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# Old-growth forest areas and their reservation status across Australia

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with thanks for input from States and Territories



Science for decision makers



DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY



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## Outline of talk

- Growth stages described, works well for some forests, but not all species/types
- Why are we interested in old-growth?
- Old-growth definition
- Old-growth in National Forest Policy, and RFA's
- Mapping of old-growth – where and when
- Old growth by tenure esp. areas in conservation reserves
- Threats for old-growth
- Conclusions

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## Why is growth stage information useful?

- Growth stage is an indicator of biodiversity
- Old-growth forests usually have high structural and species diversity and support some dependent species
- It provides an indication of the balance of different age classes across the forest estate
- The sustainable production of wood and the maintenance of values such as species diversity are often enhanced by a mix of areas in different age classes and a mosaic of growth stages

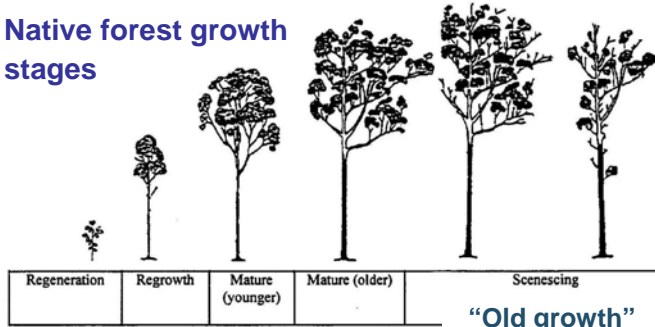


## Growth stage works well for even-aged eucalypts

- Four main growth stages in native forests are:
  - regeneration (less than 20 years since disturbance)
  - regrowth (20–80 years)
  - mature (80 or more years)
  - and senescent (irregular crown form due to age)
- These four categories work reasonably well for many eucalypt forests, which are often even-aged.
- Substantial areas of forests are mixtures of one or more growth stages, especially forests dominated by other species.



## Native forest growth stages



## Where old-growth doesn't work well



- Wet tropics
- Drier regions
- Where disturbance history not known
- Non-eucalypt communities



**Sometimes old trees  
aren't classified as  
old-growth forest**



### **Why are we interested in old-growth forests?**

- Old-growth forests are the subject of significant scientific and public interest
- Old-growth forests have habitat, conservation and aesthetic values that are not found in other forest areas
- Public concern about timber harvesting in old-growth forests



## Eucalypts can be very tall – even to 90 metres



### A tree taller than...

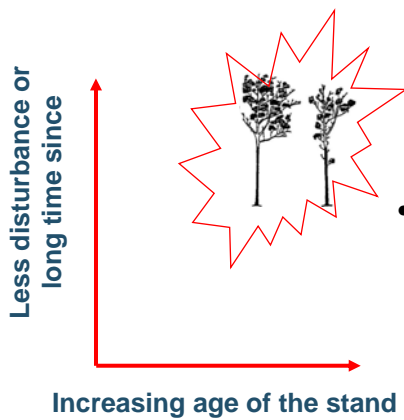
**Wrest Point Casino**  
Hobart, Tasmania  
56 metres



**Sydney Opera House**  
67 metres



## Varying State old-growth definitions but agreed nationally



- 'The 1992 National Forest Policy:
  - “*ecologically mature and has been subjected to negligible unnatural disturbance such as logging, roading and clearing*”.
- Old growth forests has specific attributes => habitat values

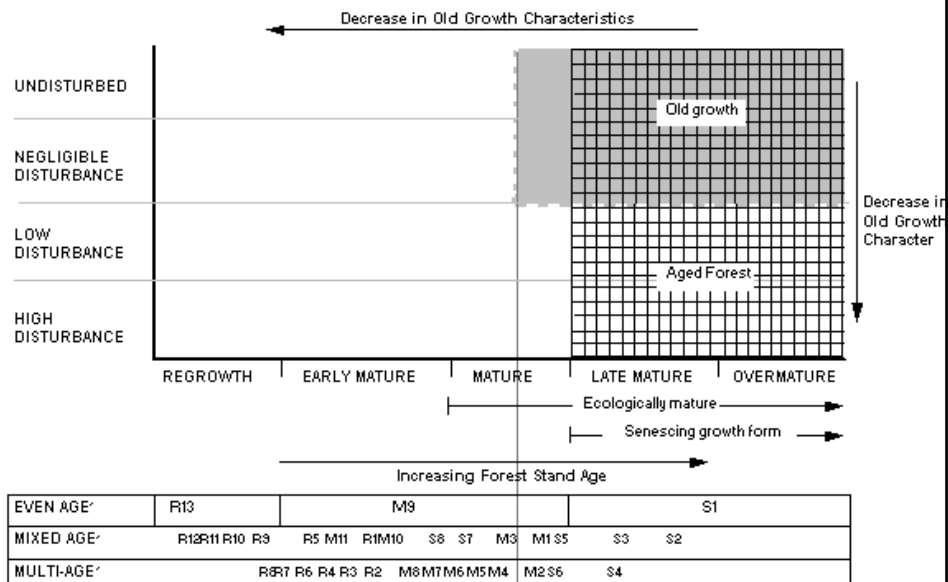


## National Forest Policy on old-growth

- National criteria were established for the conservation of old-growth forests (JANIS criteria) and old-growth definition:
  - *Ecologically mature forest where the effects of disturbances are now negligible*
- The National Forest Policy Statement gives high priority to the protection of old-growth forests,
  - specific provisions however, target to be applied flexibly
    - to include representative examples of old-growth forest across the range
    - to ensure that high-quality habitat areas are included, and to take in the largest and least fragmented areas

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## Old-growth forests – both old and little disturbed



\* Even age - one growth stage; Mixed age - two growth stages; Multi - age - three or more growth stages, derived from Table 4.5 p30, 2003





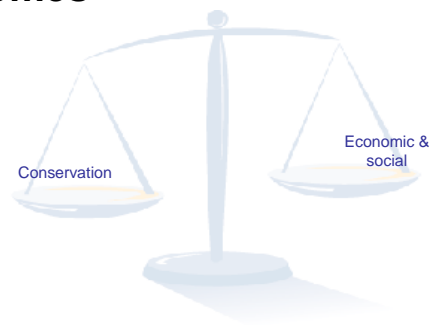
## RFA old-growth criteria and objectives

- RFA's developed a set of nationally agreed criteria for establishment of a comprehensive, adequate and representative reserve system in Australia to protect, in conservation reserves:
  - 15% of the pre-1750 distribution of each forest type
  - 60% of the existing distribution of each forest type, if vulnerable
  - **60% of the existing old-growth forest**
  - 90% or more of high-quality wilderness forests
  - all remaining occurrences of rare and endangered forest ecosystems (including rare old-growth forests)



## RFA conservation outcomes

- >15% of forests in conservation reserves
- 70% of old-growth forests in conservation reserves
- plus additional protective measures





## Mapping old-growth forests

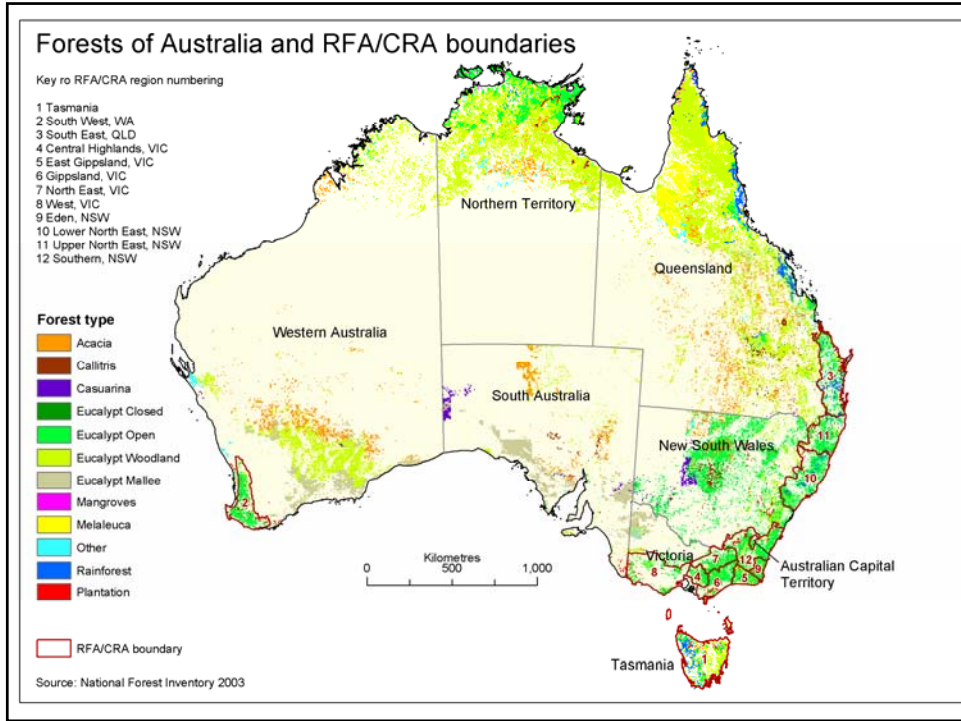
- Mapping old-growth forests requires knowledge of both
  - the growth stage and
  - the disturbance history of the forest
- Disturbance is often not well known
  - interpret from other information, such as forest structure, or evidence of disturbance, such as tracks, stumps and fire scars
  - Sometime using aerial photographs, but often expensive and labour-intensive on-the-ground inspection is required
- Thus, only a relatively small area (15%) of Australia's forests (mostly tall, wet forests) has been assessed for old-growth values
- Old-growth forests are usually identified in patches larger than 2 or 3 hectares



## Where have old-growth assessments been made?

### Mapping old-growth forests





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## Where have old-growth assessments been made?

- No comprehensive survey of old growth forests across Australia has been done
- Only relatively small areas have been assessed for growth stage – about 15% of Australia's forests
- Focused on the taller wetter forests within Regional Forest Agreement (RFA) areas
- Old-growth forest not assessed in the ACT, NT or SA
- Old-growth forest does occur outside RFA regions but it is not well known or documented

Forests of Australia and RFA/CRA boundaries

Key to RFA/CRA region numbering

- 1 Tasmania
- 2 South West, WA
- 3 South East, QLD
- 4 Central Highlands, VIC
- 5 East Gippsland, VIC
- 6 Gippsland, VIC
- 7 North East, VIC
- 8 West, VIC
- 9 Eden, NSW
- 10 Lower North East, NSW
- 11 Upper North East, NSW
- 12 Southern, NSW

**Forest type**

- Acacia
- Callitris
- Casuarina
- Eucalypt Closed
- Eucalypt Open
- Eucalypt Woodland
- Eucalypt Mallee
- Mangroves
- Melaleuca
- Other
- Rainforest
- Plantation

RFA/CRA boundary

Source: National Forest Inventory 2003

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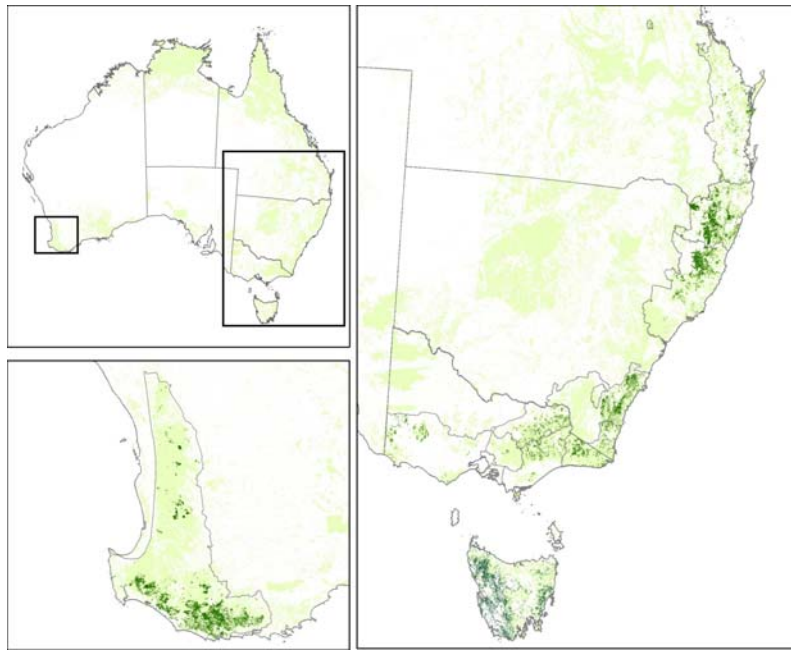
## Where are Australia's old-growth forests?

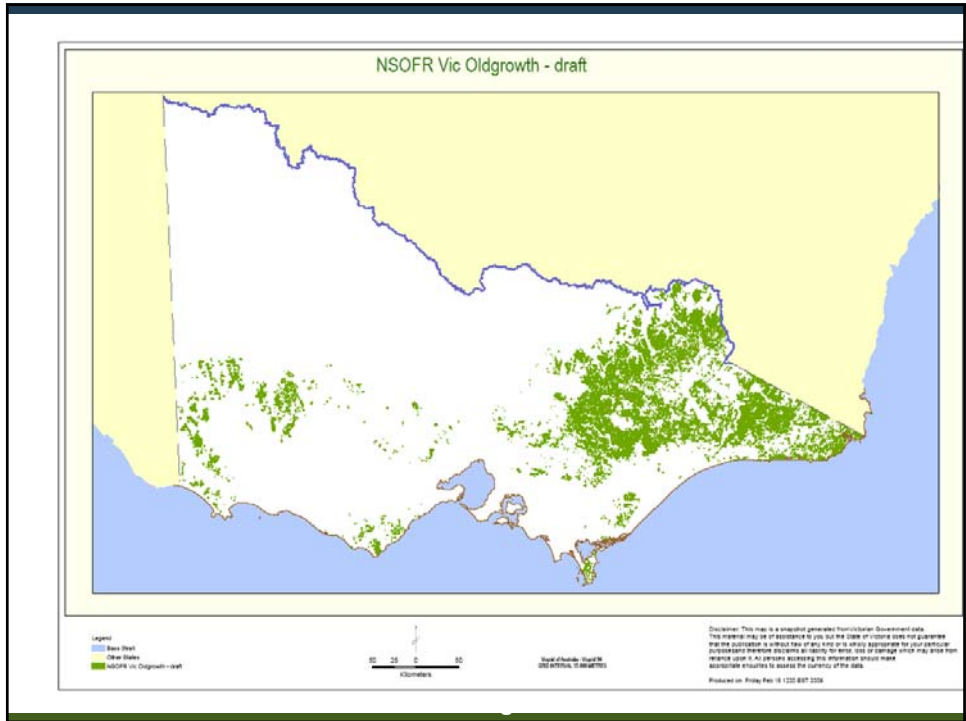
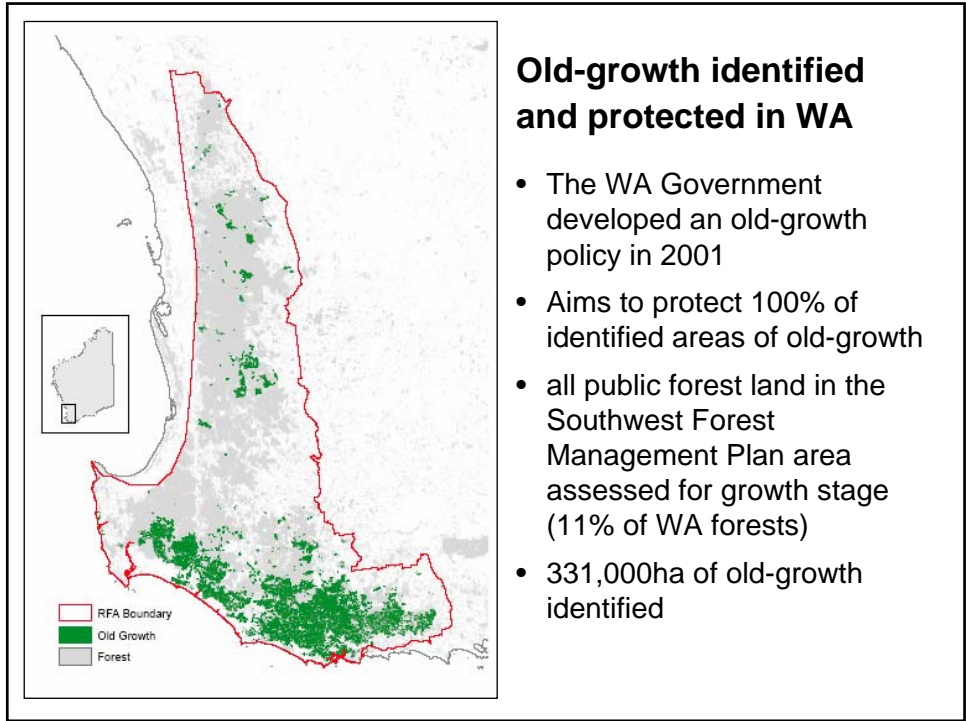


- Almost half of Australia's identified old-growth forest is in NSW, mostly on public land
- Old-growth forest also occurs outside RFA regions, but its extent is not well known.
- In Victoria, surveys have been conducted of old trees in red gum (*Eucalyptus camaldulensis*) forests, but those forests often do not meet the formal definition of old-growth forest

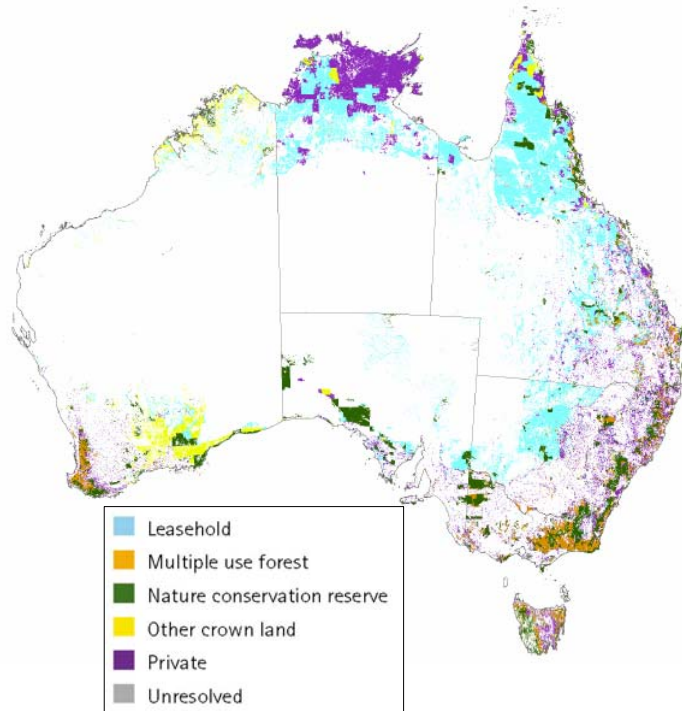
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## Old-growth forest mapped in RFA/CRA areas in NSW, Tas, Vic, Qld, WA





## Forest tenure



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## Area of old-growth forest in reserves (coming soon in the 2008 State of the Forests report)

	Native forest area in region ('000 ha)	Area of old-growth identified ('000 ha)	Area of old-growth as % of forest in region	Area of old-growth on public land ('000 ha)	Area of old-growth on private land ('000 ha)	Area of old-growth in formal and informal reserves <sup>a</sup> ('000 ha)	% old-growth in reserves
NSW <sup>b</sup>	8,989	2,536	28	1,892	644	1,742	69
Qld. <sup>b</sup>	3,230	270	8	196	71	196	73
Tas. <sup>c</sup>	3,116	1,228	39	1,118	110	973 <sup>c</sup>	79
Vic.	5,774	673	12	673	1	460	68
WA <sup>d</sup>	1,909	331	17	331	n/a	331	100
<b>Total</b>	<b>23,018</b>	<b>5,039</b>	<b>22</b>	<b>4,209</b>	<b>826</b>	<b>3,702</b>	<b>73</b>



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## Current old-growth conservation reserve areas

- High levels of protection for identified old-growth forests:
  - Of the 23 million hectares of forest assessed for old-growth, 5.03 million hectares (22%) is so classified as old-growth
  - This is about 200,000 hectares less than that reported in 2003 State of the Forests report (5.23 million hectares)
  - the difference is due mainly to the impact of severe fires, with younger forests replacing some areas of old-growth, and also to some remapping
  - Over 73% of known old-growth forests are now within formal or informal nature conservation reserves





## Most old-growth has been surveyed and identified on public land

- There has been an increase in the area of privately managed forest (including private freehold, leasehold and Indigenous-managed lands) managed for conservation objectives
- but the extent of this increase is not well documented



## Potential threats to old-growth forests



- Fire and disease are significant threats to old-growth forests across all tenures
- In Victoria and New South Wales, large areas of old-growth have been burned and converted to regeneration and earlier growth stages since the RFA surveys
  - mostly in the 2003 fires, but the impact on the extent of old-growth areas has not been fully reported



## Other risks for old-growth forests

- For jarrah forests to be classified as old-growth in Western Australia, they must be free of the *Phytophthora* root-rot disease, which is considered a form of disturbance.
- Logging is also a contentious issue,
  - several states have developed policies for the exclusion of harvesting from old-growth;
  - or for altered management prescriptions (eg alternatives to clearfelling) to reduce impacts



## Conclusions

- Australia has made substantial progress in identifying old-growth forests through the CRA-RFA process in the 1990's
  - however, there has been little new mapping or updating of the data since then
  - Just over 5 mill. ha of old-growth forest identified out of 23m ha assessed
- The RFA's also substantially increased the areas of old-growth in reserves
  - The levels of protection in reserves varies by State from 68% to 100%
  - Nationally, 73% of old-growth forest is in reserves
- Long term management of old-growth forests is important to protect and maintain the values including biodiversity and aesthetic qualities
  - Protection in reserves is no guarantee
- The biggest threats to old-growth forests in Australia are from fires and disease (eg *Phytophthora* - a root rot fungus)



## For more information on Australia's forests

- Australia's State of the Forests Report 2008 *coming soon*
- Short forest profile series (Eucalypts, Acacia...etc.)
- Forests at a glance (pocket size)
- Science for Decision-makers on Old-growth forests
- Available free on internet:
  - [www.brs.gov.au/nfi](http://www.brs.gov.au/nfi)
  - [www.brs.gov.au/stateoftheforests](http://www.brs.gov.au/stateoftheforests)
  - [www.daff.gov.au](http://www.daff.gov.au)

