



## Rainforests

Australian rainforests are widely distributed, from the tip of Cape York in the north to the south of Tasmania. They all contain a similarly wide variety of plant species and structure.

'Rainforest' is used as a general term that includes both the evergreen types along the moist eastern coast of the Australian mainland and Tasmania, and the deciduous types in the more seasonally wet-dry northern areas. The definition of rainforest has often been debated in Australia, however, they are all tree-dominated communities with a closed canopy – that is, they have a crown cover of 80% or more.

Since European settlement, rainforests have been recognised as different from the typical eucalypt-dominated forests, and have been treated differently from other vegetation types.

Part of the appeal of rainforests is their strong contrast with the arid and semiarid communities that dominate the Australian continent. The lush image has been promoted photographically in conservation campaigns and tourism advertising. The high biological diversity, structural complexity and aesthetic appeal of tropical rainforests in particular, together with the presence of unique animals such as the cassowary (*Casuarus casuarius*), have also contributed to rainforest being given a high priority in the consideration of maintenance of biodiversity and conservation planning.

There are many types of rainforest, varying mainly with rainfall and latitude:

- **Tropical and subtropical rainforests** occur in northern and eastern Australia in the wetter, coastal areas as far south as New South Wales. Dry rainforests are a variation of tropical and subtropical rainforests that occur in pockets protected from frequent fire in subcoastal and inland areas across northern and eastern Australia. Monsoon rainforests occur in northern and northwestern Australia in the seasonally dry coastal and subcoastal regions.
- **Temperate rainforests** occur in eastern and southeastern Australia. Warm temperate rainforests grow in New South Wales and Victoria, and cool temperate rainforests grow in Victoria and Tasmania, with a few outliers in the high altitudes of New South Wales and Queensland.



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



Subtropical rainforest canopy, Queensland

Studies have shown that rainforests are remnants of some of the oldest types of vegetation in Australia. Many species had ancestors dating back more than 65 million years ago. For this reason, rainforests have major historical and scientific significance. Australian tropical rainforests contain eight of the 14 primitive flowering plant families, while the cool temperate rainforests of Tasmania contain several primitive flowering plants and conifers, such as Huon pine (*Lagarostrobos franklinii*) and celery top pine (*Phyllocladus asplenifolius*).

Rainforest ground covers are often sparse due to the low levels of light under the dense canopies. Understoreys are varied depending on the kind of rainforest. Some are characterised by vines or ferns. Mosses and other aerial plants growing on tree trunks are often a feature of rainforests. Vine forests are a type of rainforest characterised by the presence of significant vines growing on the trees. They are largely confined to the tropics and subtropics. Rainforest with a significant cover of ferns and mosses are concentrated in the temperate zones and at high altitudes in the tropics.

## Where are Australia's rainforests?

Rainforest comprises a significant proportion of Australia's closed forest, but only 2.6% of the total area of native forests (Table 1).

Rainforest extends across the top of northern Australia from the Kimberley region to Cape York, and down the east coast to the cool temperate zone in southern Tasmania (Figure 1). It is patchily distributed, but occurs in all States except South Australia. In all but the areas of highest rainfall, it occurs in discontinuous patches in locally sheltered, moist areas and where it is protected from frequent fire. Associated with this wide geographical and environmental range is significant variation in the structure and types of plants, and the range of species that can be found.

High annual rainfall is an important factor controlling rainforest distribution. Annual rainfall varies from more than 3600 millimetres per annum in the wet tropics of Queensland and 3500 millimetres in western Tasmania, down to 1000 millimetres in other regions. Average annual rainfalls lower than 1000 millimetres are generally not suitable for rainforest.

Table 1: Area of rainforest by crown cover compared with total native forest (hectares)

	Woodland	Open	Closed	Unknown crown cover	Total
Rainforest	0	0	4 214 000	0	4 214 000
Total native forest	102 526 000	45 603 000	4 644 000	9 907 000	162 680 000

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

Figure 1: Rainforest distribution



Source: National Forest Inventory (2003)

Note: The distribution represented on this map has been enhanced for clarity



Table 2: Tenure of rainforest, by State and Territory (hectares)

Tenure	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
Leasehold land	0	10 000	17 000	450 000	0	0	0	0	478 000
Multiple-use forests	0	101 000	0	327 000	0	180 000	8 000	0	617 000
Nature conservation reserves	0	289 000	0	1 161 000	0	387 000	7 000	2 000	1 846 000
Other crown land	0	2 000	5 000	175 000	0	5 000	0	3 000	191 000
Private land	0	83 000	200 000	740 000	0	26 000	0	0	1 049 000
Unresolved tenure	0	0	1 000	31 000	0	0	0	0	32 000
<b>Total rainforest</b>	<b>0</b>	<b>486 000</b>	<b>224 000</b>	<b>2 885 000</b>	<b>0</b>	<b>598 000</b>	<b>16 000</b>	<b>5 000</b>	<b>4 214 000</b>

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

Since European settlement, large areas of Australia's rainforest have been cleared for agriculture. In Queensland and northern New South Wales, the area of rainforest has increased slightly over the past few decades, replacing tall, open eucalypt forest. This is probably due to changes in fire frequency.

## Ownership and management

Most Australian rainforests grow in Queensland with significant areas in the Northern Territory, New South Wales and Tasmania (Table 2). About 44% is in nature conservation reserves, 25% on private land, and 19% in multiple-use forests and other crown land.

## Values and uses

### Wood

Rainforest timbers are prized for their fine qualities and aesthetic value. Although harvested or cleared in the past, rainforest is now largely protected, except in some States, where small, selective harvesting may occur on private land. Harvesting of rainforest still occurs in Tasmania in areas designated to provide a small ongoing supply of Tasmania's special species for high-value uses, such as joinery timbers and craftwood.

### Environmental

Although they only cover a relatively small area, Australian rainforests are important for maintaining biodiversity. They contain 60% of plant families that are unique to this country. About 17% of all Australian bird species occur in rainforests. The wet tropical rainforests of Queensland cover only 0.18% of the area of the continent, but contain about 30% of Australia's marsupial and frog species and 62% of its butterfly species. Five of the 13 centres of plant diversity identified in Australia are dominated by rainforest, while a further three have rainforest components.

## Indigenous

As rainforests contain a high proportion of tree-dwelling fauna, such as possums and birds, they have traditionally been used as hunting grounds for food. Freshwater creeks in tropical rainforests are home to many traditional food sources such as yabbies, fish and turtles.



Green tree frog (*Litoria caerulea*)



### Other uses

Tourism is now the main economic use of rainforests, particularly in the wet tropics of far north Queensland and in Tasmania. Bioprospecting surveys are ongoing for species that may be useful for medical and dietary purposes. Production of honey from leatherwood (*Eucryphia lucida*) is another important use in Tasmania.

Rainforest, Nightcap National Park, northeastern New South Wales



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### Acknowledgements

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