

# The potential for commercial tree crops to assist in the reversal of land degradation



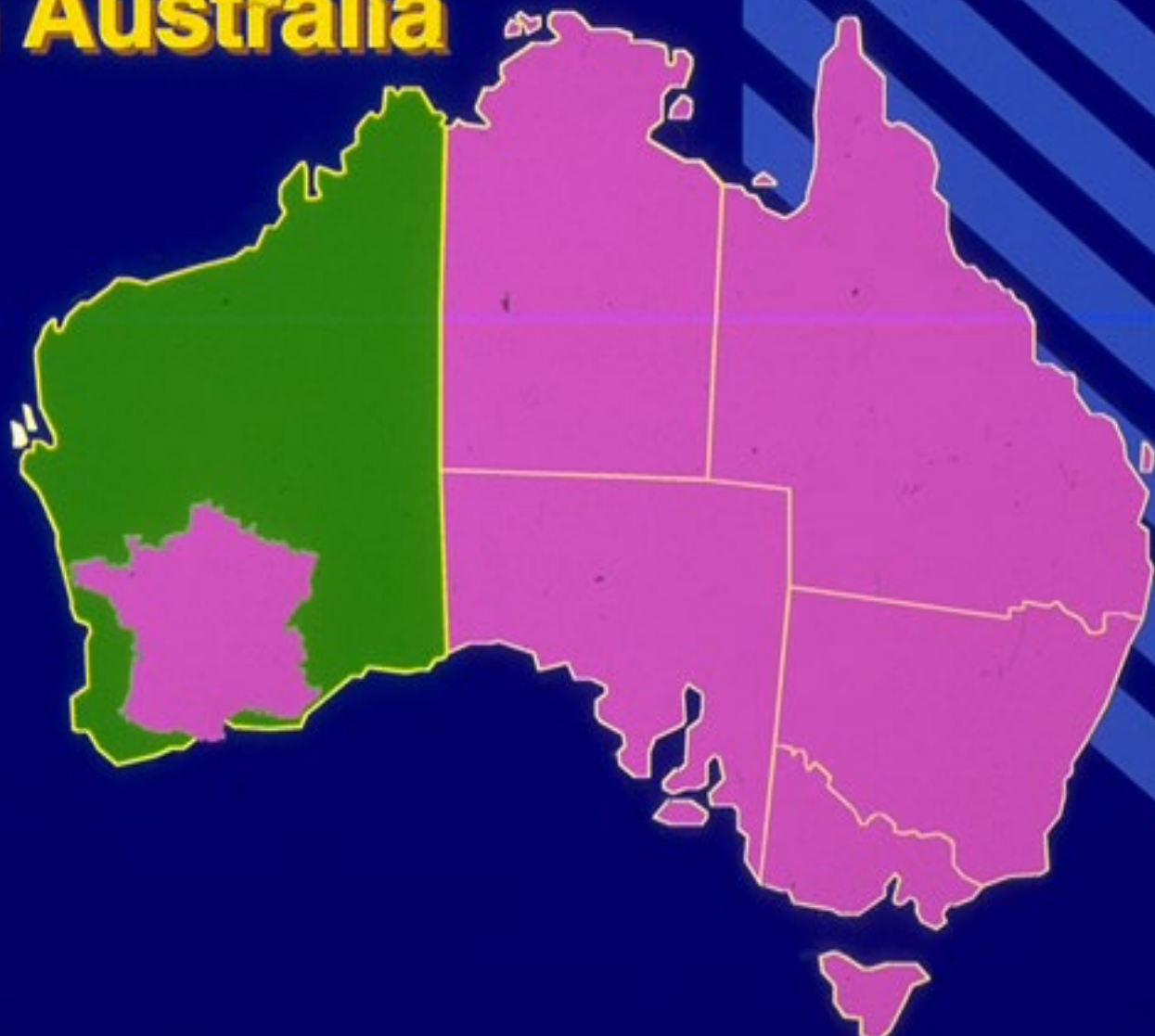
Address to State Salinity Council

Syd Shea

Executive Director, CALM



**France occupies a land area  
about a quarter the size of  
Western Australia**

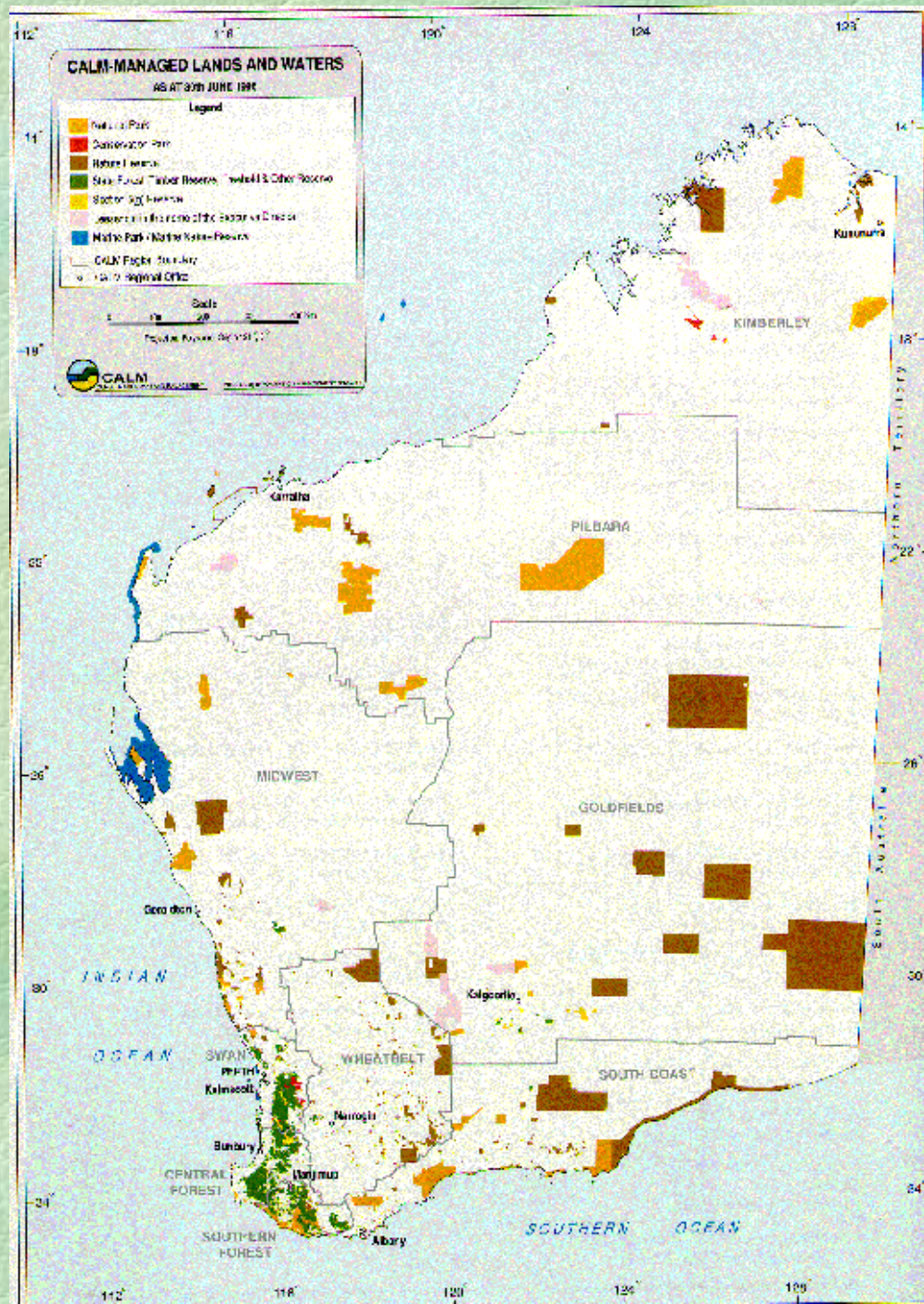


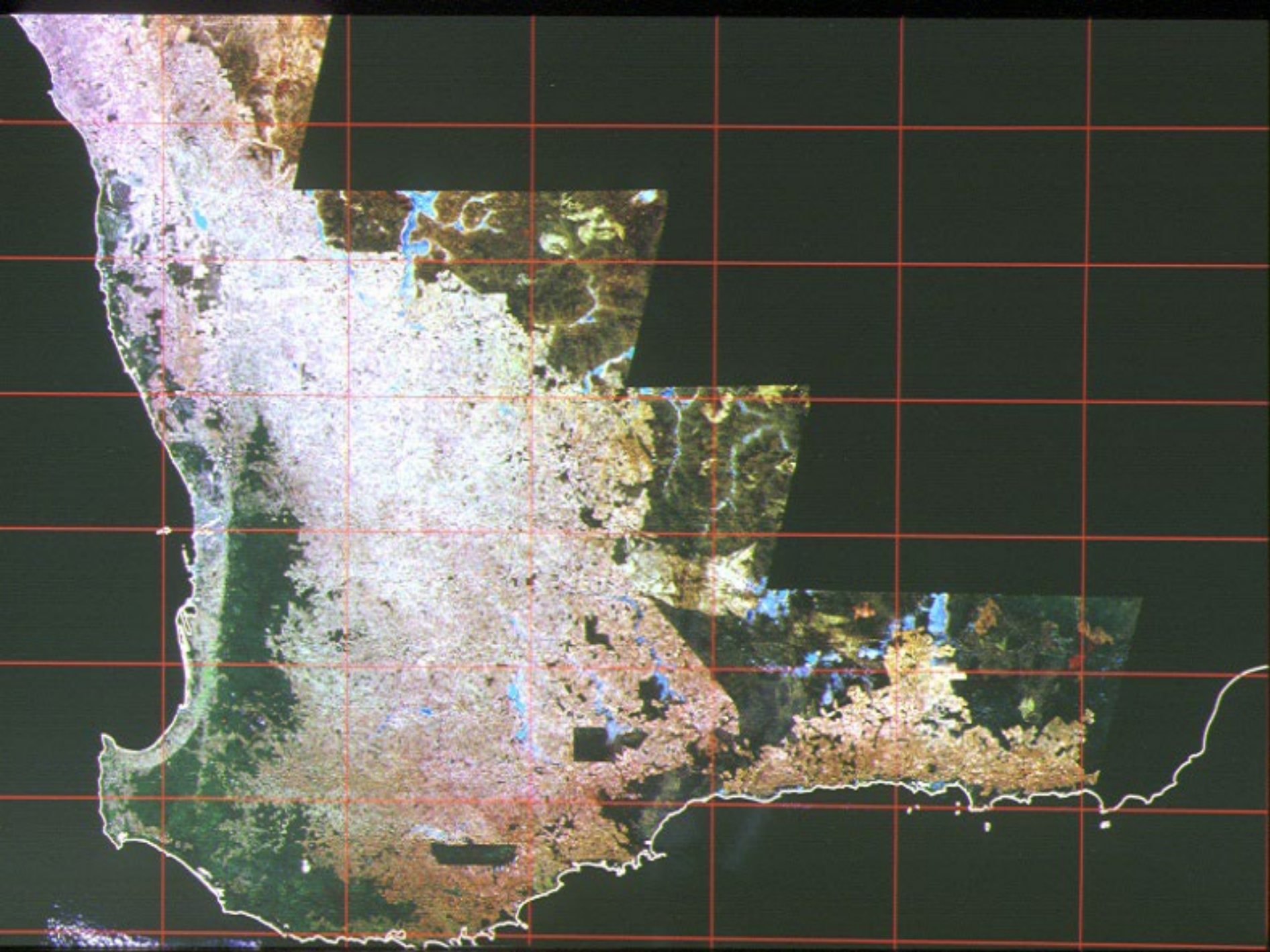
**CALM manages a land area  
51% the size of Japan**

**51%**



# CALM managed lands and waters





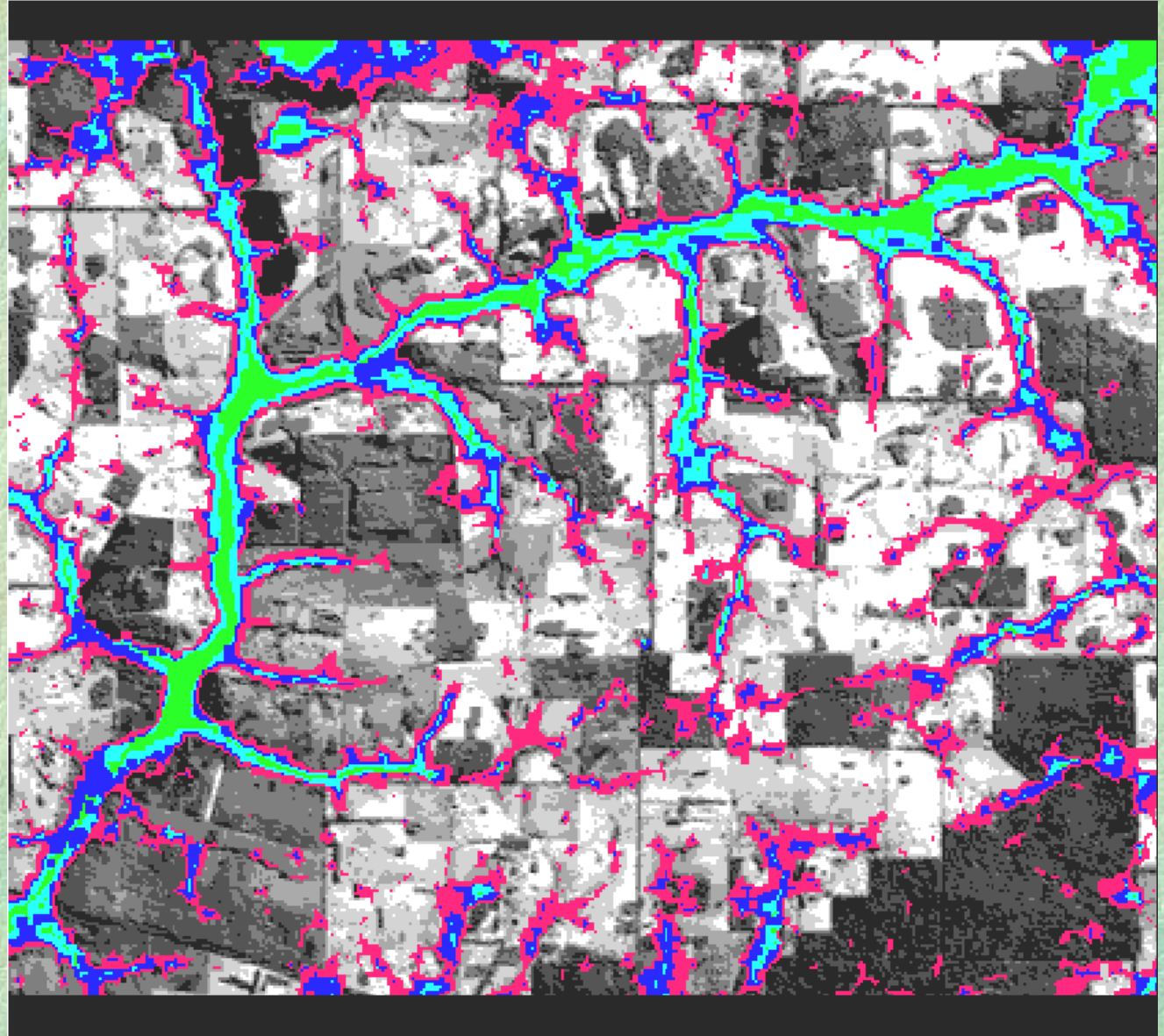






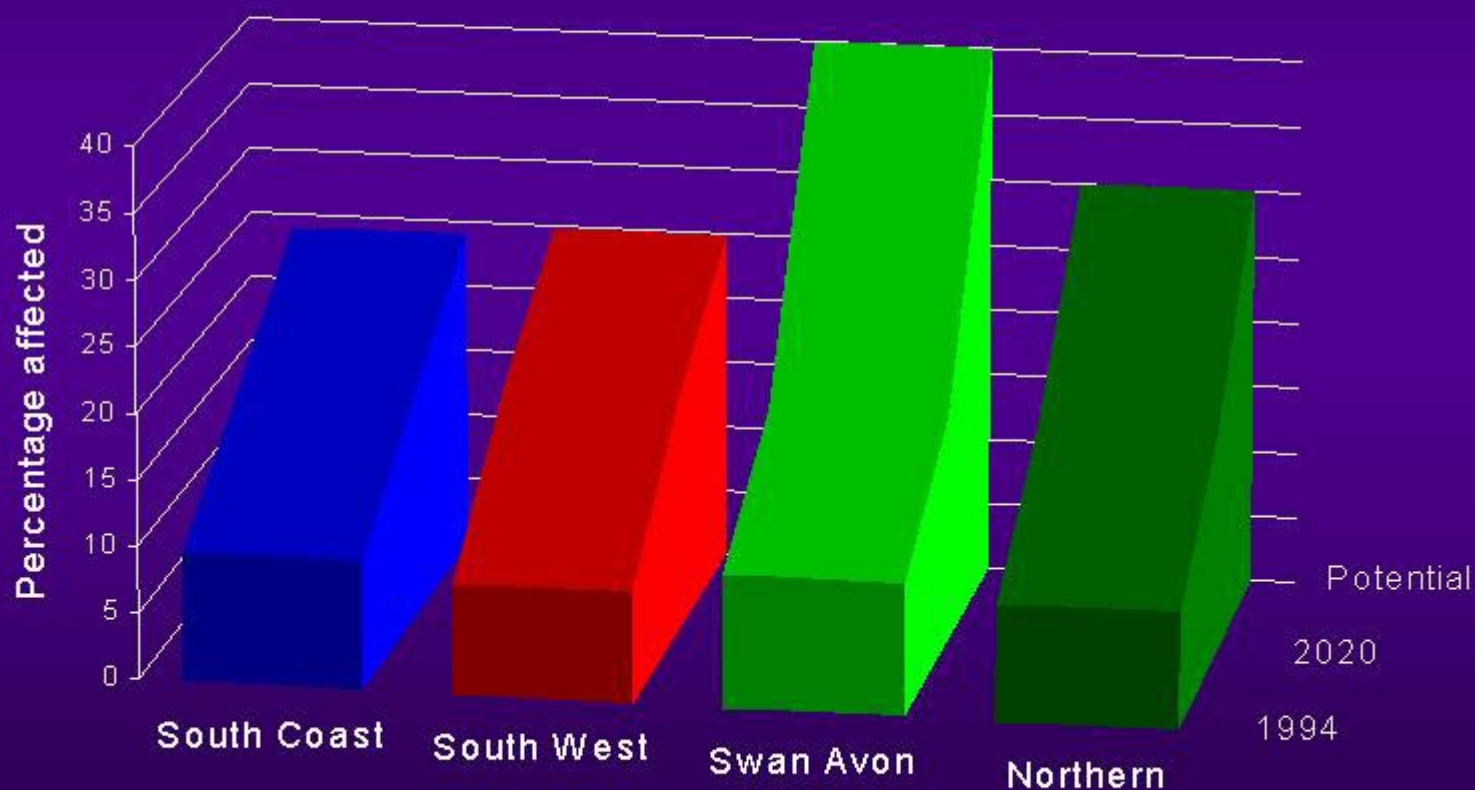


Satellite  
imagery  
and  
salinity





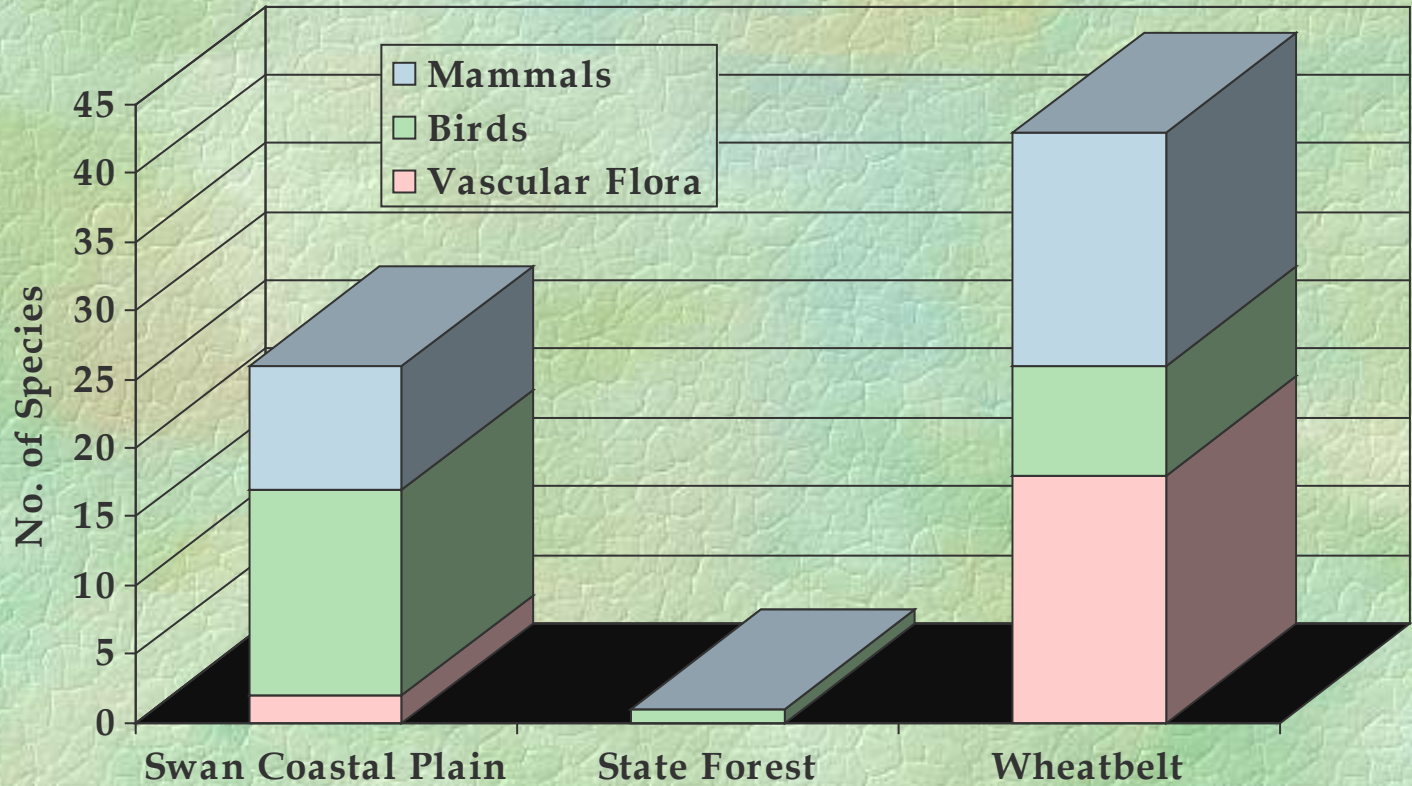
## *Estimated areas affected by salinity by region*





# Species extinctions since European settlement in 1829

(After Armstrong and Abbott, 1995)



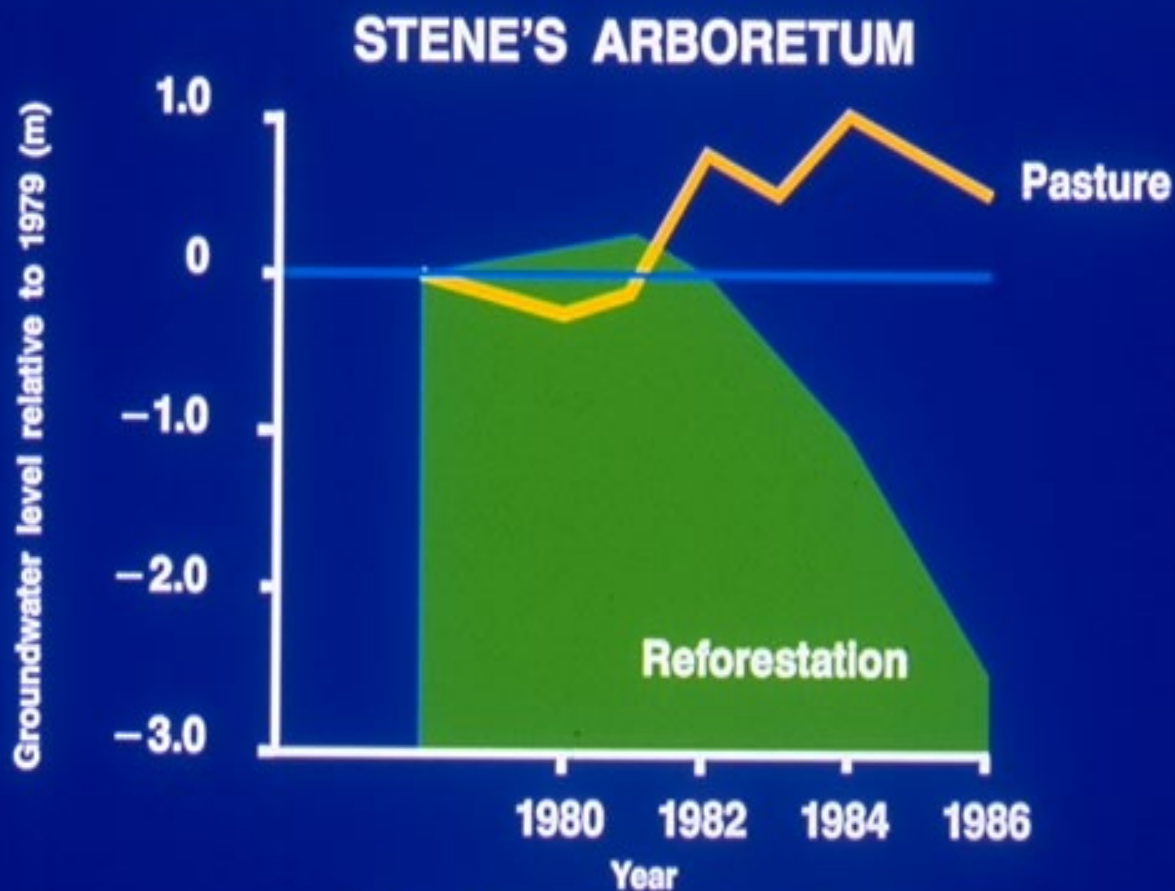








# THE EFFECT OF TREE CROPS ON WATER TABLE LEVELS

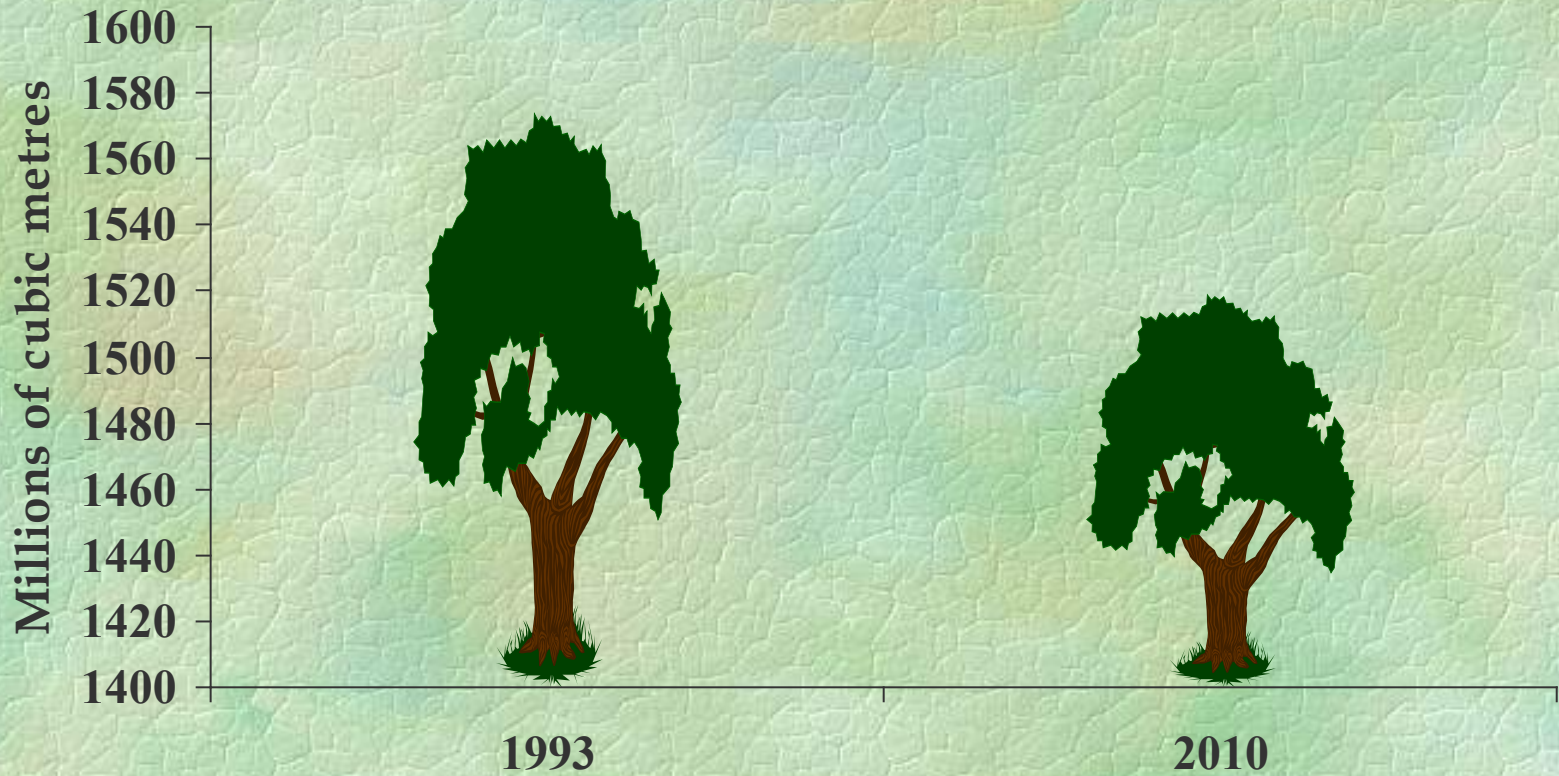


Water Authority of Western Australia  
July 1989  
Report No. WS 33

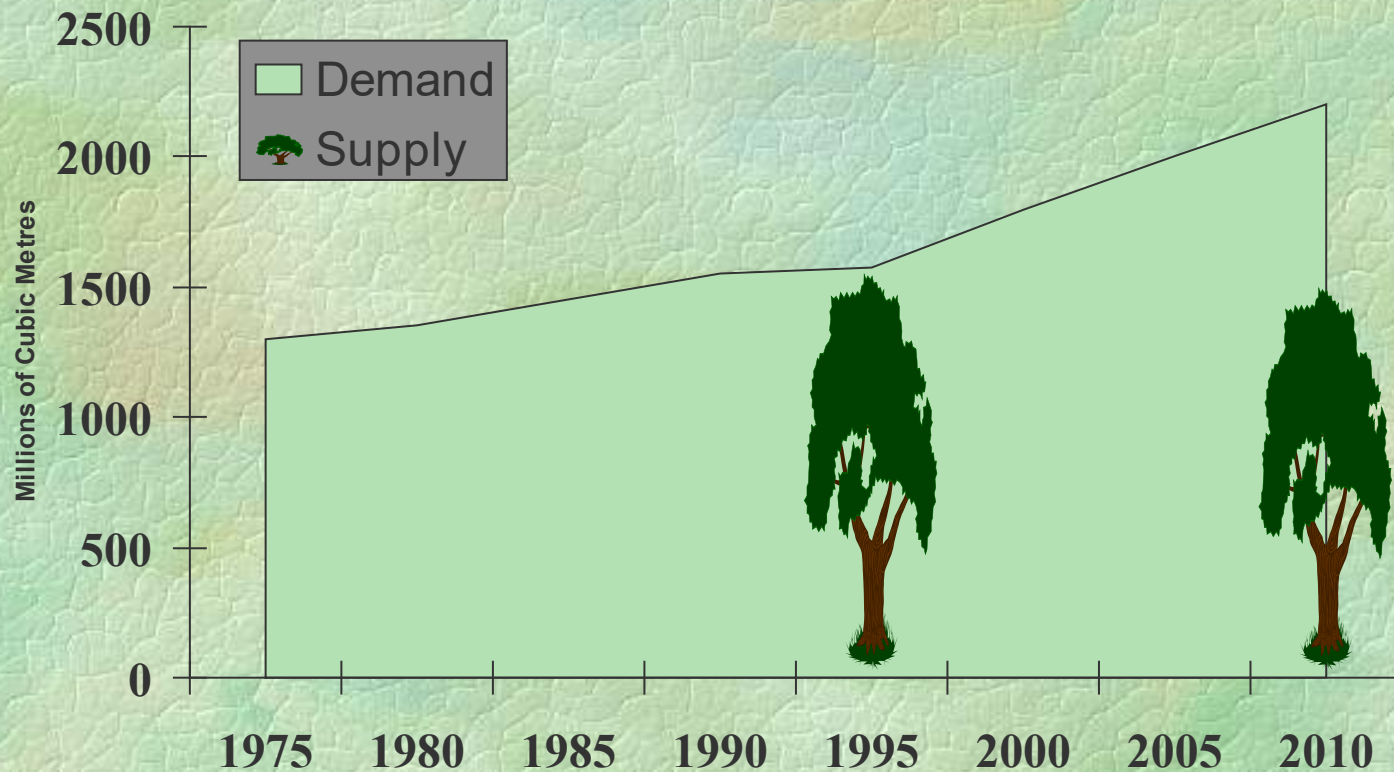


INTEGRATION

# Declining global wood harvests

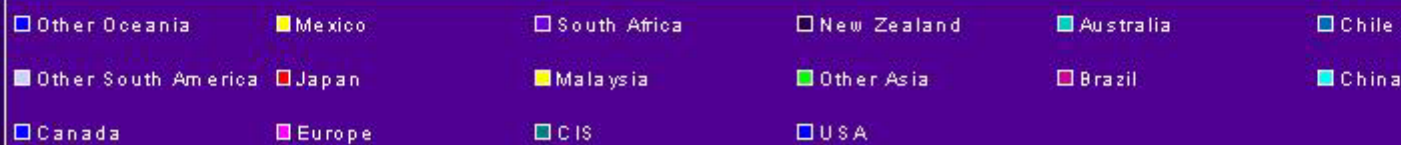
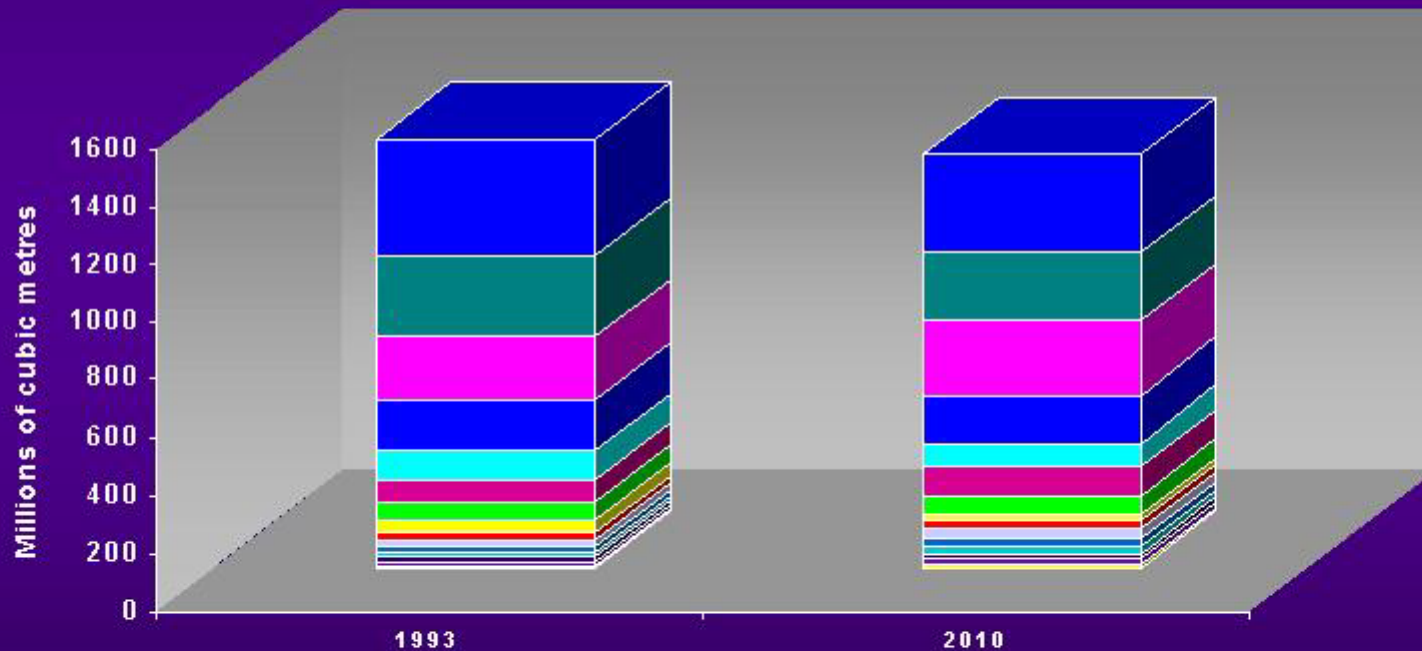


# Global wood demand rises as supply falls

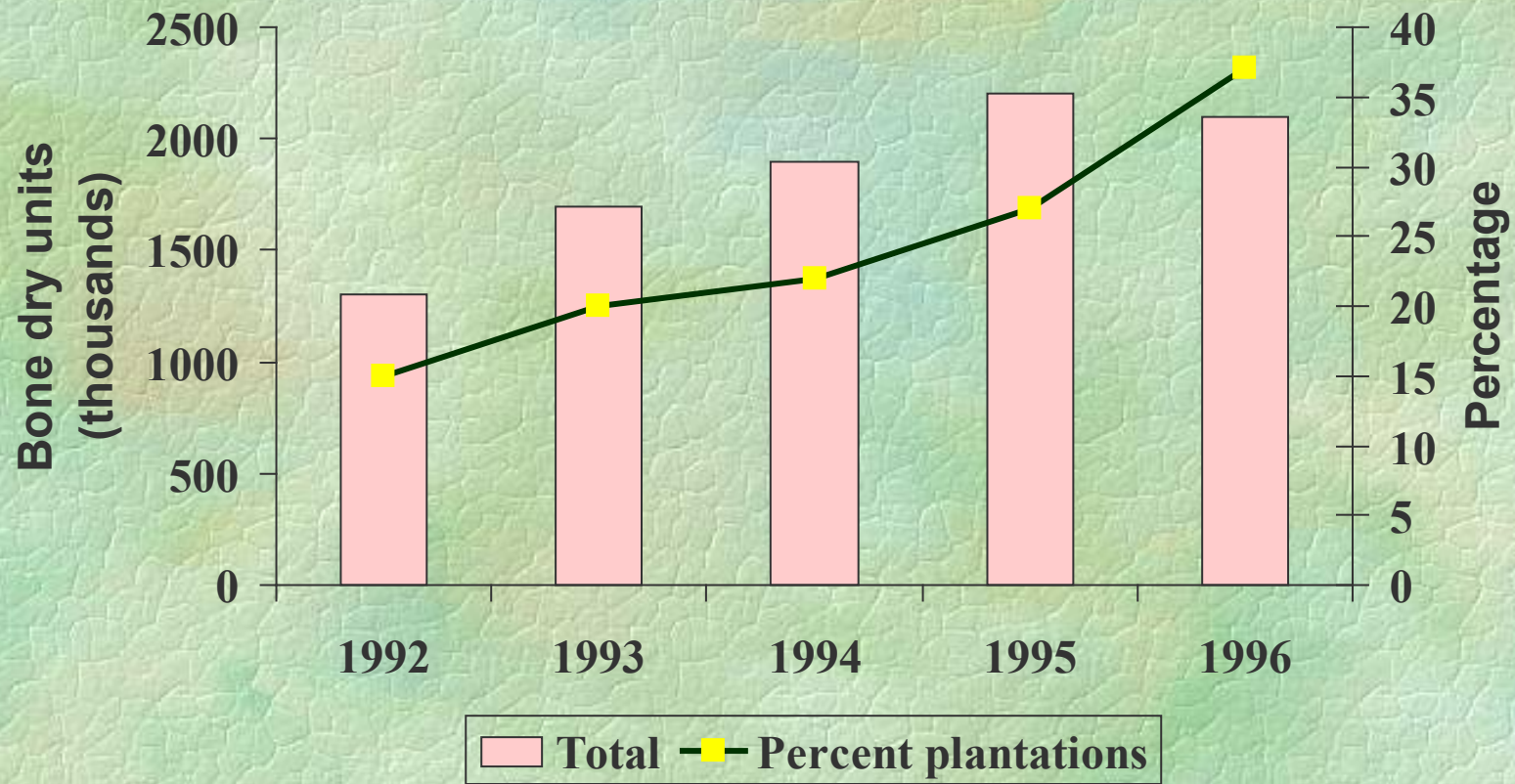




# *Declining Global Wood Harvests*



# Total hardwood chip imports and the percentage of the imports sourced from plantations



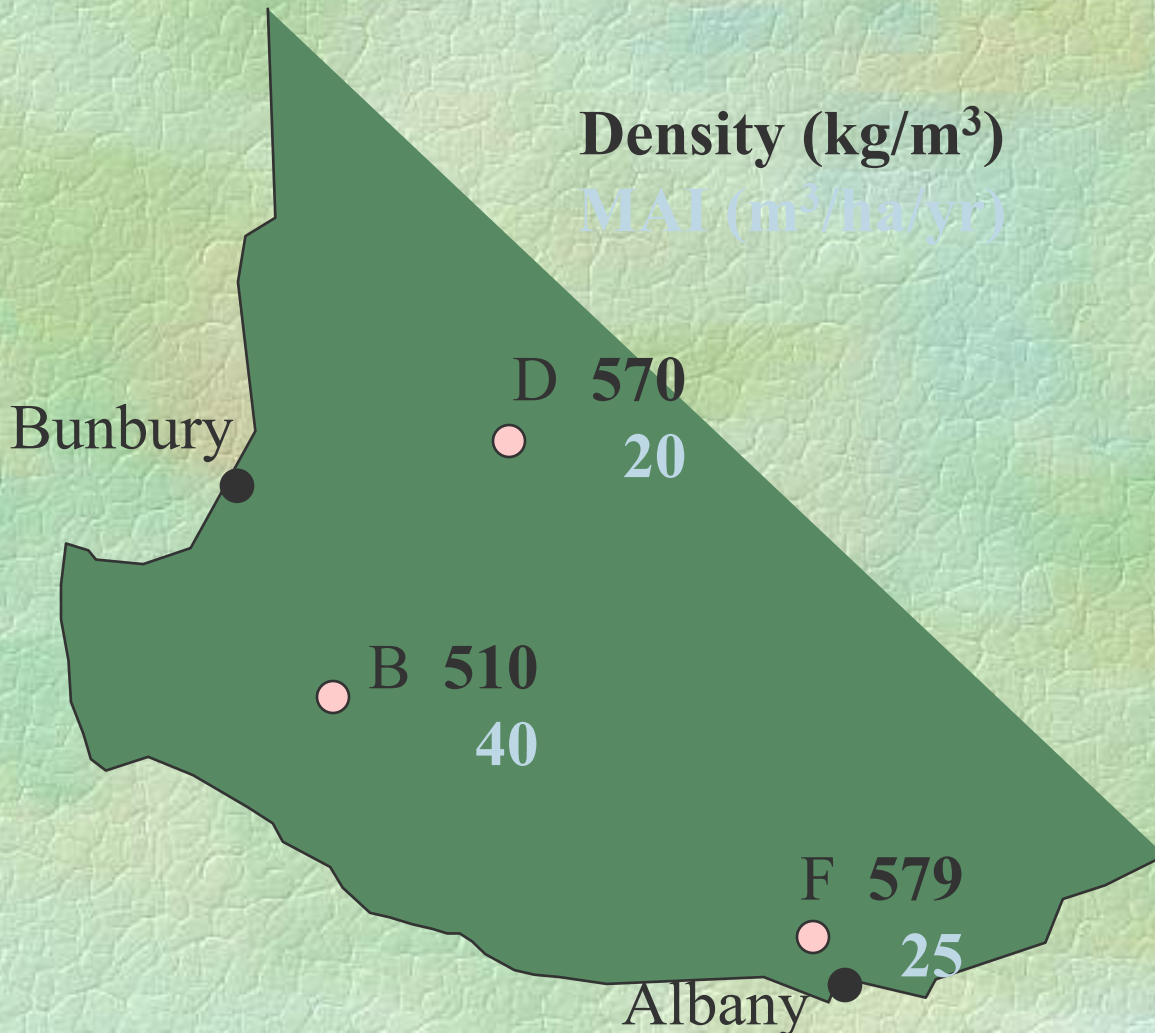
# Suitability by country for hardwood pulpwood plantation development to supply Asian markets



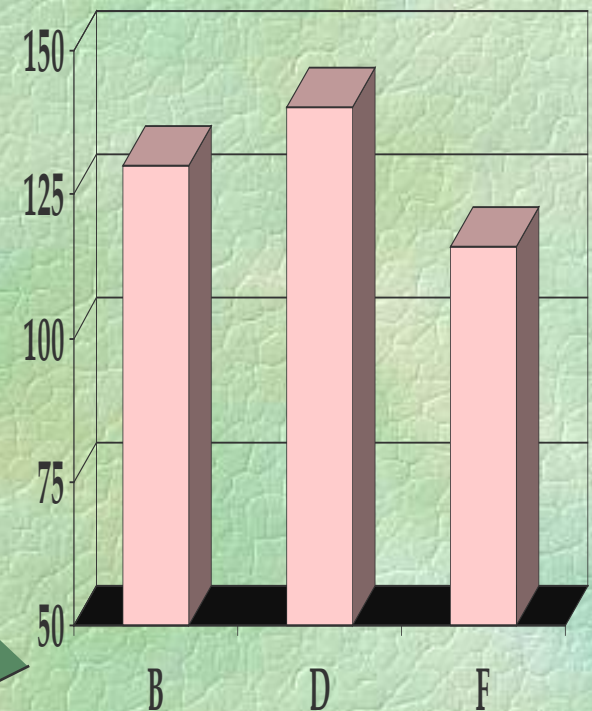
The objective should be to provide a secure supply of high quality wood fibre at the lowest price in the ship hold



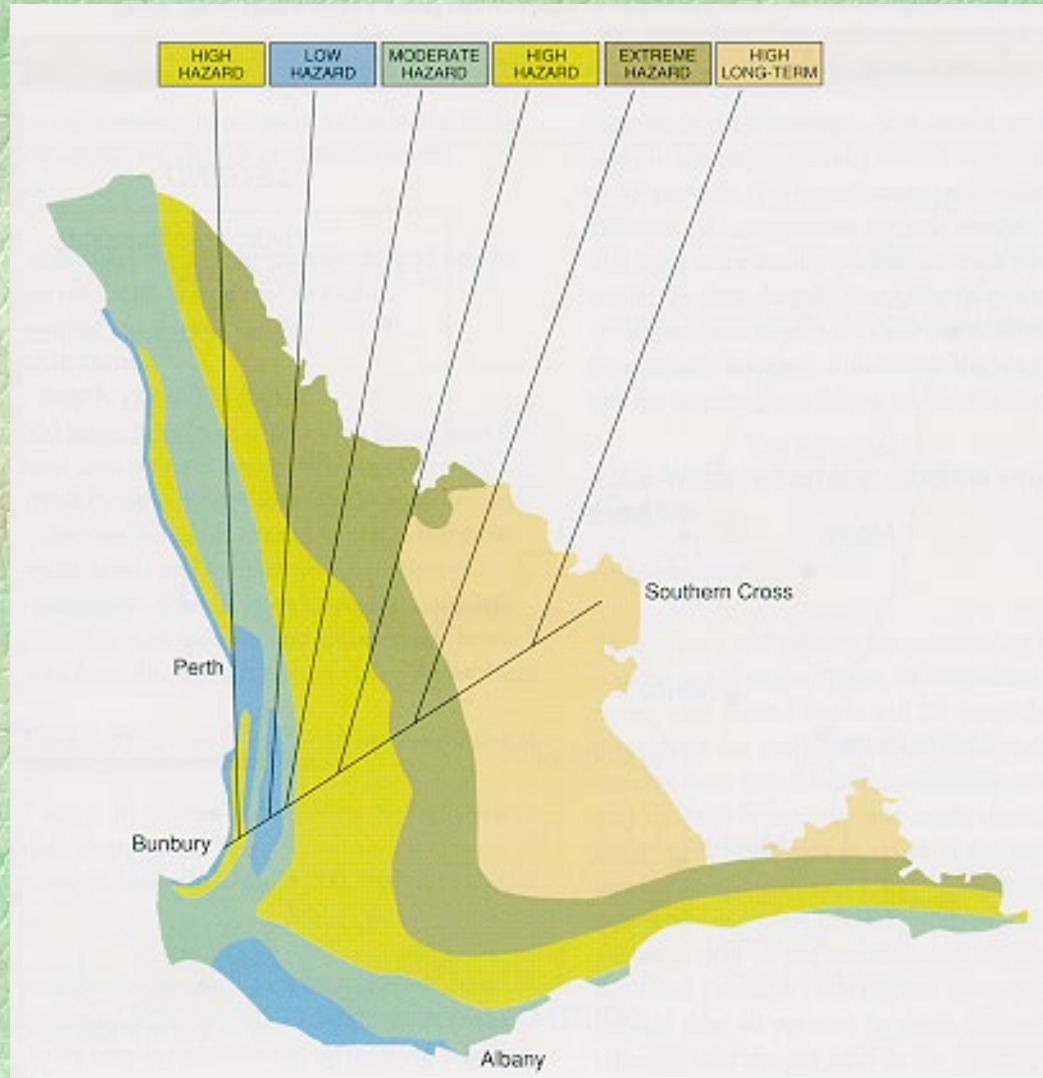
# Costs of E. globulus fibre at the port from farms at different locations and with different site productivities



Compounded cost of chips at port (\$/BDU, FOB)



# Salinity hazard zones in the South-west

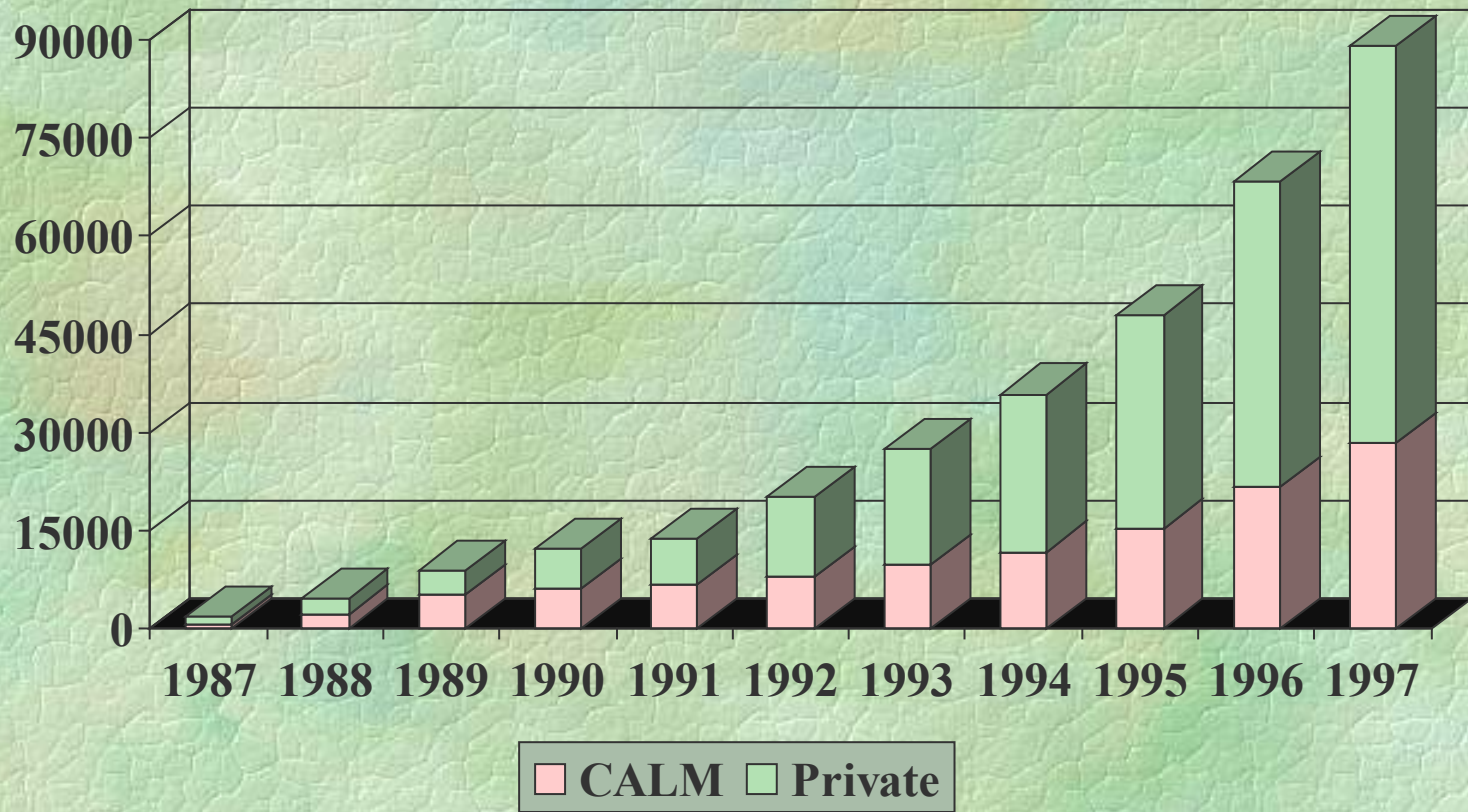


# Farm forestry zones by area and rainfall

<b>Farm forestry zone</b>	<b>Rainfall</b>	<b>Area (in million ha)</b>
<b>Traditional pine and new bluegum</b>	>600 mm	2
<b>New martime pine</b>	400 to 600 mm	6
<b>Wheatbelt</b>	<400 mm	10



# Total area of bluegums in WA (ha)







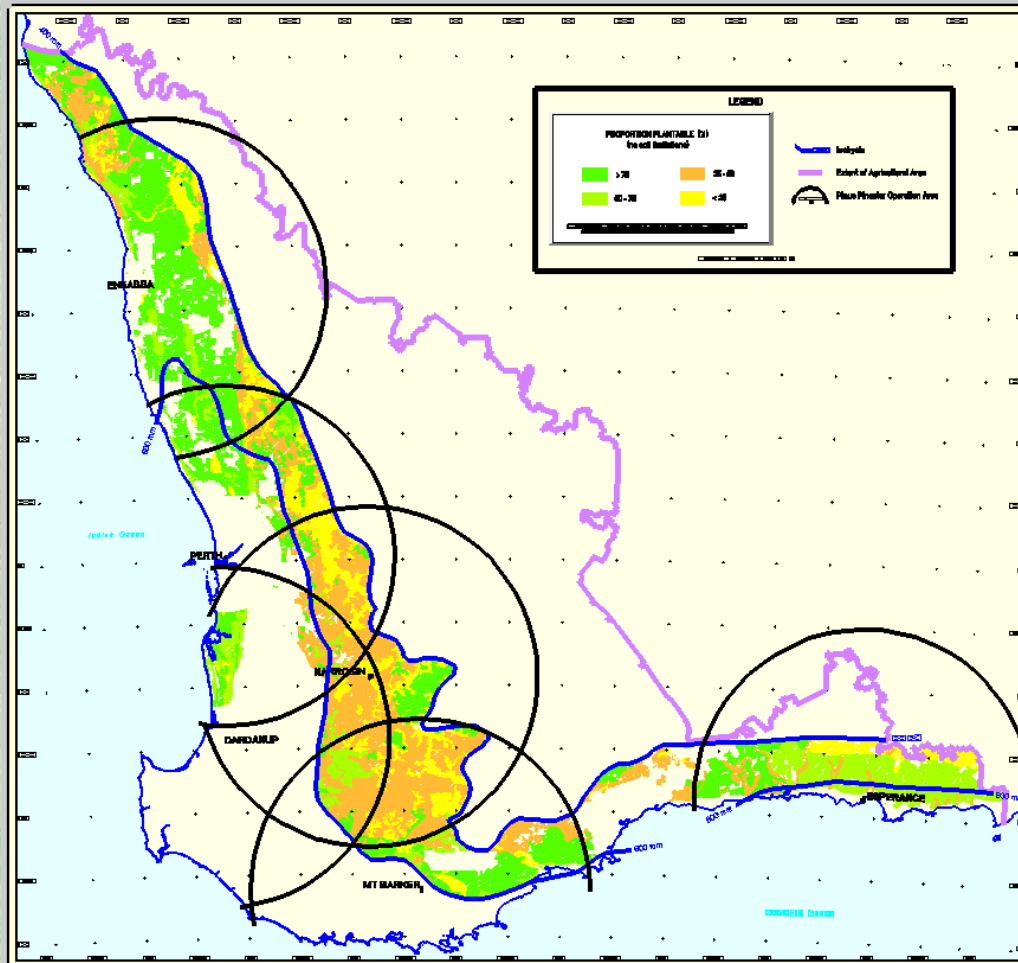








# Land availability in the intermediate rainfall zone for maritime pine

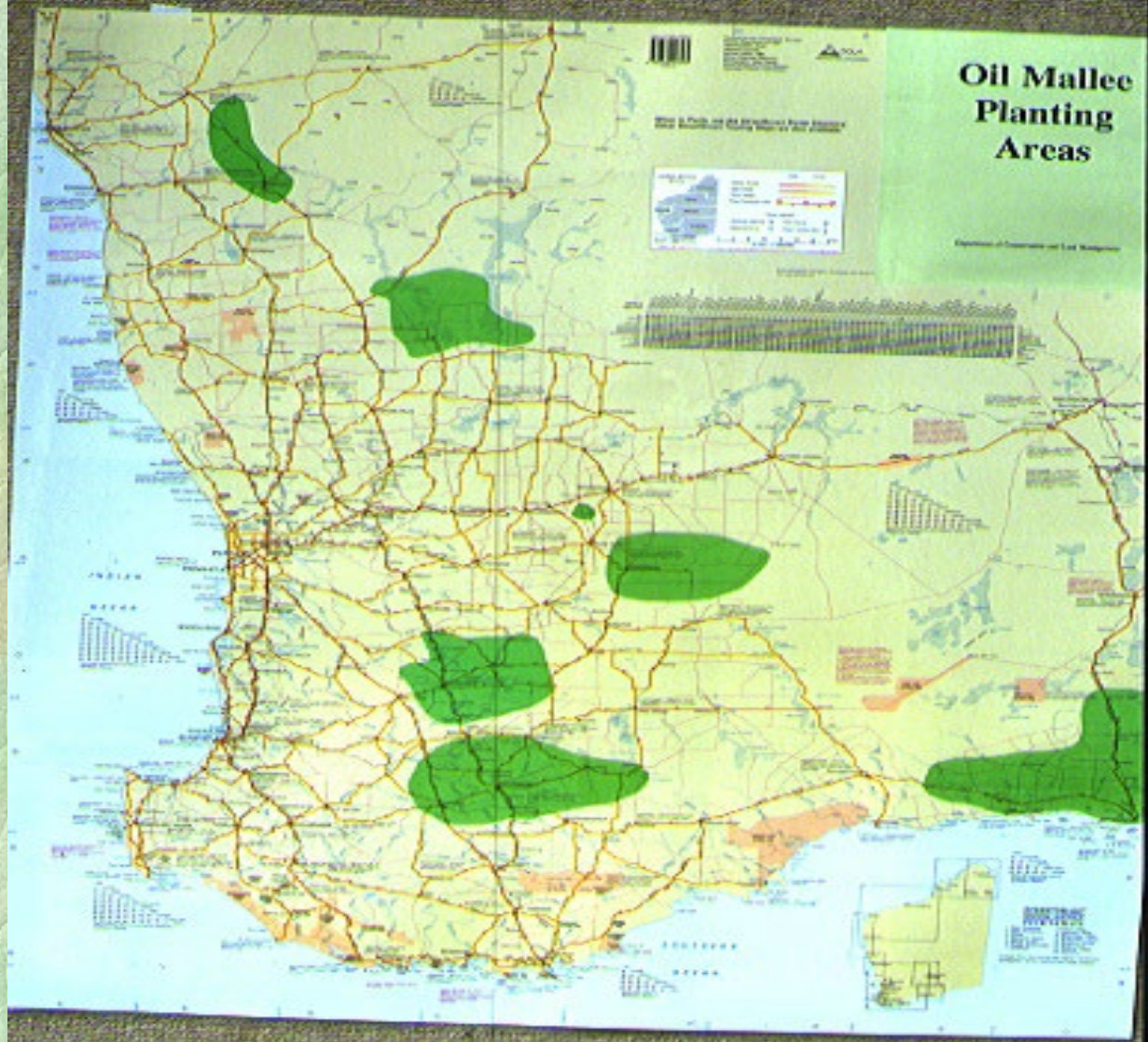






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P.93

















CALM SHAREFARMS

MARITIME PINE

DORMAN PLANTATION PLANTED 1996



CALM has joint ventures with 1303 farmers



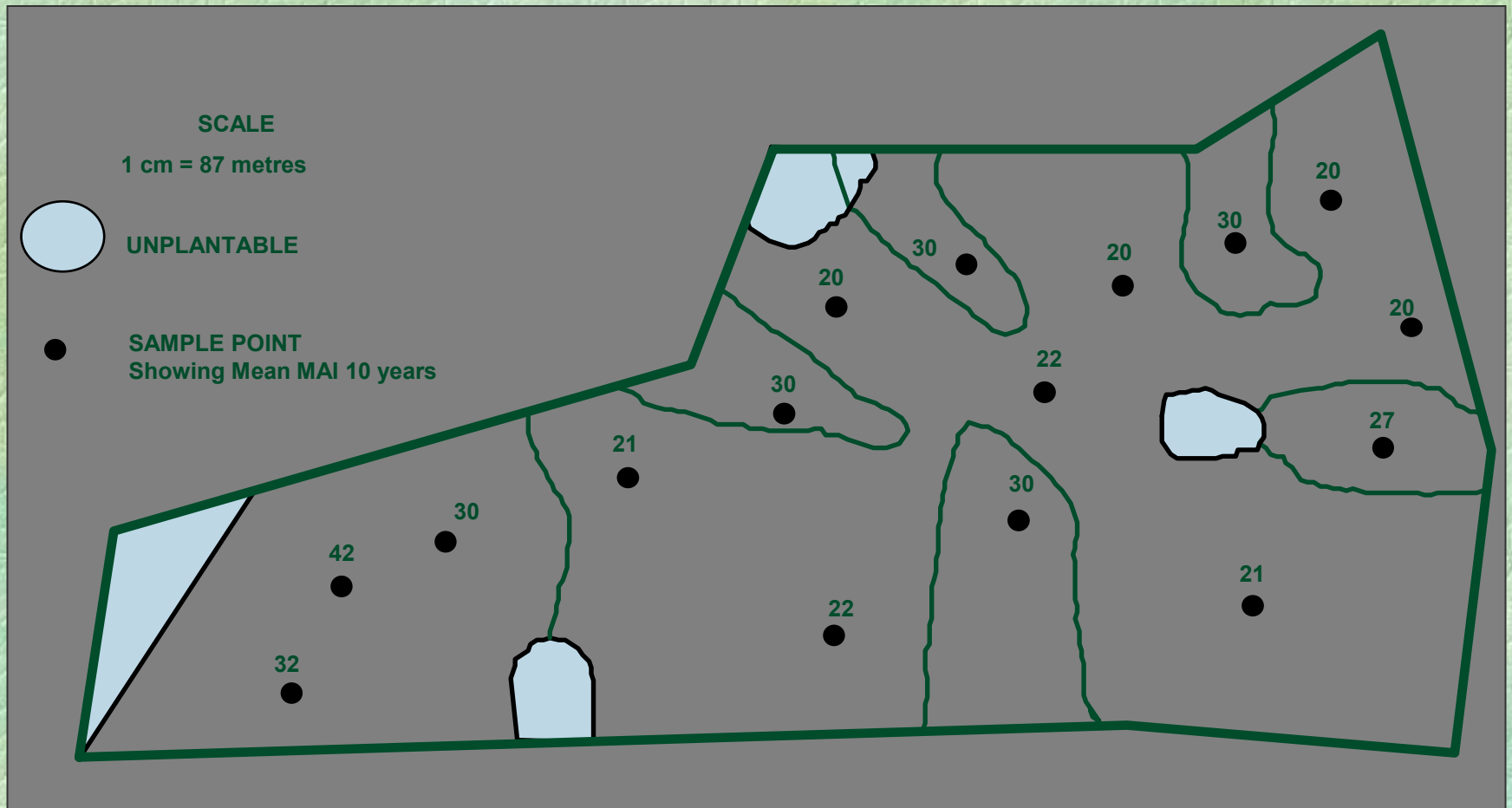
CALM has contracts with 84 land management contractors



# Site Selection for Tree Crops



# *E. globulus* site productivity assessment for a typical farm



# Tree Crop Establishment



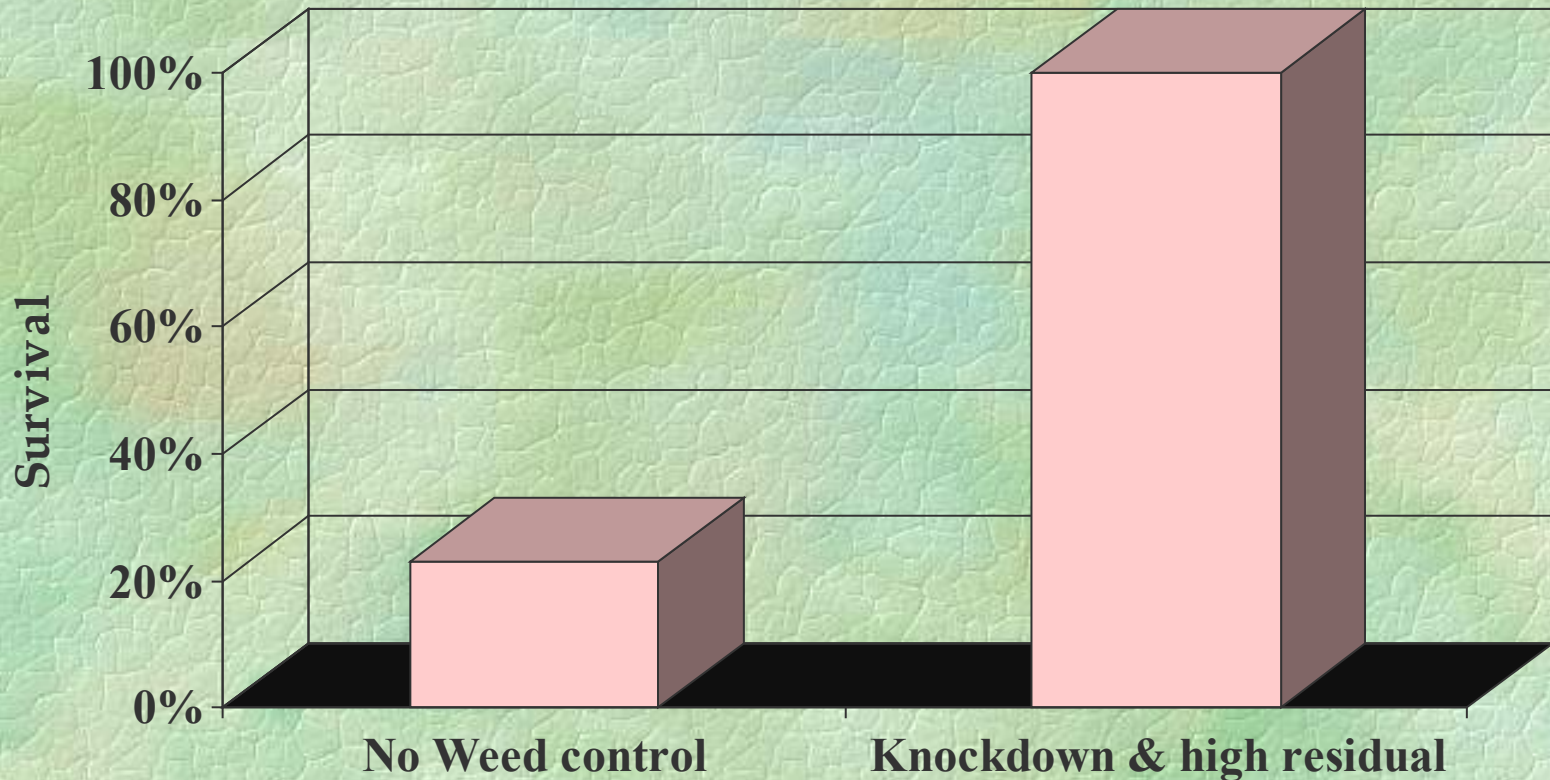








# Effect of chemical weed control on *Tree Crops*















# Silviculture



# Basal area response to Nitrogen and Phosphorus over four years after fertilization

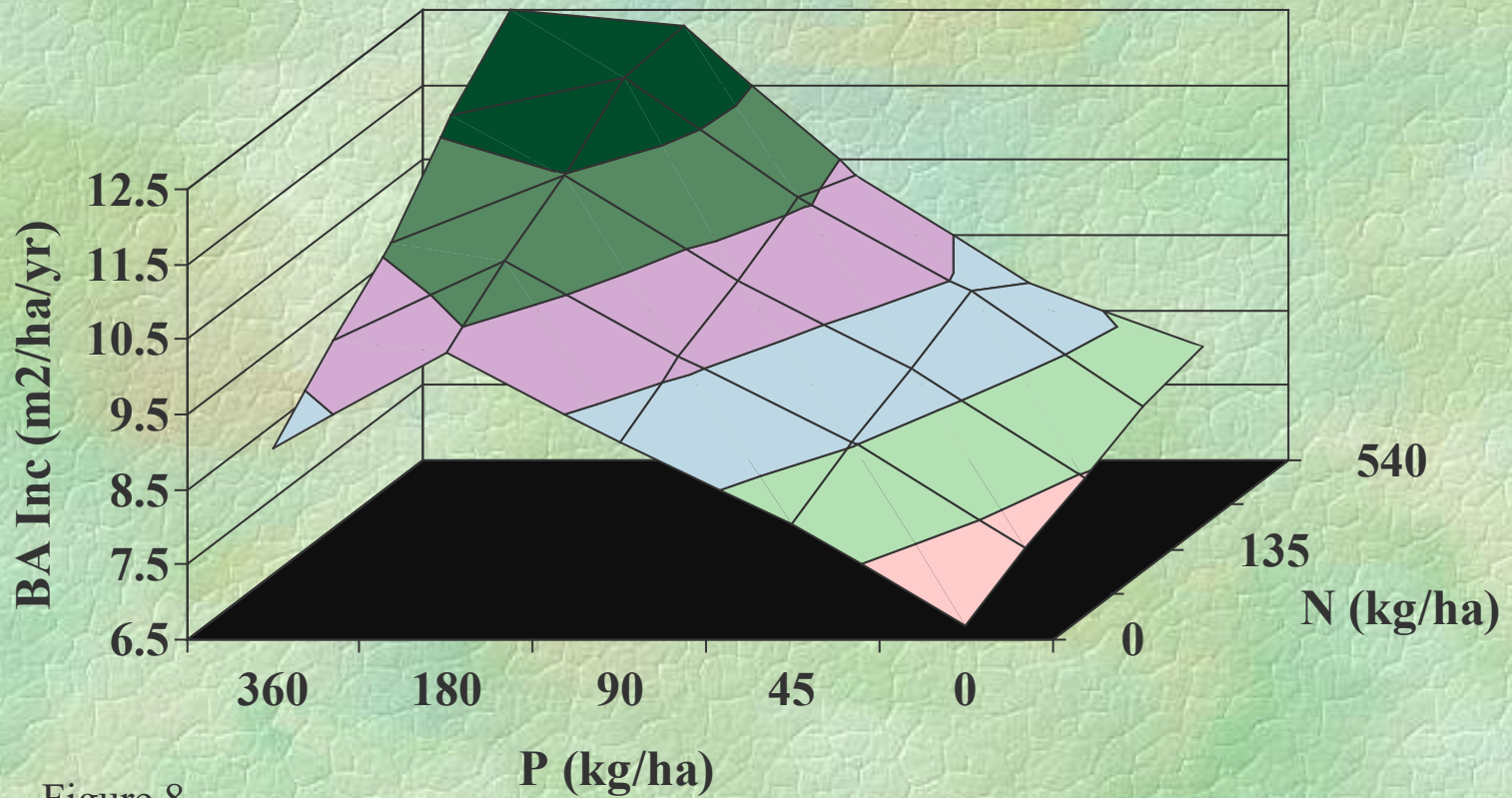


Figure 8

High quality genes

# Traits assessed that influence breeding objective

- survival and health
- growth rate
- wood density
- tree form and branching
- drought tolerance
- salinity tolerance
- pest resistance
- flowering precocity and synchrony
- graft compatibility
- rooting ability

# *Eucalyptus globulus*

## Breeding population trials

Program commenced in 1980

Source	Parents	Number	Area	Trees
CSIRO 1987 - 90	766	29	117 ha	107 000
King Island	83	1	3	3 000
Salt Tasmania	44	3	2	2 000
Orme	73	1	4	4 000
Orme (Prov)		2	11	6 000
APPM	73	4	4	3 000
CSIRO cc	135	1	3	3 000
Total	1174	41	144	128 000



Inspect an *E. globulus* seedling for quality. Check the stem diameter, look for a pruned fibrous root system and notice if the foliage has a red tinge to show the seedling is hardy. All these aspects will help in the survival of the seedling. To be confident that the seedling will give you extra profit from its volume production in 10 years' time, look for the Western Blue Gum label.

Western Bluegum

Tasmanian Bluegum



Trees are 2 years 8 months old

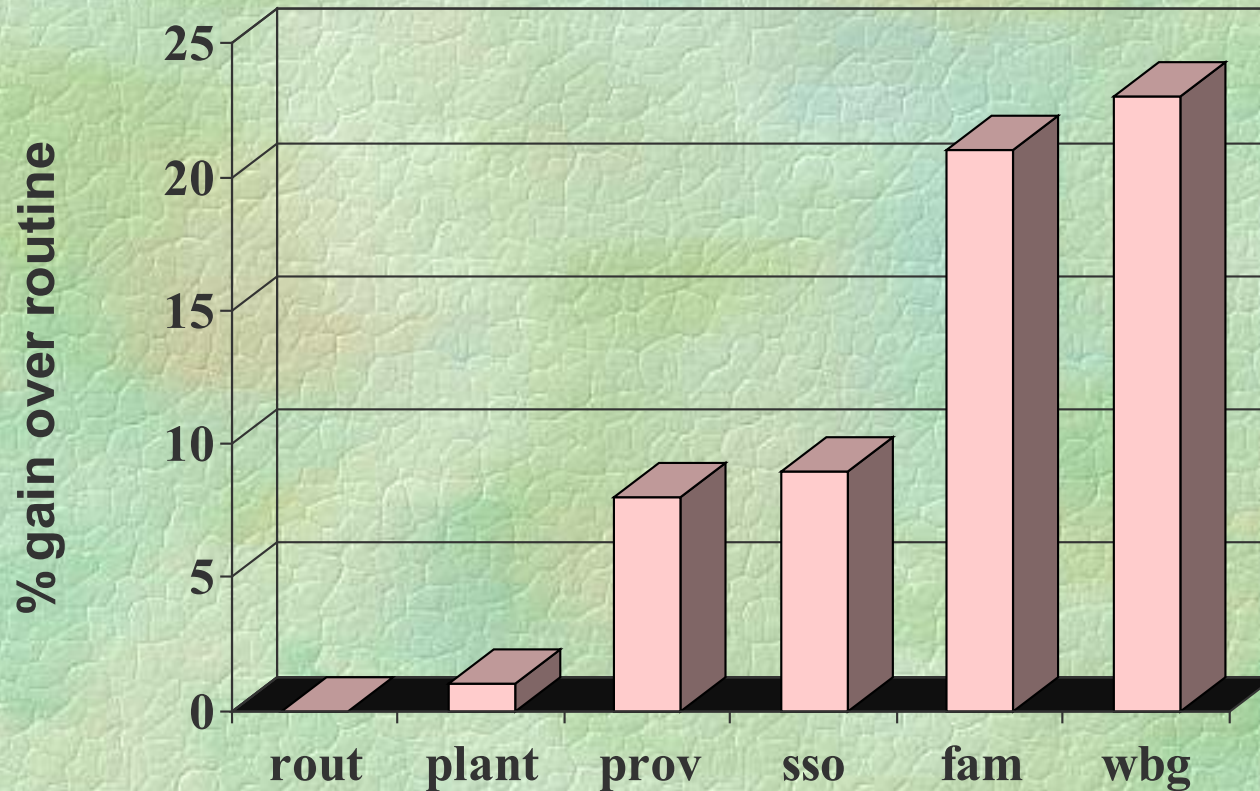


# Genetic Gains Trial:

EG 44 and EG 45 (1994)

Measurement on April 1996

## wood volume



# CALM's Genetic Resource:

## *Pinus pinaster*

Program commenced in 1957

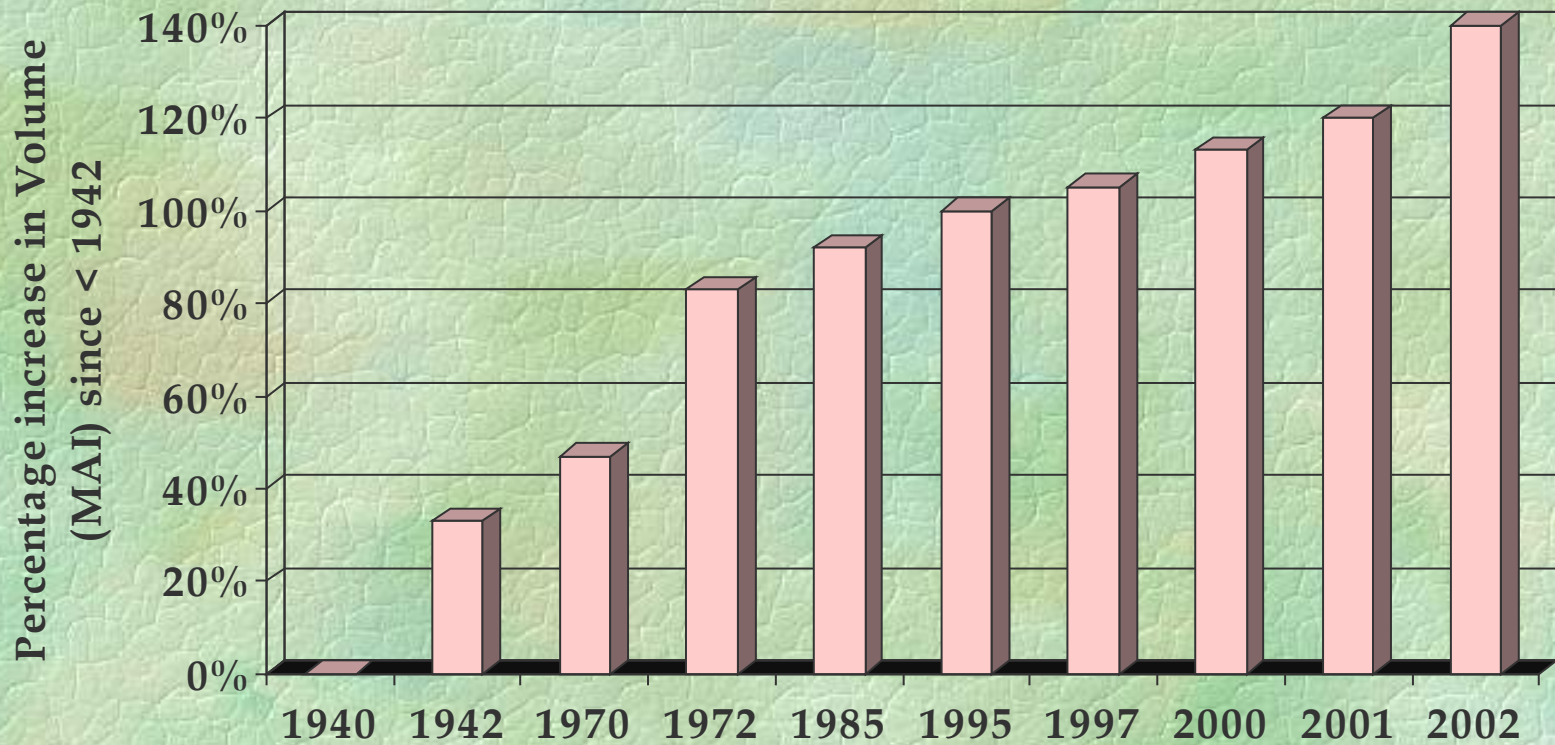
	Parents	Number	Area	Trees
Breeding Population Trials	313	93	171 ha	202 000
Breeding Research Trials		11	43 ha	45 000
Clonal Seed Orchards		4	48 ha	(24 ha active)
Clonal Archives		3	6 ha	



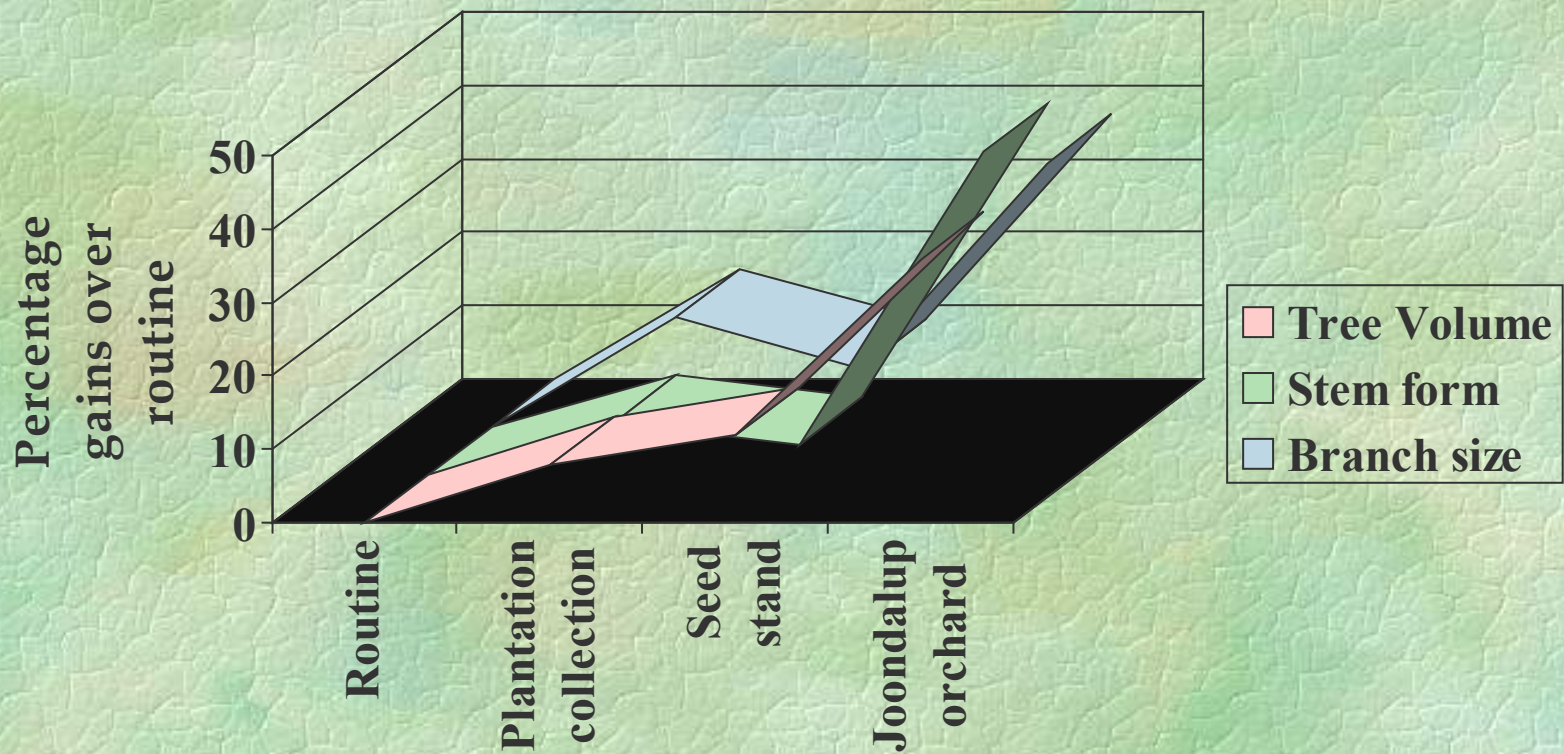


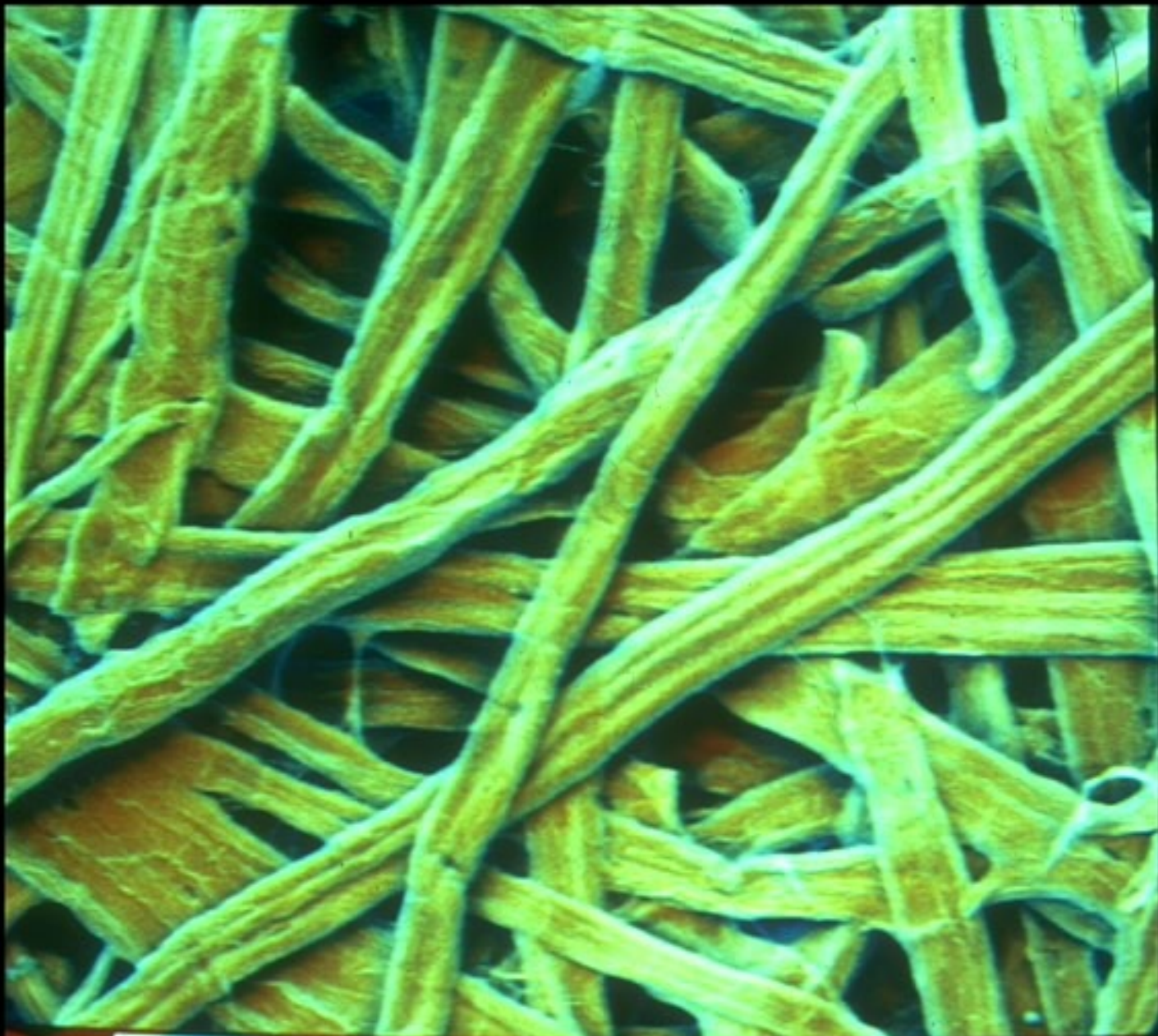


# Volume gains from the tree improvement program for Maritime pine



# Actual gains from Maritime pine yield trials





40µM

15KV

02

006

2

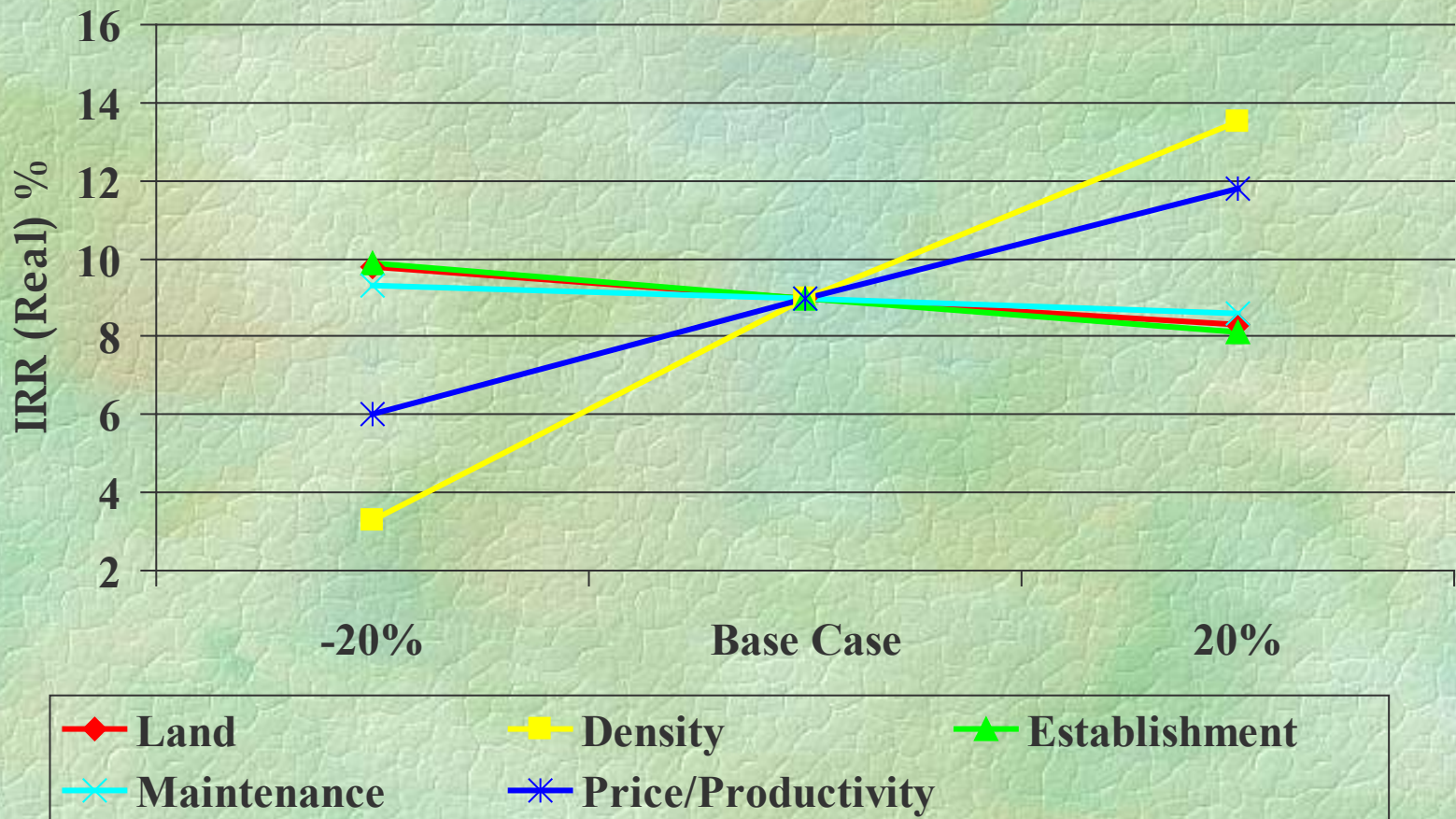


# The Economic Return from Tree Crops



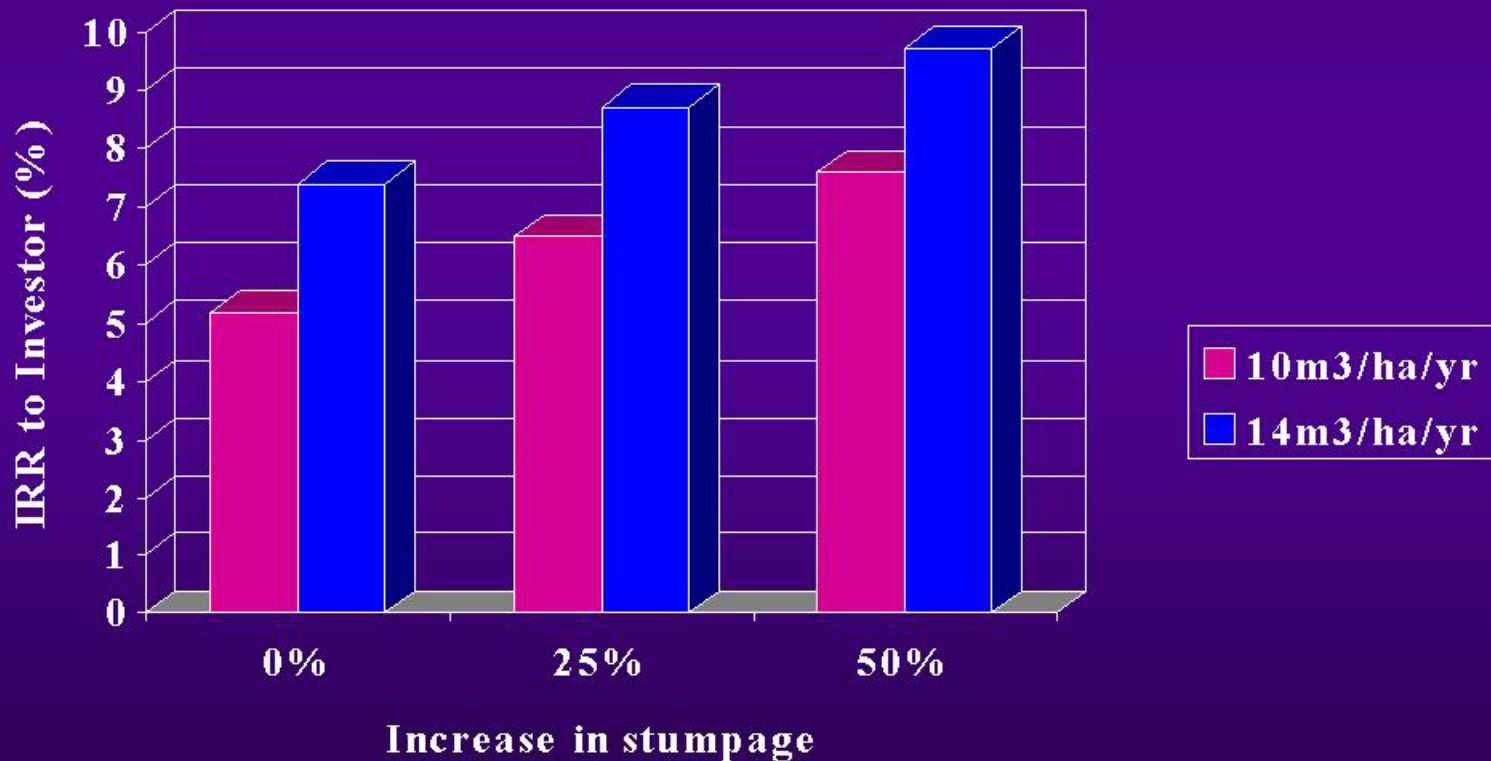
# E. globulus

## Sensitivity to major parameters



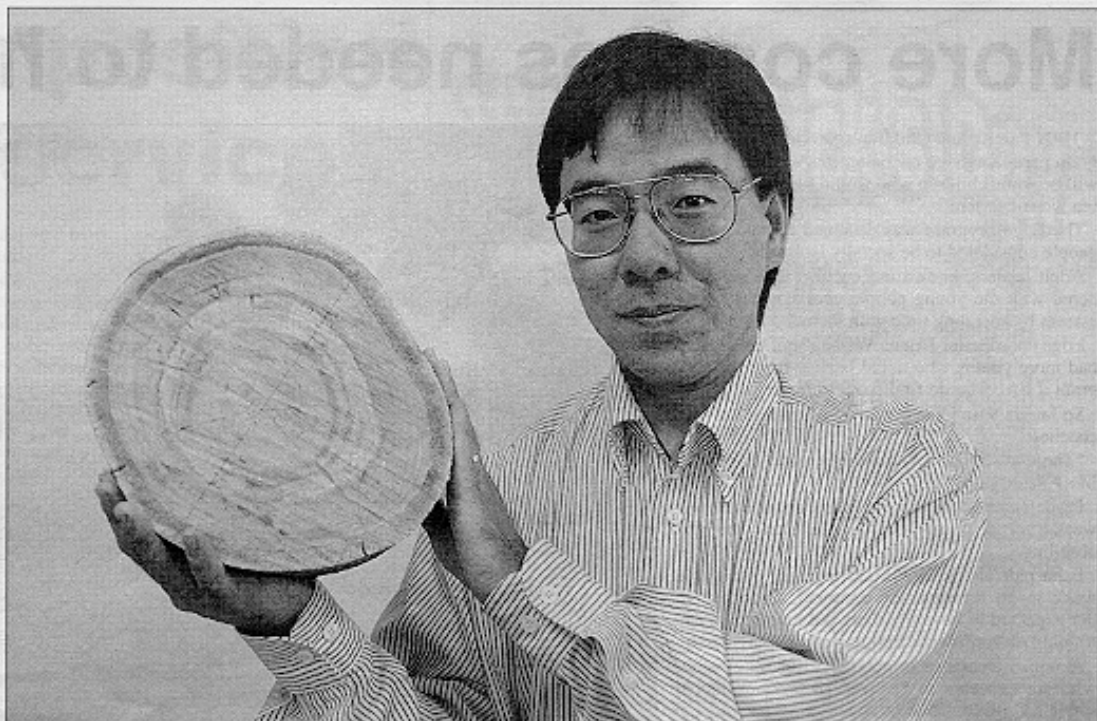


*IRR to an investor for various growth rates and increases in stumpage under a 25 year rotation with one thinning*



# Security

The politics of growing tree crops for wood fibre export



**WINNING WAYS:** Albany Plantation Forest Company director Tom Okada plans to accept the Asia Pacific Marketing Federation's inaugural gold environmental marketing award in Bangkok later this month.

## Conservation work wins praise

AN Albany company has won an international award for its services to the environment.

Albany Plantation Forest Company this week took out the Asia Pacific Marketing Federation's award inaugural gold marketing award, launched last year to encourage environmental conservation.

It was chosen from four finalists, from companies working in the 15 countries represented in the Asia Pacific Marketing Federation.

The company was formed in 1993 and plans to establish more than 20,000 hectares of bluegum

plantations in the Albany region.

Working with CALM, it had already planted nearly 14 million trees locally.

Its parent companies Oij Paper and Itochu Corporation are part of a WA-Japanese joint venture (with Bunnings Forest Products) who are planning a \$30 million woodchipping mill in the Great Southern. The project has been tipped to be operational by next year.

Director Tom Okada said the company was committed to preserving the global environment.

"Our project to establish commercial bluegum plantation is a long-term commitment to the environment and

economy of the Albany region," he said.

"Our sophisticated sharefarming scheme, which is being carried out in partnership with the local community, has now brought APFC international recognition."

Mr Okada will accept the award, with representatives Oij Paper, Itochu Corporation and Senshukai Co Ltd, at a ceremony in Bangkok on March 26 by her Royal Highness Princess Maha Chakri Sirindhorn. It is the second environmental award won by the company. In 1995 it won the Landcare Australia award for WA business.





# *Water Drawdown under Bluegum Plantations compared to Pasture*

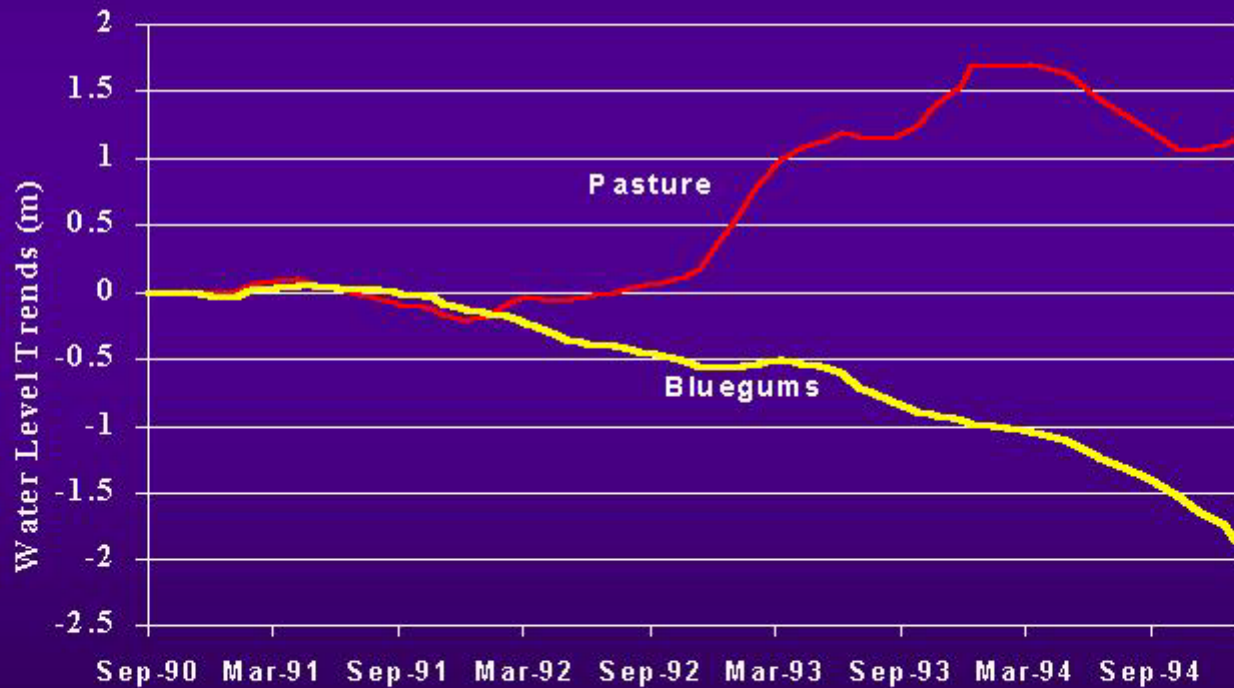


Figure 9











