

alternatives to clearfell
silviculture in Tasmania's
public oldgrowth forests

the issues



Forestry Tasmania
GROWING OUR FUTURE

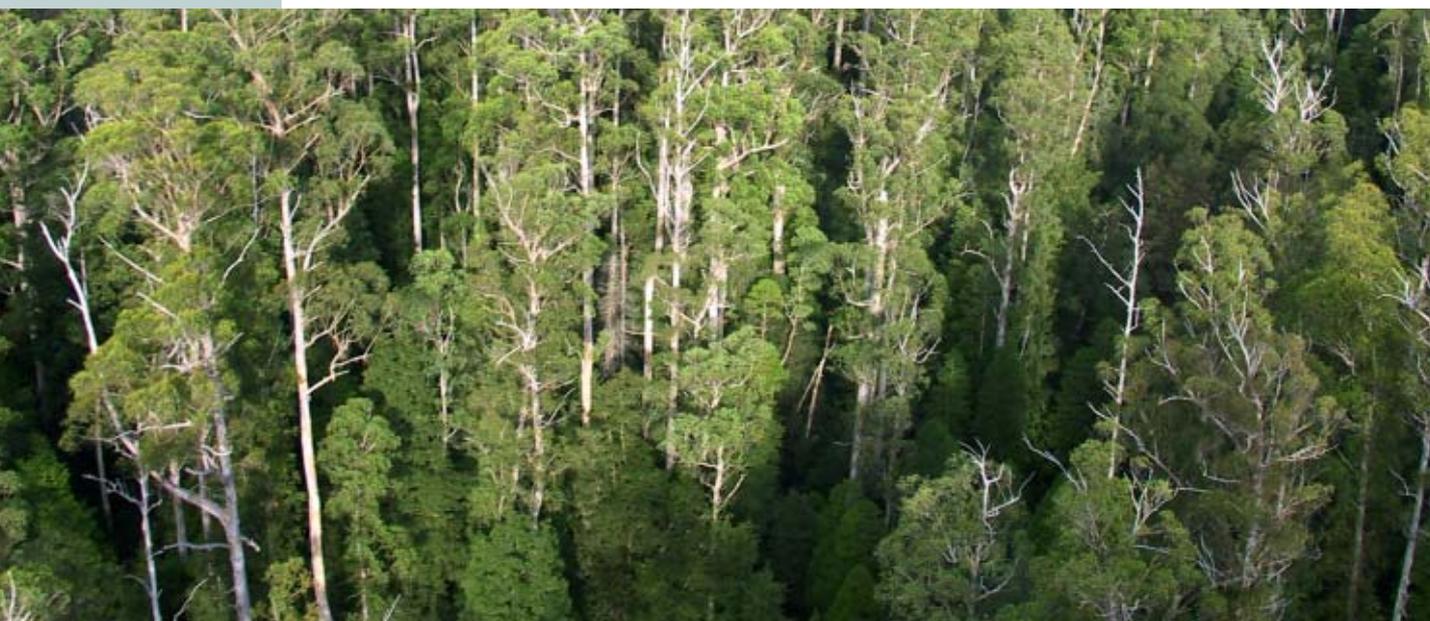
Introduction

In September 2003, the Tasmanian Government formally requested Forestry Tasmania to provide advice on the phase-out of clearfelling within oldgrowth forests on public land by 2010. This advice was requested within the following context:

- maintenance of a minimum supply level of 300 000 cubic metres of high quality eucalypt veneer and sawlog material as provided for in the Forestry Act;
- maintenance of contracted commitments to veneer, sawlog and pulpwood customers;
- maintenance and enhancement of occupational health and safety in forest operations;
- safe processing and removal of forest harvesting residues; and
- regeneration which meets stocking standards for sustainable forest management.

As the first step in preparing a formal report, Forestry Tasmania has prepared the following series of issues papers which can be viewed in their entirety on www.forestrytas.com.au

- Alternatives to clearfell silviculture in oldgrowth forests;
- Sustaining volume and quality of wood yields from State forests ;
- Financial, economic and community considerations;
- Safety management, and
- Forest management issues.



Definitions of 'oldgrowth' and 'clearfelling'

The nationally agreed definition of oldgrowth forest is: *"ecologically mature forest where the effects of disturbances are now negligible"*. This definition was used in the Tasmanian Regional Forest Agreement and adopted in the Tasmania Together process.

Clearfelling is commonly defined as: *"the removal of all trees on a harvesting coupe in a single operation"*. Clearfelling is one of a family of silvicultural systems used for sustainable management of forests on lands allocated for wood production. It is widely used in temperate and boreal forests around the world.

Oldgrowth forests are here to stay

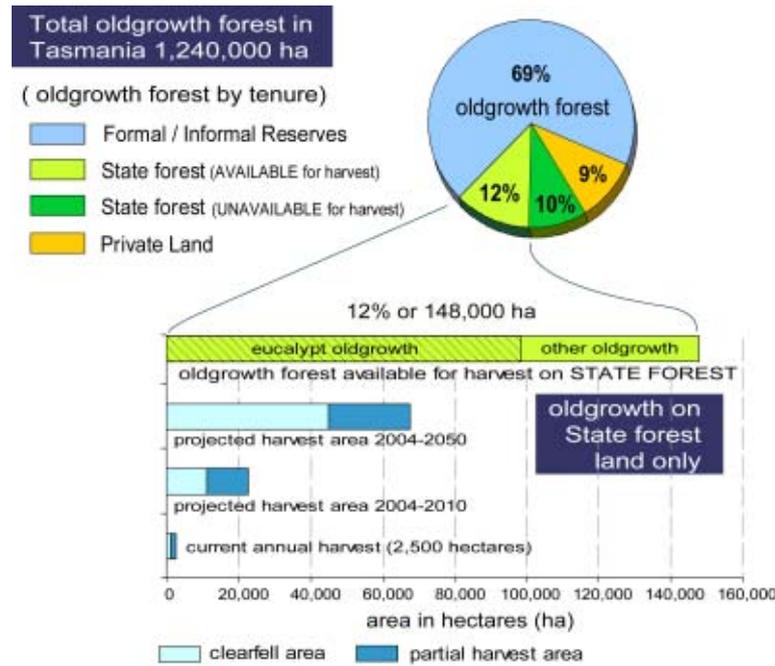
Tasmania has 1.24 million hectares of oldgrowth forest of which 850,000 hectares are reserved for conservation and a further 150,000 hectares will never be harvested.

In total, more than one million hectares of oldgrowth forests will never be affected by forest harvesting activity of any kind. In the 12% of the total area of oldgrowth forest in Tasmania which is available on State forest for wood production, the annual rate of harvest is small (0.2% per annum of Tasmania's total oldgrowth forests). Most of this area will remain at 2010 and beyond.

From clearfelling to single tree selection

Alternatives to clearfelling in oldgrowth forests, have been the subject of field research at the Warra long-term environmental research facility. These 'alternatives' represent points along a continuum of different approaches: from complete removal of trees; for example clearfelling through to single tree removal – for example selection harvesting. A variety of alternatives along the continuum may have application in particular forests. Each alternative has different risks, costs and benefits.

The main alternatives to clearfelling are variable retention systems and single tree/small group selection (SGS) systems.



Aggregated retention at Warra



Variable retention

This is practised either as dispersed retention, which leaves individual trees for habitat purposes, or aggregated retention, which leaves patches of forest. The retained patches or dispersed trees are kept to provide some structural complexity and biodiversity benefits in the landscape. Variable retention systems are already practised in Tasmania, albeit by other names, in some rainforests and dry eucalypt forests. However, their implementation is most challenging in tall oldgrowth wet eucalypt forests, which are also the forests of most public concern in regard to clearfelling.

Single tree/small group selection (SGS)

This low intensity/low yield harvesting operation usually leaves about 80% forest cover at each harvest. Successive harvesting operations may be carried out approximately every 20 years. SGS systems are difficult to implement in tall oldgrowth forests because they pose a serious safety risk to harvesting personnel, residues pose a severe fire risk, and regeneration of eucalypts is poor, at least where gap sizes are less than 30 m. These systems are expensive to implement effectively and are not consistent with sustainable eucalypt timber production. However, they do have application in areas designated for long term special timbers management where the eucalypt component is generally low and the primary focus is on special species timbers which occur in low volumes but have very high value.

High quality wood supply will be reduced

Alternative, non-clearfell harvest strategies in oldgrowth forests generally, are on current information, likely to reduce long-term sustainable yields from State forest by 10–40%, depending on the silvicultural options applied.

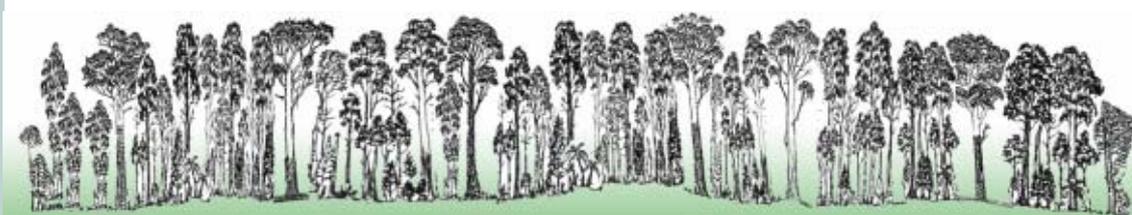
Phasing-out clearfelling in wet eucalypt forests will result in a reduction in sustainable yield for all grades of log products. The main impact however, will be in the reduction of slow-grown larger dimension veneer and sawlogs which produce the highest quality wood available to the saw-milling, veneer and furniture industries.

Preliminary rankings of alternatives to clearfelling oldgrowth eucalypt forest at the harvest site. (1 = best, 4 = worst. Abbreviations: SGS = single tree/small group selection; CBS = clearfell, burn and sow)

	Aggregated retention	Dispersed retention	SGS	CBS
Regeneration and productivity	2	3	4	1
Operability and safety	2	3	4	1
Fire safety	2	3	4	1
Biodiversity	1-2	3	1-2	4
Aesthetics and social acceptability	2-3	2-3	1	4



Dispersed retention at 0 years



Dispersed retention at 80 years

The best estimate of additional costs required to address the identified forest management issues is given below.

Estimated operational cost indices per cubic metre of wood produced for alternative silvicultural regimes (CBS = 100).

	(CBS)	variable retention	(SGS)
Planning	100	130-140	400-500
Roading	100	130-140	400-500
Harvesting	100	105-110	180-200
Regeneration	100	200-250	3000-4000

Meeting wood commitments after 2010

The phasing-out of clearfelling while maintaining existing log contracts would be dependent on planting additional areas of high-pruned hardwood plantation, improved utilisation of existing logs and industry re-investment in processing. Establishment of additional pruned plantations should be within the parameters necessary to meet the Government 's Permanent Forest Estate Policy, which provides for a minimum 95% retention of native forest on public land.



Fine furniture, veneers and flooring are made from Tasmanian oldgrowth timber

Economic and employment considerations

Any resource loss from moving to alternative silviculture in oldgrowth forests is likely to occur in the most productive wet eucalypt forests. Any loss of production from these wet eucalypt forests will cause a disproportionately large loss in the sawmilling and veneer industries.

Broad modeling suggests that the worst case scenario of no harvesting in oldgrowth forests would reduce sustainable yields over the whole state of between 30-40%, whereas successful implementation of an aggregated retention regime may produce yield losses of 10–20%.

Industry Investment climate

The Regional Forest Agreement of 1997 resulted from a two-year, five million dollar process in which all parties including State and Federal Parliaments, agreed to protect forty percent of Tasmania's land and forty percent of its forests. The land use decisions made under the RFA resulted in Tasmania's conservation reserves exceeding international benchmarks and significantly, *a clear definition of the areas available for wood production for 20 years*. This definition provided an environment in which the forestry and sawmilling industries could invest in new tree planting and processing with confidence. Any decision taken which results in reduced yields from wood production areas will impact on industry confidence, investment and ultimately, on employment levels.

Safety considerations

All partial-felling systems are potentially more dangerous than clearfelling because forest workers are exposed to hazards and risks associated with felling and log extraction under retained trees. Tall oldgrowth forests pose greater risks to harvesting personnel than regrowth forests because the tree sizes are much larger, there is a far higher level of natural decay in the trees, and the ability to influence the direction of the tree fall is diminished. Dense understoreys in tall oldgrowth forests make it difficult for forest workers when seeking escape routes from falling trees.

Limited results from silvicultural trials indicate that the safety hazard to workers posed by aggregated retention may not be significantly greater than for clearfells if the average distance between aggregates in oldgrowth forests is about two tree lengths or 80 m.

Selective logging (SGS) in tall oldgrowth forests presents the greatest risk of the alternative systems. Exacting directional felling requirements and very limited machinery manoeuvrability make harvesting slow and dangerous.

Fire management issues

Under any non-clearfelling option, the harvest residue cannot be disposed of through high intensity burning. The residues which will be left on the forest floor, prevent regeneration and pose a significant forest wildfire hazard. Any preferred alternative harvesting method will need a slash/residue removal strategy to reduce the risk of uncontrollable wildfires in our forests and to ensure regeneration of harvested areas.

Alternative silvicultural regimes will produce less wood per hectare than clearfelling. Therefore, more areas may have to be harvested in the short term to meet the existing contracted commitments to industry. There will also be significant new roading and road maintenance required.



Harvesting debris 'slash' in a single tree/small group selection (SGS) coupe at Warra

Your comments:

Public comment is invited on these issues papers, which are available at www.forestrytas.com.au.

Forestry Tasmania will consider all comments before providing its advice to the Tasmanian Government.

Your comments may be emailed to oldgrowth@forestrytas.com.au or sent to: 'Alternatives to Clearfelling' c/- Forestry Tasmania, 79 Melville St Hobart, 7001 by 14 May 2004.