

Pinaster in Australia



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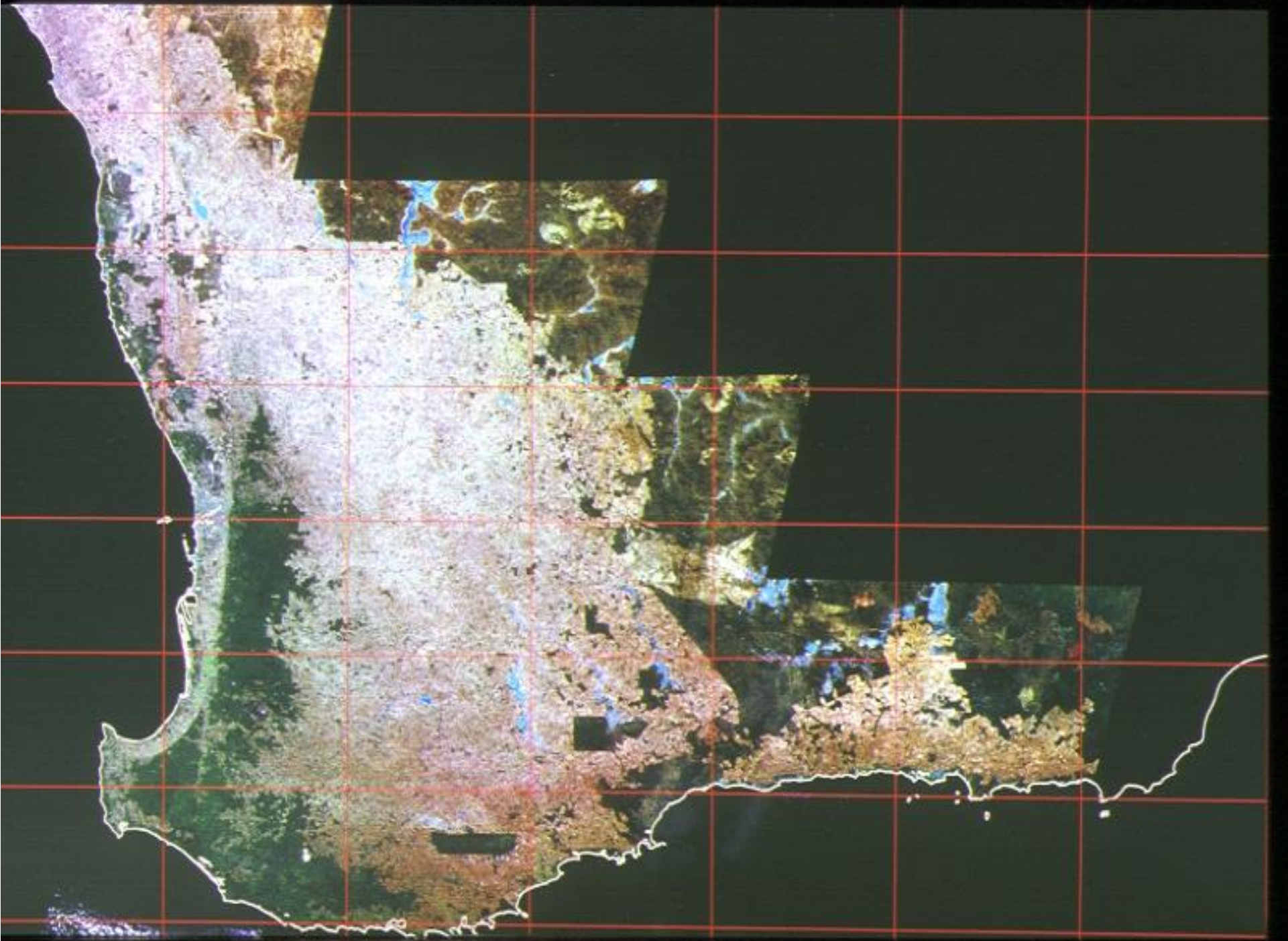


Australia and Europe area comparison

- The south west of Western Australia has a similar forest estate to Portugal with a population of only 2.5 million people.
- The main timber species is Jarrah (*Eucalyptus Marginata*) has been utilised by the timber industry for a hundred years due to its durability, high density and log sizes of up to 3 m in diameter and 30 meter length (similar to mahogany).
- The forest terrain is relatively flat and easy to access with machines.
- The eucalypt forest responds well to mild intensity fire.
- Form the 1920's foresters started planting Pinus species to supplement the Hardwood forest resource.

Jarrah Forest burning Southwest Region







The Gnangara Pine plantation on the edge of the city of Perth

Why use Pinaster

- The only timber species that thrives on sand 1,000 meters deep! Yes 1 kilometer deep.
- No native timber trees on sand plain.
- It is the only Pinus species that can survive the summer drought.



Pinaster without tree breeding.

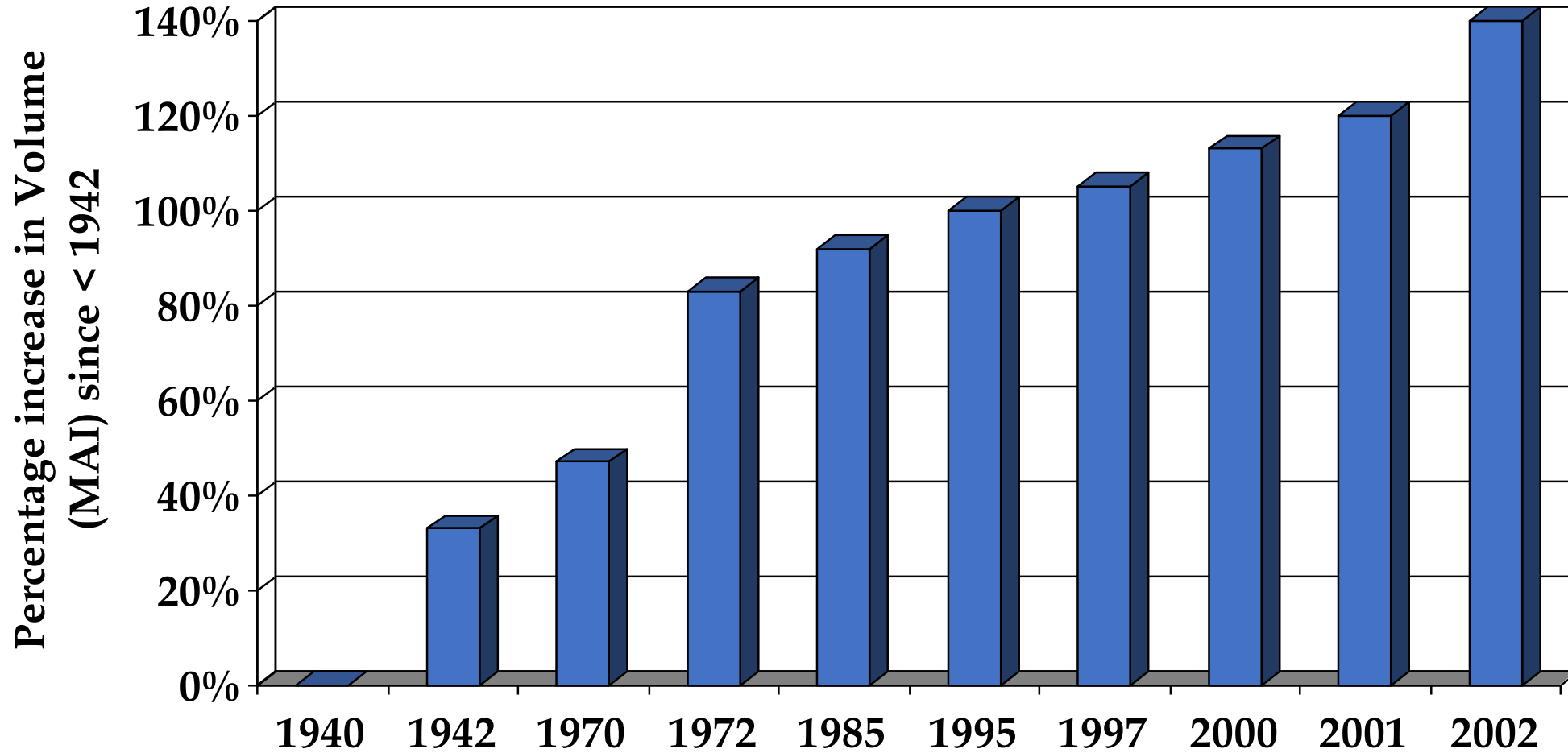




In the 1964 Dick Perry spent 2 years in Portugal selecting 85 plus trees in the Leiria forest.

After 30 years of tree breeding by Trevor Butcher the perfect pine was created.

Volume gains from the tree improvement program for Maritime pine



Unimproved
37 years old



Improved
34 years old



A man wearing a dark jacket, dark pants, and a cap stands in a forest. He is pointing towards a large wooden sign that reads "SSELLS ARBORETUM" and "EST. FROM 1967". The sign is supported by two wooden posts. The background is a dense forest of tall trees with sunlight filtering through the canopy.

SSELLS ARBORETUM
EST. FROM 1967

Pinus pinaster the perfect pine?





Pinaster is originally from Portuguese seed source. But is now growing 140% faster.



Growth rates have increased from MAI's of 1 M3 per annum

To MAI's of up to 12 M3 on ex farm land
low rainfall sites with high water tables.

High growth rates have compromised form

High growth rates have also increased drought stress.

CLIMATE

Many Pinaster sites have a climate similar to southern Spain or Portugal
with Prolonged summer droughts of over 6 months ,

Temperatures in excess of 37 degrees for weeks per year

Relative humidity's on many days in single figures.

Snow never occurs on sites, frosts are light and infrequent.

Plantings only occur at altitudes of less than 400 meters.



D 2:10 PM 50 °C

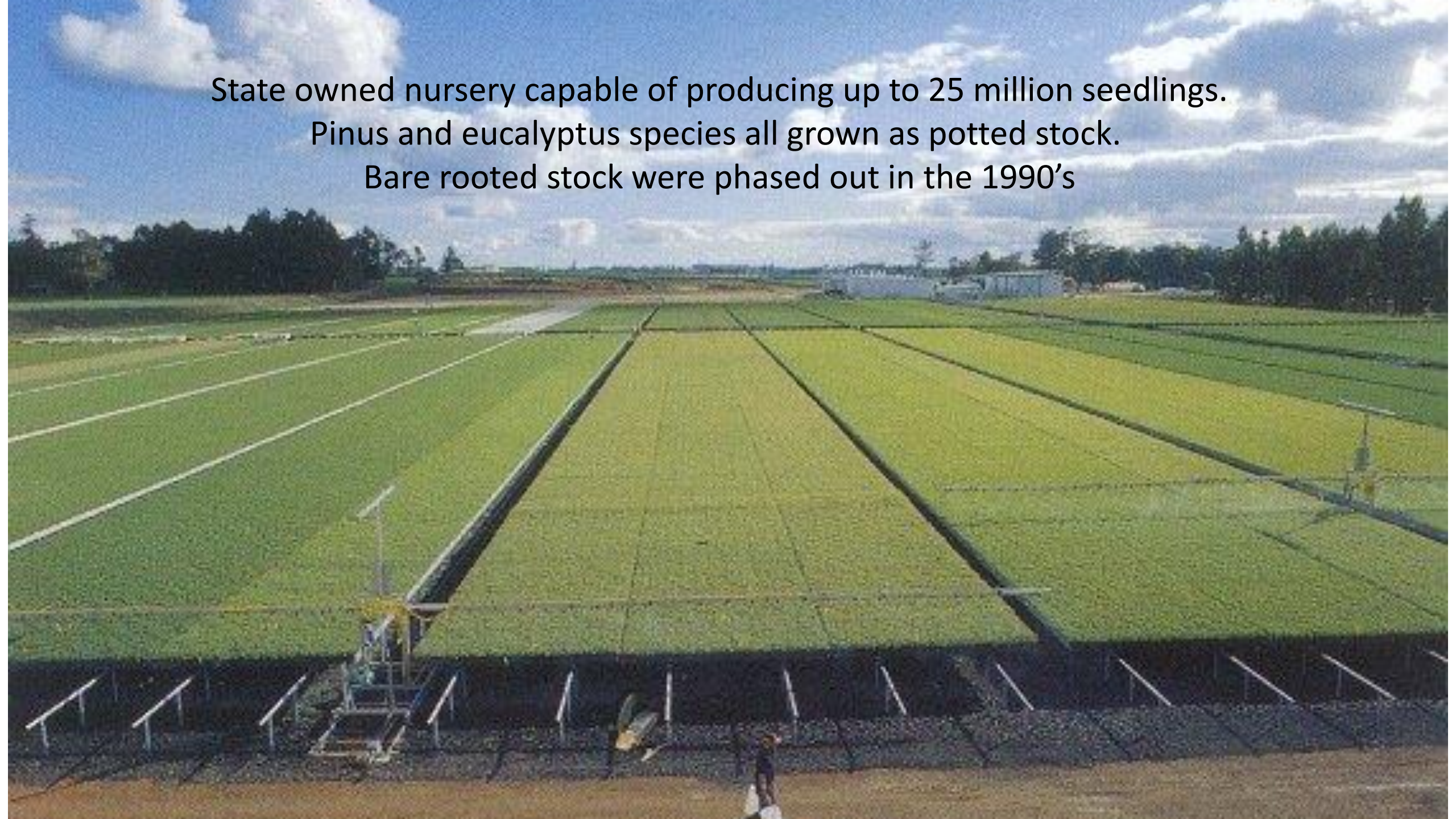
49
km/h

Farm plantings

- 600mm to 400mm rainfall zone.
- Growth rates of > 12 MAI.
- Top heights of 1.5 m per annum.
- Plantings for commercial and environmental reasons.
- All plantings from orchard seed.
- Generation 3 improved pinaster.



State owned nursery capable of producing up to 25 million seedlings.
Pinus and eucalyptus species all grown as potted stock.
Bare rooted stock were phased out in the 1990's



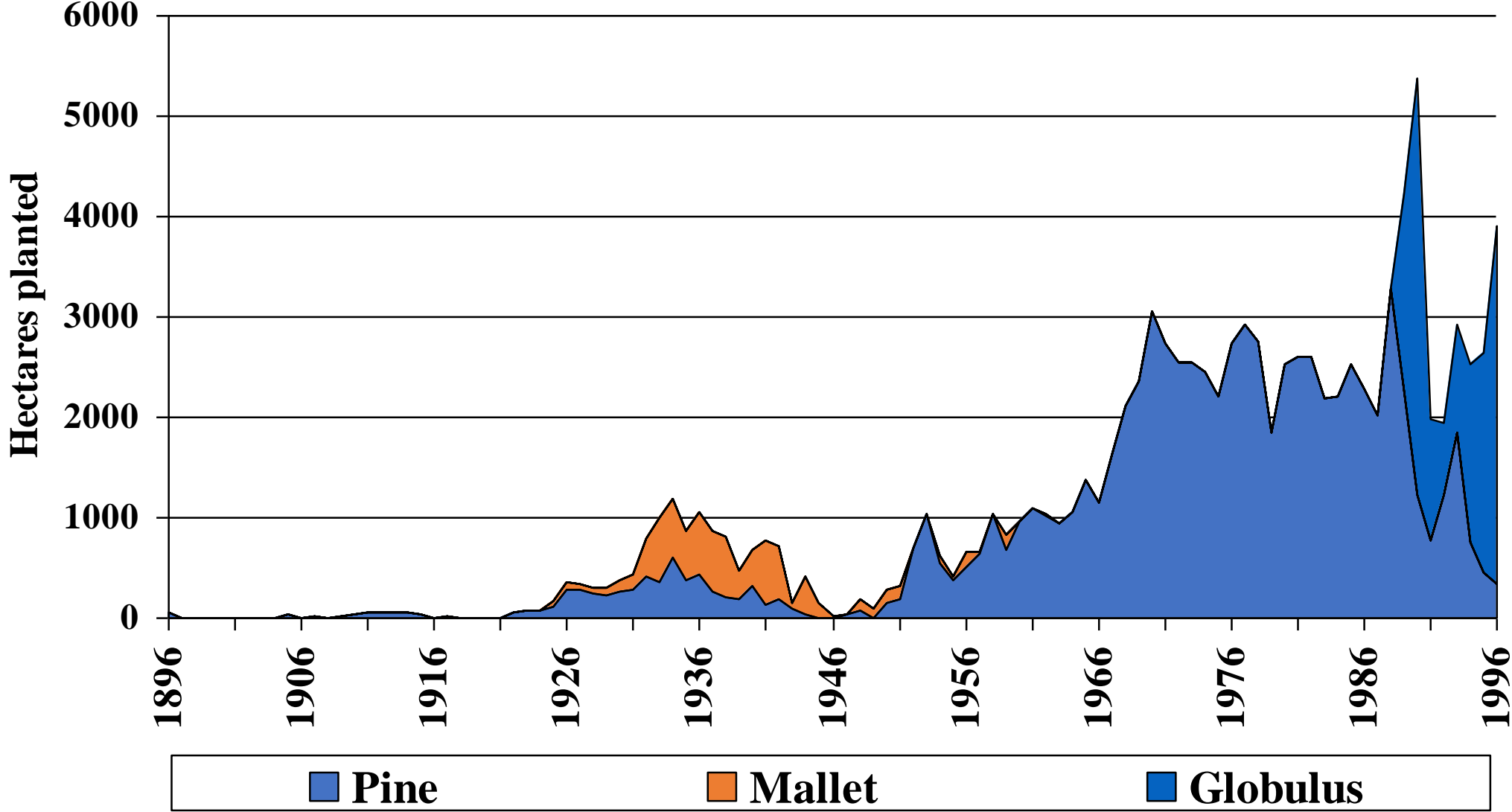
Establishment of new “Share farm” Pinaster plantations on previously farmed land commenced in the 1995 through to around 2010. Around 20,000 hectares were established under contract.



Returns from pinaster cannot compete with sheep, cattle and cropping returns
Pinaster is seen as a commercial Landcare species



Tree plantings in Western Australia (WAFD/CALM)



As of 2020 almost all Pinus plantations are government owned.

The State has approximately 75,000 hectares of Pinus plantation.

Pinaster accounts for around 30,000 hectares.

Share Farms have been generally on flat sandy paddocks
from 20 hectares to 400 hectares per property.
Very easy planting sites compared to Europe



Three year old pinaster in the 500 mm rainfall zone.







Producing around 120,000 cubic meters of mainly LVL. Also some domestic and export chip production.







Notice how no pine cones remain on the branches. Pinaster plantations are now an very important food source for a threatened species of Parrot.



Road train is the standard method of LVL transport





Fire is an issue but not the biggest threat to plantations



Pinus Pinaster Burn program

- At peak 24,000 hectares of pinaster on government land and 18,000 hectares on private lands.
- Yearly burn program of around 5,000 hectares a year. Mix of needle bed, red tops and clear-fell. Occasionally helicopter burns, most burning is by hand or flame thrower as areas have become too small now for helicopter.
- No insect problems but drought issues in un-thinned stands.

Hand lighting 25 hectares per man per day.



it would not be possible to protect the pinaster plantation in Australia.



Pinaster responds well to frequent low intensity burning.
At intervals of three to four years
and post harvesting operations





Obrigado e Adeus

