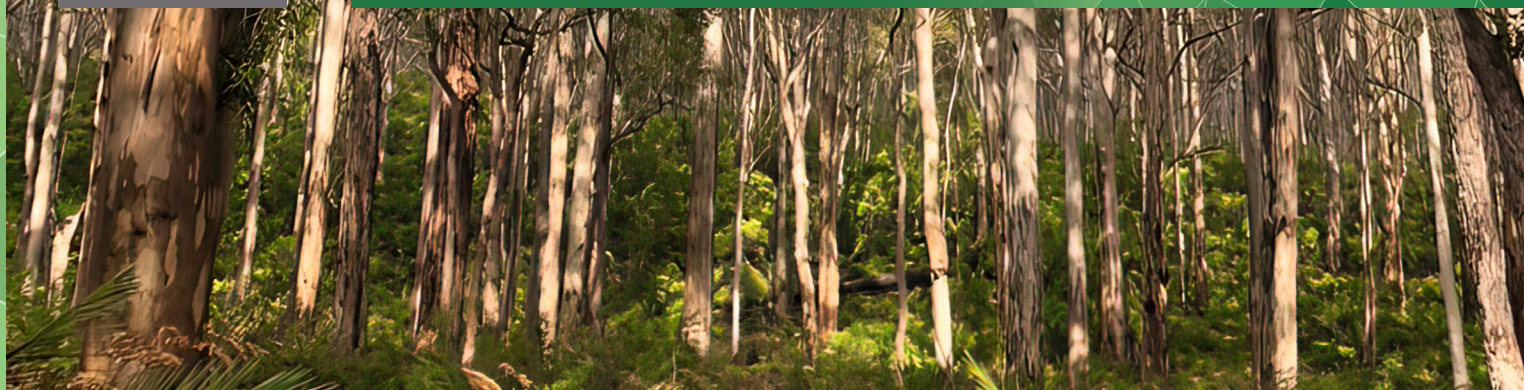




# Forest Management Plan 2024–2033

## Independent Silviculture Review



The *Forest Management Plan 2014-2023* includes a management activity requiring an independent expert panel review of current and proposed silvicultural guidelines and practices. The purpose of the independent silviculture review is to fulfill this requirement, and to assist in the development of silvicultural settings for the subsequent *Forest Management Plan 2024-2033*.

In September 2021, the McGowan Government announced that large-scale commercial timber harvesting would cease from 2024, and timber taken from native forests will be limited to forest management activities that improve forest health and clearing for approved mining operations. A key forest management activity will be ecological thinning.

The expert panel examined national and international trends in forest practices to enhance forest health and reviewed current silvicultural guidelines and procedures for south-west jarrah, karri and wandoo forests. It was asked to recommend practical changes or refinements necessary to improve forest health and make recommendations on research and monitoring that would inform an adaptive management approach to ecological thinning.

The four-member panel of independent experts convened in February 2022. To inform its deliberations, the Department of Biodiversity, Conservation and Attractions (DBCA) supported the panel over 10 days to inspect contemporary silvicultural practices, bushfire or other salvage operations, historic silvicultural experiments and adaptive management trials that inform catchment management and ecological thinning.

The panel submitted its final report to DBCA in mid-May 2022. The report makes six recommendations about ecological thinning in jarrah, karri and wandoo forest, fire management, and research and development. You can view the final report on the DBCA website at [dbca.wa.gov.au/forest-management-plan](https://dbca.wa.gov.au/forest-management-plan).



To stay updated on the forest management plan, email the team at [forest.info@dbca.wa.gov.au](mailto:forest.info@dbca.wa.gov.au)

The report and recommendations of the Independent Silvicultural Review Panel is one of many inputs contributing to the development of the draft Forest Management Plan 2024-2033. DBCA and the Conservation and Parks Commission will consider the report and each recommendation, including how they may inform the silvicultural settings and practices in the draft plan and subsidiary guidance documents.

The overall scope and approach to forest management activities that improve forest health, including ecological thinning, will continue to be canvassed through the development of *Forest Management Plan 2024-2033*.

### Four independent experts formed the independent panel.

**Dr Neil Burrows (Chair)** is an internationally recognised expert on Western Australian forest ecology and fire management.



**Professor Richard Harper** is from Murdoch University. His research explores the science and policy of carbon mitigation and water yields and carbon storage in south-west forests. He was lead author on the IPCC 5th Assessment report.

**Professor Patrick Baker** is a professor of silviculture and forest ecology at the University of Melbourne, who researches how climate and disturbances shape forest dynamics and how that understanding can inform better management practices in native forests.

**Associate Professor Richard Silberstein** specialises in catchment and groundwater hydrology, in particular the interactions between vegetation and hydrology, and the responses of forests and agricultural vegetation systems to changes in land use and climate.

# Forest Management Plan 2024–2033

## Independent Silviculture Review

The independent panel made six recommendations. They are:

- 1 In jarrah forest, it recommended a program of thinning across dense young regrowth stands be implemented, using density management principles to prioritise stands and guide development of a thinning program within an adaptive management framework.
- 2 For karri forest, the panel noted thinning is generally less of a priority but may still be desirable to maintain water balance, enhance fire resilience, promote faster development of hollows and provide greater security of carbon stores.
- 3 The panel did not recommend thinning operations in wandoo forests but noted it may be required to maintain water balances for key environments, such as riparian communities of high conservation value.
- 4 For forest areas rehabilitated post mining operations, the panel recommended that areas planted with non-WA native species be converted to native forest ecosystems, and that areas planted with a jarrah-marri mix be thinned to reduce stand density, increase individual tree growth and increase variation of tree age and species present in these areas of forest.
- 5 The panel recommended that thinning operations should be integrated with fire management strategies, such as prescribed burning, to mitigate the risk of additional flammable fuel loads arising from thinning operations.
- 6 Four recommendations were made related to research and development to inform and guide ecological thinning, including:
  - Development and application of density management guidelines to underpin identification of areas suitable for ecological thinning
  - Operational scale experimental thinning trials in each major forest type
  - Monitoring to evaluate the outcomes of thinning
  - Modelling the costs and benefits of ecological thinning to inform and provide guidance on implementing different prescriptions.

### What is silviculture?

Silviculture is the science and practice of managing forests and woodlands to meet the wide range of needs and benefits to landowners and the community, now and for the future. It considers the ecology, establishment, growth, health, use and quality of forests. How a forest grows depends on the characteristics of the tree species, and how they are affected by the soil and climate.

Contemporary silviculture encompasses environmental, economic, and social objectives to achieve ecologically sustainable forest management. It has been applied to achieve a wide variety of outcomes including soil and water protection, forest health, carbon and wood production, catchment management, habitat for wildlife, maintenance of aesthetics, and provision for recreation. The silvicultural method(s) applied are designed to achieve a balance between objectives, and the objectives may differ at the local and landscape scale to achieve the desired balance of objectives for the whole of forest.

DBCA currently uses a series of silviculture guidelines to outline the management principles for the various forest types, and the silvicultural treatments that can be applied to them. The guidelines seek to ensure that a wide range of forest values is catered for at a local scale and complement a range of other measures described by the plan. These guidelines will be revised as part of developing the draft *Forest Management Plan 2024–2033*.

### What is ecological thinning?

Ecological thinning is a forest management activity undertaken to support forest health and resilience as the landscapes continue to become drier and warmer in the future.

Thinning involves reducing the number of trees within an area to reduce the current and future moisture stress on a site for an extended period. The defining feature of 'ecological' thinning at the stand or patch scale is the primary objective to increase resilience of the forest to climate change impacts and maintain forest ecosystem health. This remains nested within the landscape-scale objective of maintaining biodiversity conservation outcomes over the long-term.

The number of trees removed from an area (and therefore the number retained) will vary depending on the dominant forest type, the condition of the forest and the characteristics of the site.

### The potential benefits of ecological thinning include:

- reduced moisture stress in forest stands
- increased soil moisture
- increased resilience to drought, heatwave events and bushfire
- reduced fuel loads to mitigate the risk of bushfire
- faster growth of remaining trees to maturity, reducing the time required to develop suitable habitat such as hollows for fauna
- long-term carbon storage.