

Fact sheet 2: Mapping Victoria's rainforests

To protect Victoria's sensitive rainforest ecosystems, we need accurate, up-to-date forest maps

Key points

- Victoria's temperate rainforests are home to a rich diversity of species, many of which only occur within this ecosystem. Rainforest and related vegetation are highly sensitive to disturbance, particularly fire.
- Improved mapping will provide an updated estimate of the amount of rainforest in Victoria and a baseline measure for monitoring change in rainforest distribution over time. This information will help manage and protect these rare and important ecosystems.

The importance of Victoria's rainforests

Rainforest is dominated by a dense canopy of non-eucalypt tree species over an understorey of climbers, broad-leaved shrubs, ferns and small soft-leaved herbs. In Victoria it occurs in sheltered gullies at altitudes ranging from sea level to 1500 metres above sea level with annual rainfall between 630 and 1500 mm.

Covering just 0.14 per cent of the State, rainforests are home to 30 per cent of Victoria's rare or threatened plant species. Rainforest and related vegetation are highly sensitive to disturbance such as fire. They can also be negatively impacted by disease and threatening processes associated with forest management activities, such as timber harvesting, fuel reduction burning and road building and maintenance.

Research project titles

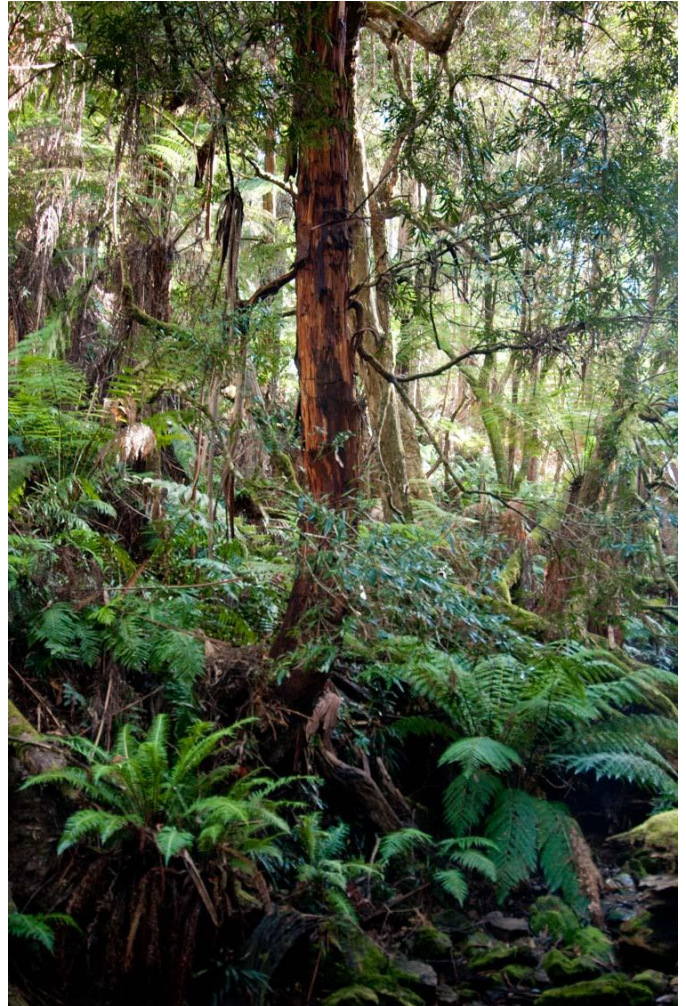
Mapping high conservation value forests in eastern Victoria

Rainforest value datasets: statewide satellite-based classification

Who is doing this work?

University of Melbourne School of Ecosystem and Forest Sciences

Arthur Rylah Institute



East Gippsland rainforest

There are two forms of rainforest in Victoria: Cool temperate and warm temperate. Cool temperate and some types of warm temperate rainforest are listed as threatened under the Flora and Fauna Guarantee Act (1988). The most widespread community of warm temperate rainforest is not listed. Cool temperate rainforest occurs in highland areas with higher rainfall and fertile soils. Warm temperate rainforest occurs in lower lying areas and some coastal parts of Gippsland.

Rainforest and related vegetation are rare in Victoria and are susceptible to disturbances including fire, disease and threatening processes such as harvesting. For this reason, development of the initial RFAs in the 1990s provided special status to rainforests.

Rainforests are protected from forest and fire management activities and require buffer areas that provide protection from drying, disease, fire and weed invasion.

Comprehensive forest mapping

In the past, rainforest mapping was undertaken using aerial photography. The data vary in quality and Victoria's maps are outdated due to the impacts of bushfires.

Mapping rainforest and cool temperate mixed forest is important for identifying and quantifying areas of high conservation forest values and for delineating buffer areas for forest planning. The accurate delineation of protective buffers ensures the integrity of rainforests is maintained by limiting or removing potential impacts associated with forest and fire management activities.

Improved mapping will provide an updated estimate of the amount of rainforest and cool temperate mixed forest in Victoria and a baseline measure for monitoring changes in these endangered communities.

Managing our important and sensitive rainforests requires an understanding of forest, ecosystems and biodiversity. Changes in forest area and structure over time can help reveal the impact of environmental disturbances and extreme events, such as bushfires on forest ecosystems.

Researchers are:

- using airborne LiDAR measurements and new forest models to accurately map forest in Victoria's Central Highlands, including rainforest, eucalypt forest, and cool temperate mixed forest. LiDAR provides detailed three-dimensional profiles of vegetation structure.
- combining new high-resolution aerial photographs and satellite data ('Sentinel-2') with artificial neural-network classification programs to model and map the extent of rainforest systems. Machine learning techniques will incorporate examples of rainforest types and other vegetation determined from aerial photographs matched against climate and terrain satellite data.
- linking a new eucalypt cohort aging approach with LiDAR mapping of forest crowns to understand the history of disturbance in and around these ecosystems.

Reconnaissance visits to forests will check the accuracy of the models and identify any uncertain canopy types.

The previous RFA processes required the identification and precise description of all mature forests. This was done using aerial photos and information about the forest

growth. In the past 20 years, there has been no comprehensive mapping of Victoria's rainforest communities. Major bushfires have occurred during that time, so it is important to again assess the extent of the communities to determine how they have coped under significant disturbance from bushfire and if their extent has changed.

This assessment will be essential for establishing the extent of the rainforest types in Victoria. Having an improved understanding of how much rainforest remains will ensure that they can be adequately managed and whether further protection is needed.

How will the research help manage our forests?

By identifying areas of high conservation value forests, this work will provide important information for supporting decision-making during the RFA and future forest management planning processes. The research will provide a baseline dataset that can be used for future monitoring of changes in forest structure and forest types.

Specifically, the rainforest project will produce the following:

- Improved mapping of the extent and abundance of this rare ecosystem
- Improved mapping of the habitat for the 90-rainforest species.
- Improve mapping of rainforest areas to inform future management
- Determine the role of past disturbance on the distribution of rainforest and mixed forest.

More information

Future of our Forests

<https://www2.delwp.vic.gov.au/futureforests>

This series of fact sheets

<https://www2.delwp.vic.gov.au/futureforests/forest-values-assessment/forest-values-assessment-fact-sheets>

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