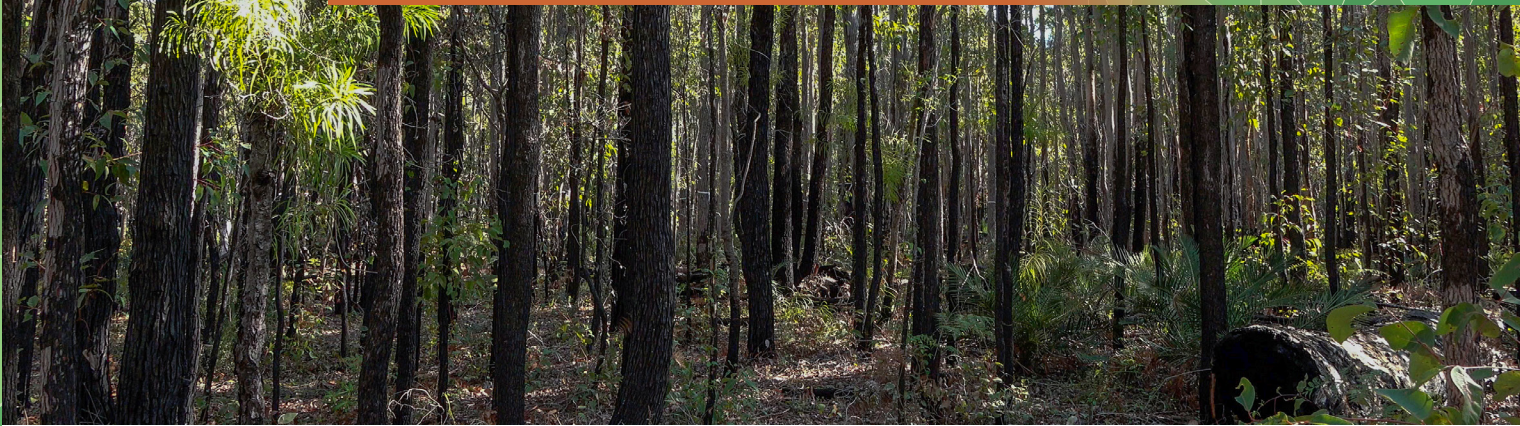




Draft Forest Management Plan 2024–2033

Fact Sheet: Ecological thinning



Munro trial site before thinning.

A key focus of the *Draft Forest Management Plan 2024-2033* is forest management and climate adaptation activities to support forest health and resilience. This is captured within the strategic goals of the plan.

In September 2021, the Western Australian Government announced that large-scale commercial timber harvesting would cease in south-west native forests from 2024. The renewed focus on maintaining forest health through active forest management includes targeted thinning of south-west forests.

What is ecological thinning?

Ecological thinning is an active forest management and climate adaptation tool undertaken to support forest health and resilience. It involves the selective removal of individual trees to improve or maintain the ecological values in a forest. Thinning aims to reduce competition between trees and supports the survival and growth of the remaining vegetation.

One type of 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. By removing smaller, often younger trees, the larger more established trees in the area can access the water and other resources they need.

Why is ecological thinning needed?

Over recent decades, the climate in our south-west has become markedly drier and warmer, with more frequent heatwaves and droughts. The decline in rainfall can limit the ability for every tree in an area to thrive.

A key factor affecting forest health under a changing climate is the availability of water. Thinning to reduce the stocking (number of trees per unit area) within a stand reduces moisture stress by reducing forest water demand. In general, young, fast-growing trees use more water than large, older trees. Consequently, reducing the stocking density of young stands of regrowth is likely to yield important benefits for water availability and forest health.

As well as reducing moisture stress and increasing resilience to droughts and heatwaves, there can be a number of other potential benefits of ecological thinning, including:

- increased water availability for catchments and aquatic ecosystems
- greater structural diversity of habitat types, which is important for a range of fauna species
- reduced fuel loads to mitigate the risk of high intensity bushfires
- increased chance of trees surviving bushfire events, as larger trees have thicker bark and their crowns are further from fuel on the forest floor
- faster growth of remaining trees, reducing the time required to develop larger crowns with suitable habitat such as hollows for fauna
- contribution to long-term carbon capture and storage.

By reducing the density and number of trees in parts of the south-west forests, a greater pool of resources (water, nutrients, sunlight) becomes available to each of the retained trees, increasing their ability to grow and deal with future changes in climate.

Where might ecological thinning be conducted in south-west forests?

Areas of densely stocked young regrowth forest in the south-west are particularly vulnerable to moisture stress and are a priority for ecological thinning.

Vulnerable forest stands within State forests and timber reserves that were available for timber harvesting under the current forest management plan, will be considered for ecological thinning. The *Draft Forest Management Plan 2024-2033* proposes that thinning be undertaken in mining rehabilitation areas and regrowth karri, jarrah and wandoo forest younger than around 55 years old. Vulnerable stands in other forest types and habitats might also be considered for thinning on a case-by-case basis.



Draft Forest Management Plan 2024–2033



Munro trial site after thinning.

Selection of specific locations for thinning will involve assessing observed and projected changes in rainfall, groundwater trends, forest condition and potential habitat for threatened species. Any proposed thinning will also need to ensure protection of value of the land to Aboriginal culture and heritage.

The *Draft Forest Management Plan 2024-2033* proposes an adaptive management approach, which means activities such as ecological thinning will be closely monitored to determine if it is working, or if changes need to be made over time.

Operational trials that improve knowledge and understanding about the effectiveness of ecological thinning will continue to be important over the next decade.

How might ecological thinning be undertaken?

Most ecological thinning treatments involve a reduction in leaf area or basal area (measurements of tree density in a specific area). The intensity of the thinning operations (the number of trees removed from an area) will vary across forest ecosystems to achieve improved forest health and resilience. Thinning typically proceeds from the smallest trees towards larger trees until the leaf or basal area target has been met. Large trees are usually excluded from thinning as they are the most likely future habitat trees and store the greatest amount of carbon.

An overall annual thinning program up to 8,000 hectares across the south-west forests is proposed in the *Draft Forest Management Plan 2024-2033*, with additional areas to be considered for thinning for conservation purposes only with the approval of the Minister for Environment.

Ecological thinning in young regrowth stands will generally commence from around 20 to 25 years of age. Specialised machinery will be used to minimise soil disturbance and potential damage to the retained trees and vegetation.

Thinning operations also often require follow-up control efforts with herbicide to minimise the potential for stumps to resprout. Otherwise, the benefits to reduce moisture stress may only be short-lived.

Will the timber from ecological thinning be salvaged?

Yes – while the overall scale and location of ecological thinning will be driven by forest health objectives, the thinning of young regrowth stands will generate quantities of small stems which may result in excessive fire risk if left on the forest floor. The *Draft Forest Management Plan 2024-2033* provides for the salvage and removal of the timber generated by the Forest Products Commission.

How will we know if ecological thinning is working?

Thinning has been undertaken previously in a number of areas in the south-west. The story of 'Yarragil' case study details the outcomes of thinning in a research catchment south-east of Perth over the last 40 years. More recently, demonstration areas (for example, in Wungong catchment and Munro forest block) have been developed with a focus on thinning for forest health in a drying climate.

Further reading

To learn about ecological thinning refer to A Report on silvicultural guidelines for the *2024-2033 Forest Management Plan* to the Western Australian Department of Biodiversity, Conservation and Attractions on our website at dbca.wa.gov.au/forest-management-plan

The management of Western Australia's south-west forests will be outlined in the *Forest Management Plan 2024-2033*.

For more information visit our website at dbca.wa.gov.au/forest-management-plan



Conservation and Parks Commission
Department of Biodiversity, Conservation and Attractions