395 000	8 318 000	25 734 000	164 396 000	100%

1 Native forest areas from National Forest Inventory (2003) Australia's State of the Forests Report

2 National Plantation Inventory Annual Update 2005

Note: All values have been rounded, hence, column and row totals may not tally exactly.

Where are Australia's forests?

Climate and soil properties strongly influence the distribution of forests across Australia, although other factors, such as fire history, are also important. As a result of its largely dry climate and the low nutrient status of many soils, Australia is the least forested continent apart from Antarctica.

The latest estimate of Australia's forest area is close to 164 million hectares (Table 1), which is approximately 21% of the continent.



Red tingle (*Eucalyptus jacksonii*) and yellow tingle (*Eucalyptus guilfoylei*) forest, southwest Western Australia

What is the crown cover and height of Australia's forests?

Australia's native forests are classified at the national level into three crown cover classes: woodland, open and closed. This is determined by measuring the area of ground covered by tree canopies. Woodland forest has a crown cover ranging from 20–50%, open forest has a crown cover ranging from 50–80%, and closed forest ranges from 80–100%.

Three height categories are used to classify Australia's native forests: low, medium and tall. Low forests are 2–10 metres tall, medium forests are 10–30 metres, and tall forests exceed 30 metres at maturity (Figure 2).

Australia has some of the tallest trees in the world, with some stands of mountain ash (*Eucalypts regnans*) reaching more than 80 metres and occasional individual trees reaching up to 90 metres. The tallest record of an Australian tree was a mountain ash measured to be 132.6 metres in 1872 in the Strezlecki Ranges, Victoria.

Almost two-thirds of the native forest estate is in the woodland forest crown cover class and almost one-third is comprised of open forest types (Table 2). The distribution of forest by crown cover is similar across most States and Territories, with the exception of New South Wales, Victoria and the Australian Capital Territory, where the majority of the forests are classified as open forest types. Figure 2: Forest according to crown cover and height classes





Myrtle beech (*Nothofagus cunninghamii*) rainforest, Otways, Victoria

Who owns Australia's forests and what are they used for?

Australia's forests are classified into six 'tenure' or ownership and management categories which determine how the forest can be used:

Multiple-use forest – State forests, timber reserves and other forest areas in which a range of forest values are managed, including timber harvesting, water supply, conservation of biodiversity, recreation and environmental protection. They are managed by State and Territory government agencies in accordance with State and Territory Acts and regulations. Nature conservation reserves – Crown lands that are formally reserved for environmental, conservation and recreational purposes. They include national parks, nature reserves, State and Territory recreation and conservation areas, formal reserves on State forest and crown lands reserved to protect water supply catchments. This does not include informal reserves and those pending gazettal.

Private land – land held under freehold title and under private ownership. It includes private land title with special conditions attached for designated Indigenous communities.

Leasehold land – Crown land held under leasehold title and generally regarded as 'privately managed'. It includes leasehold land with special conditions attached for designated Indigenous communities.

Forest type	Woodland	Open	Closed	Unknown	Total
Acacia	11 364 000	2 998 000	0	2 126 000	16 488 000
Callitris	502 000	622 000	0	1 206 000	2 330 000
Casuarina	359 000	871 000	0	809 000	2 039 000
Eucalypt mallee	10 400 000	1 929 000	0	0	12 329 000
Eucalypt low	21 992 000	629 000	27 000	0	22 648 000
Eucalypt medium	53 263 000	29 920 000	63 000	0	83 246 000
Eucalypt tall	1 728 000	7 073 000	0	0	8 801 000
Mangrove	25 000	266 000	325 000	132 000	749 000
Melaleuca	1 056 000	763 000	15 000	5 222 000	7 056 000
Rainforest	0	0	4 214 000	0	4 214 000
Other forest	1 837 000	530 000	0	413 000	2 780 000
Total native forest	102 526 000	45 603 000	4 644 000	9 907 000	162 680 000

Table 2: Area of native forest types according to crown cover (hectares)

Source: National Forest Inventory (2003) Australia's State of the Forests Report

Note: All values have been rounded, hence column and row totals may not tally exactly.



Pygmy Possum

Other Crown land – Crown land reserved for a variety of purposes, including utilities, scientific research, education, stock routes, mining, use by the defence forces, and use by Indigenous communities.

Unresolved tenure – areas identified where tenure is unknown or for which there are no data.

Approximately 70% of Australia's native forests are privately managed, under either private or leasehold tenure (Table 3). While this land is privately managed, it is still subject to land-use legislation. Thirteen per cent of forest is formally protected in nature conservation reserves.



Forest harvesting machinery

Table 3: Area of forest according to tenure (hectares)

Tenure	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia	% total forest
Leasehold land	11 000	9 470 000	16 313 000	35 581 000	5 255 000	0	46 000	8 920 000	75 596 000	46%
Multiple-use forest	0	2 496 000	0	2 925 000	0	1 062 000	3 312 000	1 600 000	11 395 000	7%
Nature conservation reserves	106 000	4 471 000	12 000	5 000 000	3 943 000	1 105 000	3 050 000	3 805 000	21 491 000	13%
Other crown land	0	1 055 000	890 000	1 131 000	392 000	80 000	207 000	9 387 000	13 143 000	8%
Private land	0	8 523 000	15 511 000	10 213 000	822 000	922 000	1 298 000	1 639 000	38 928 000	24%
Unresolved tenure	0	643 000	110 000	883 000	454 000	0	23 000	14 000	2 127 000	1%
Total native forest	117 000	26 658 000	32 836 000	55 734 000	10 866 000	3 169 000 ²	7 935 000	25 365 000	162 680 000	
Plantations; all tenures ¹	5 000	341 000	12 000	215 000	164 000	226 000	383 000	370 000	1 716 000	1%
Total forest	123 000	26 999 000	32 848 000	55 949 000	11 029 000	3 395 000	8 318 000	25 734 000	164 396 000	100%
Percentage	0.07%	16%	20%	34%	7%	2%	5%	16%	100%	

Sources: National Forest Inventory (2003) Australia's State of the Forests Report and National Plantation Inventory Annual Update 2005

Note: All values have been rounded, hence, column and row totals may not tally exactly.

¹ The National Plantation Inventory classifies plantations by ownership classes that recognise land ownership, tree ownership and joint ownership. These cannot be aggregated into the tenure classes used for native forest.

² Native forest areas for Tasmania as at 30 June 2001 are sourced from the Tasmanian State of the Forests Report 2002. Plantation areas are up to end of 2004 from the National Plantation Inventory Annual Update 2005. Therefore the total forest area for Tasmania is a slight overestimate due to some plantation establishment on native forest areas since 2001.

Australian Government Bureau of Rural Sciences







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Other titles in this series

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