

# Forest Conservation and Management in the South-West Forests of Western Australia

Address by

**Mr Alan Walker**

Manager, Regional Forest Agreement

Department of Conservation and Land Management

to

Bunnings Forest Products Preview

Sydney, 30 April 1998





# Western Australia's Forests

	<b>Jarrah</b> (in mixture with marri and tingles)	<b>Karri</b> (in mixture with marri, jarrah & tingles)	<b>Wandoo</b>	<b>Other</b>
Estimated pre-1750 area (ha)	2 783 900	250 500	526 200	593 800
Current area all tenures (ha)	1 813 600	201 500	218 700	411 000
Proportion of pre-1750	65%	80%	41%	69%
<b>CALM-managed area (ha)</b>	<b>1 542 100</b>	<b>180 500</b>	<b>137 300</b>	<b>334 900</b>
Existing and proposed conservation reserves (ha)	377 800	55 600	75 700	221 500
Proportion of CALM-managed	25%	31%	55%	66%
Informal reserves (ha)	159 100	27 700	9 700	112 600
Proportion of CALM-managed	10%	15%	7%	34%
<b>Total Reserved (ha)</b>	<b>536 900</b>	<b>83 300</b>	<b>85 400</b>	<b>334 100</b>
	<b>35%</b>	<b>46%</b>	<b>62%</b>	<b>99%</b>

# Forest Management Principles

The principles which form the basis for management of public forests in Western Australia are:

- Ecological sustainability, embracing the concepts of -
  - maintaining ecological processes
  - maintaining biological diversity
  - optimising benefits from uses
  - considering global implications
  
- Sustained yield
  
- Integrated management

# Social Requirements from the Forest

Indigenous State forests are managed to satisfy one or a combination of the following purposes:

- **nature conservation**
- **timber production**
- tourism
- landscape
- honey
- minerals
- grazing
- defence training activities
- **recreation**
- **water catchment protection**
- heritage
- wilderness
- wildflowers (cut flowers, blossom and seeds)
- gravel, sand and stone
- scientific study and education

# The Multiple Purpose Management Principle

Forests are managed for multiple purposes.

This does not mean that all uses will, or should, be practised on every hectare of the forest at all times.

It means:

- a sensible balance of single uses;
- multiple uses, where compatible uses may be practised concurrently or sequentially.

# Forest Tenures

- National Parks
- Conservation Parks
- Nature Reserves
- Other Reserves
- State Forests

CENTRAL FOREST REGION

WHEATBELT  
REGION

**MAP 1**  
**CALM Managed Lands and Waters**  
As proposed in the Forest Management Plan  
March 1994

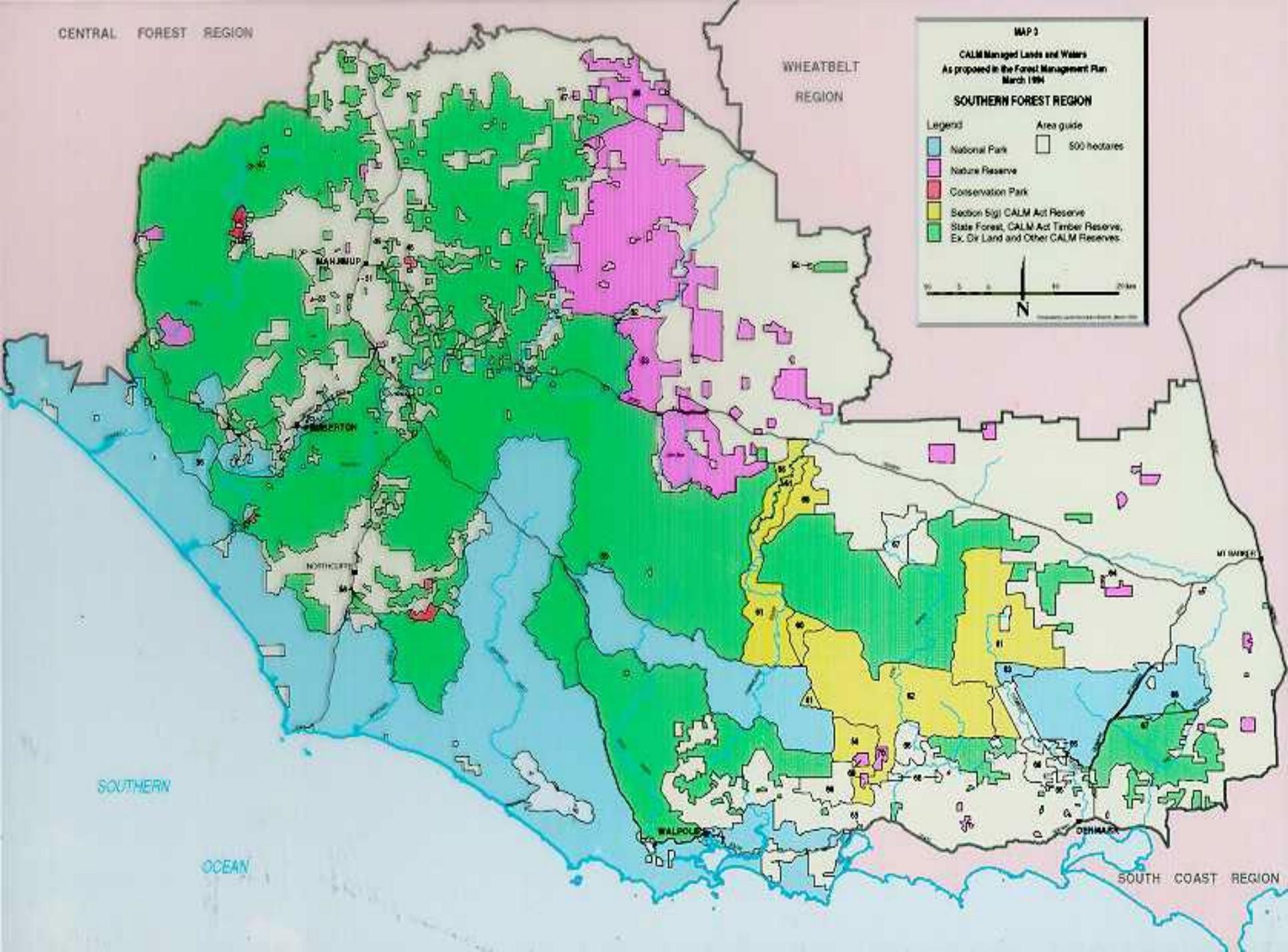
**SOUTHERN FOREST REGION**

Legend

- National Park
- Nature Reserve
- Conservation Park
- Section 51(j) CALM Act Reserve
- State Forest, CALM Act Timber Reserve, Ex. Dir Land and Other CALM Reserves

Area guide

- 500 hectares



SOUTHERN

OCEAN

SOUTH COAST REGION

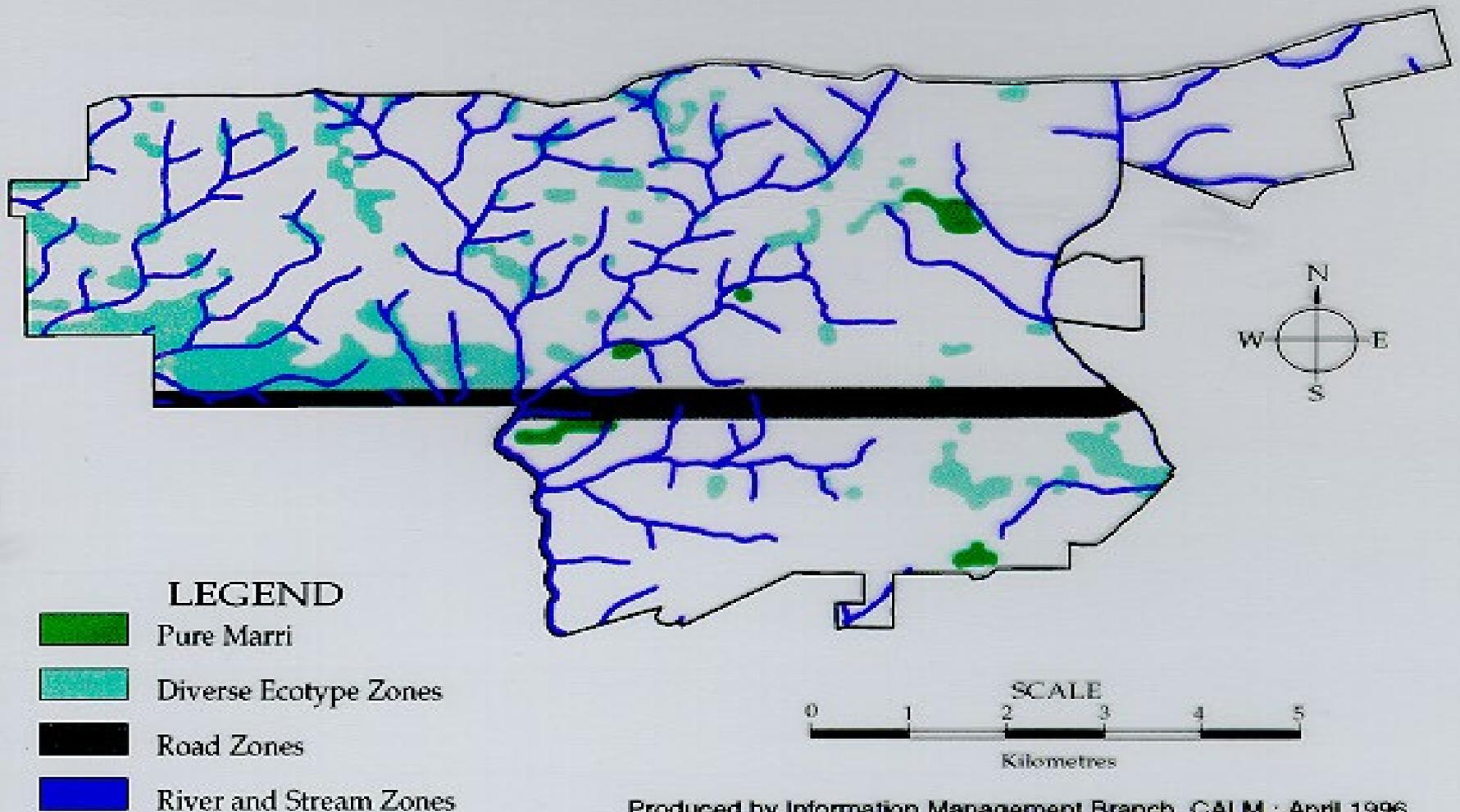




# DISTRIBUTION OF ROAD RIVER AND STREAM RESERVES

JANE FOREST BLOCK, PEMBERTON DISTRICT

PROPOSED BY 1994 FOREST MANAGEMENT PLAN



# Stages of Development of the Karri Forest

Stage 1	Establishment	0-8 years
Stage 2	Juvenile	9-25 years
Stage 3	Immature	26-120 years
Stage 4	Mature	121-250 years
Stage 5	Senescent	251-350+ years

Ages are approximate and considerable variation is known to occur.

# Karri Forest Structure

Karri forest is largely even-aged.

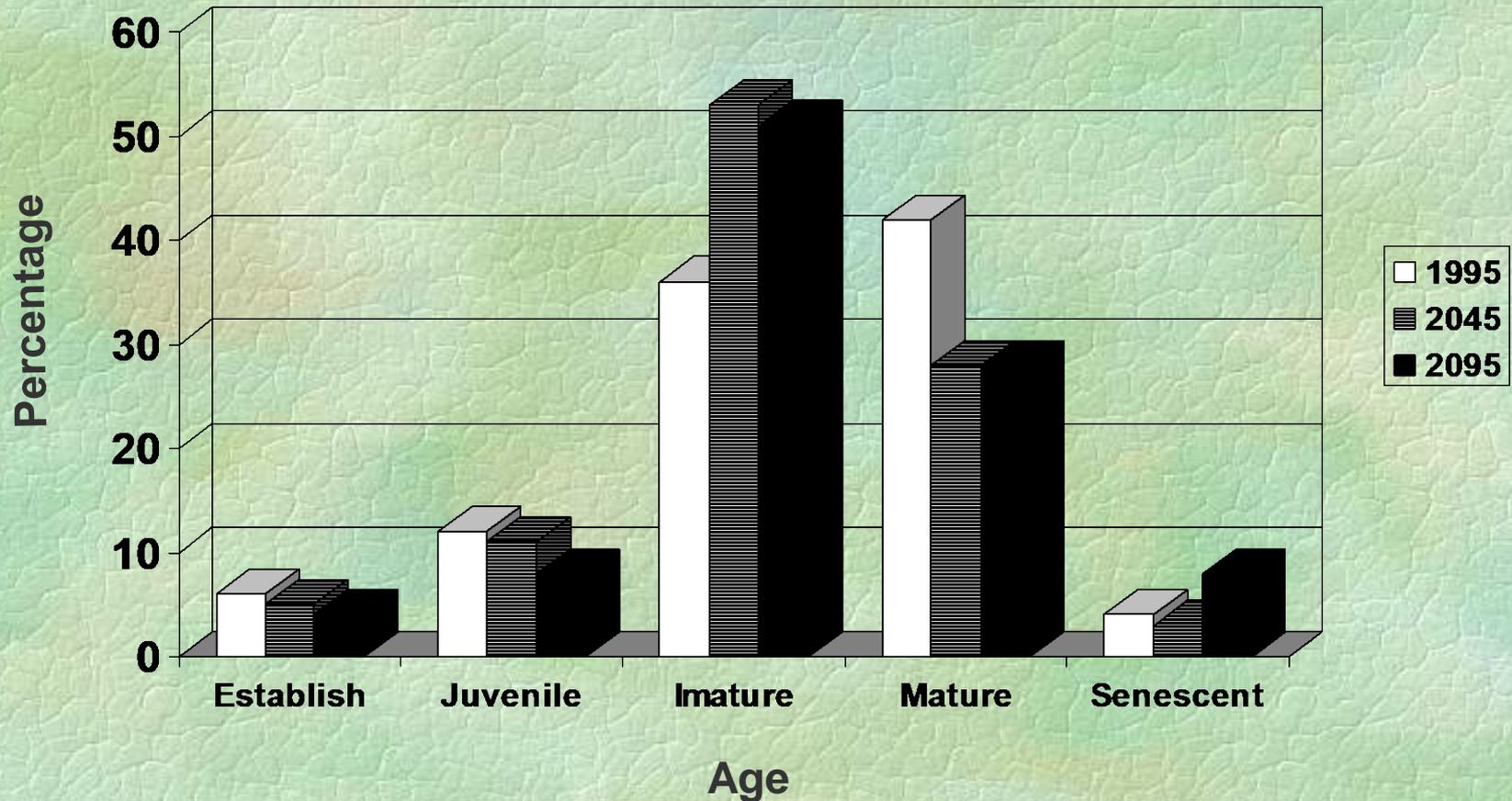
If it assumed that *on average* karri stands reach an age of 200 years, the structure of the forest necessary to sustain the oldest stages of karri forest development is as shown below.

## Karri Forest Structural Goal

<b>Stages of Development</b>	<b>Percentage Representation</b>
Establishment	4%
Juvenile	8%
Immature	48%
Mature/Senescent	40%

# Karri Forest Structure

Projected Development Stages over time (whole of forest)







# Jarrah Forest Structure

- The jarrah forest is largely uneven aged.
- Size class distribution relates to site and disturbances.

Structural goal is to:

- Maintain 30% of the jarrah forest in a minimal disturbance condition (maintain or restore mature stand condition).
- Convert no more than 1% of the multiple use jarrah forest to the regeneration stage each year.
- Ensure that several development stages are represented (in patches) in any one compartment.
- Restore the pre-existing ecosystem in areas of high disturbance such as surface mining.



# Species Extinctions in south-west Western Australia since European settlement in 1829

<b>Taxonomic Group</b>	<b>Swan Coastal Plain</b>	<b>State Forest</b>	<b>Wheatbelt</b>
Vascular flora	2	0	18
Birds	15	1*	8
Mammals	9	0	17
<b>Total</b>	<b>26</b>	<b>1*</b>	<b>43</b>

\* *Species also extinct outside State forest.*

# Decline of the Original Mammal Fauna (excluding bats) at various localities in south-west Western Australia

Locality	Area (ha)	Original number of mammal species	Number now locally extinct	% species extinct
State forest	1 500 000	22	0	0
Fitzgerald River National Park	329 039	33	11	33.3
Stirling Range National Park	115 661	28	13	46.4
Dryandra Woodland	27 947	22	10	45.5
Tutanning Nature Reserve	2 140	25	10	40.0
Wongan Hills Nature Reserve	1 750	27	21	77.8
Kings Park	400	25	24	96.0



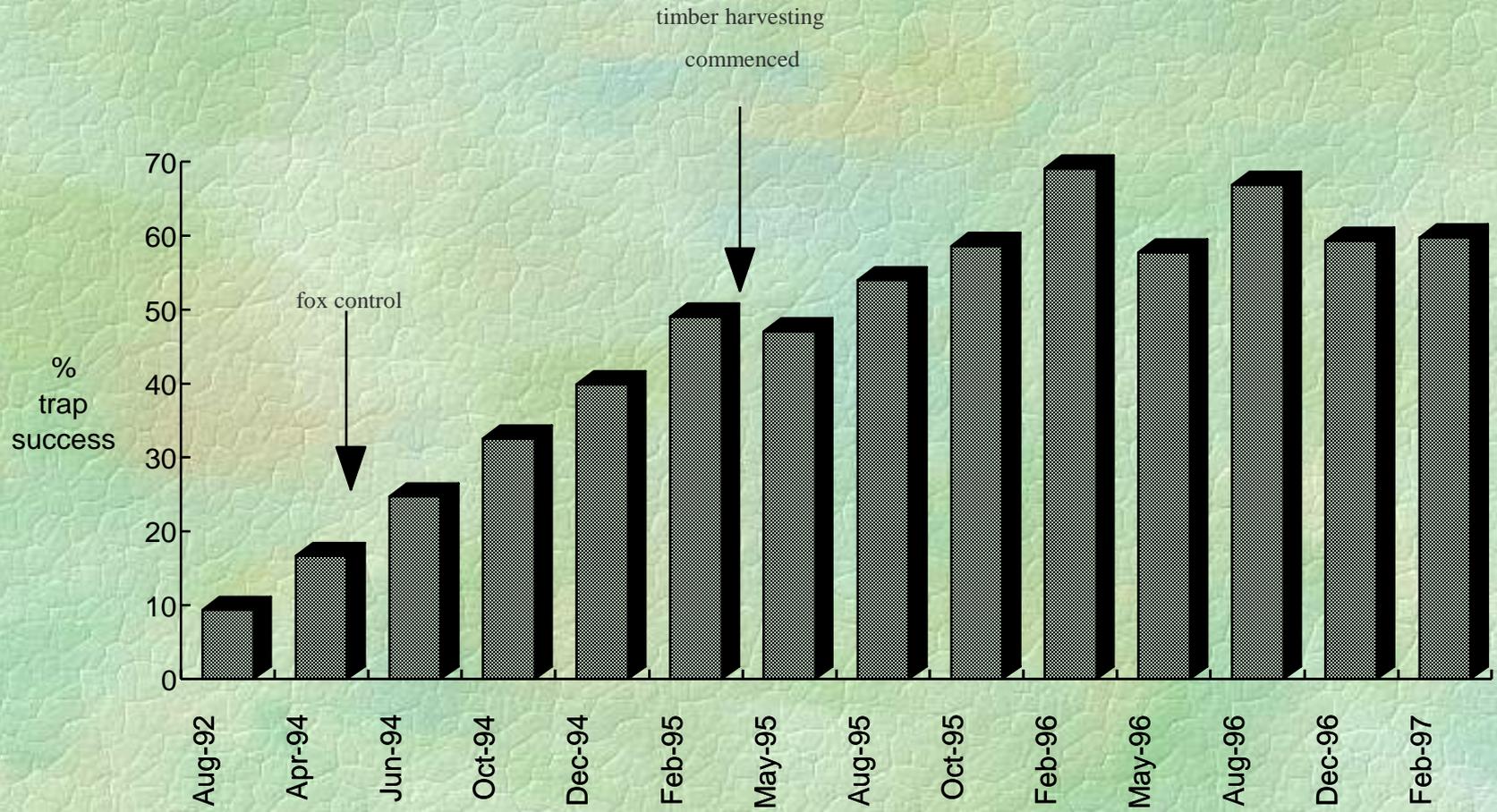




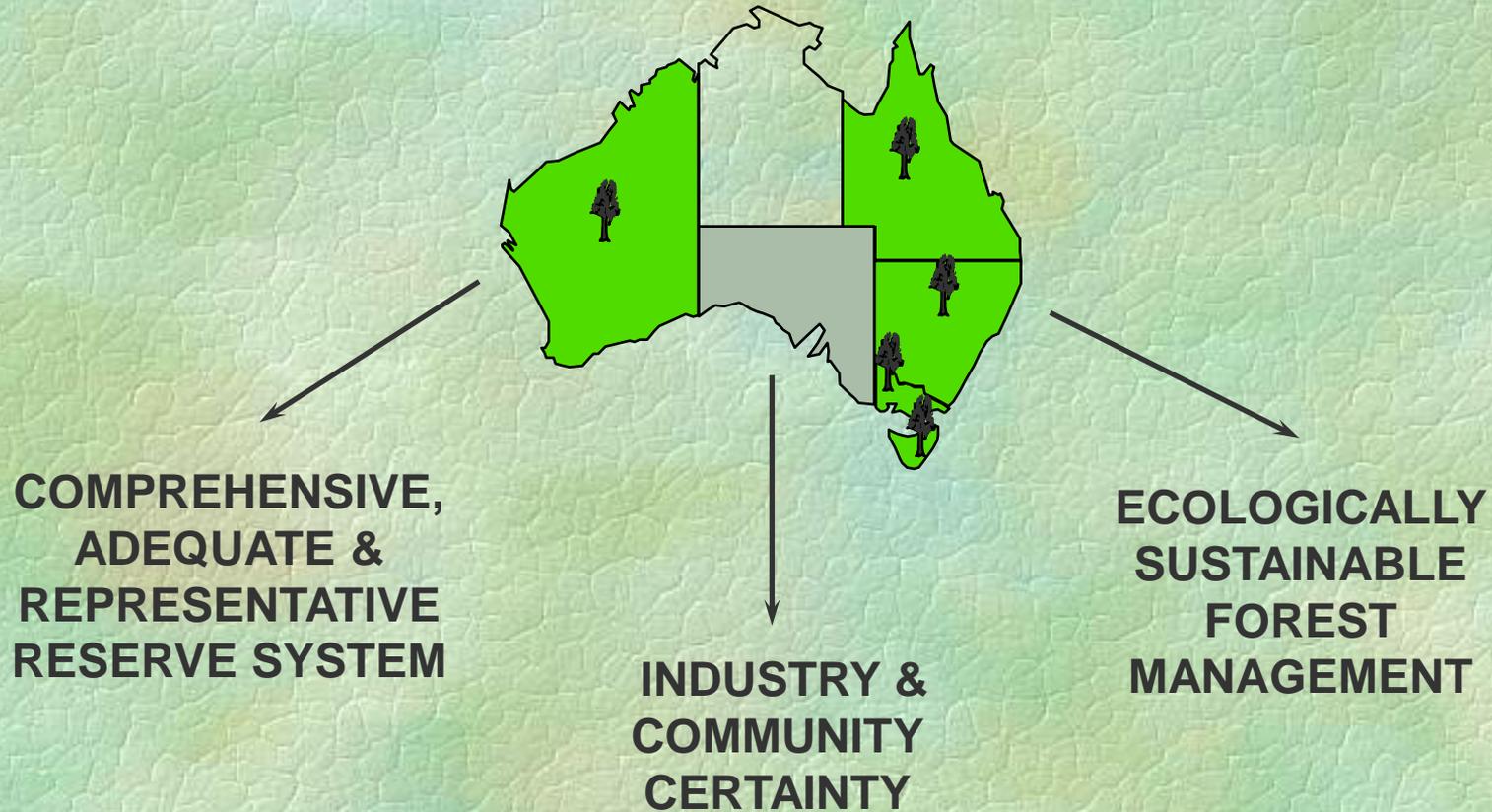




# Kingston Timber Harvesting Study - Trap Success Rates for all Medium Sized Mammals along Road Transects



# Regional Forest Agreements



# Comprehensive Regional Assessments (CRA)

- A CRA provides the information for a RFA.
- A CRA will assess:
  - social
  - economic values of forest based resources
  - ecologically sustainable forest management
  - biodiversity, including endangered species
  - wilderness
  - old growth
  - National Estate
  - World Heritage
  - Other forest uses
  - Aboriginal and heritage

# CAR Forest Reserve System

- A key objective of the NFPS is the establishment of a Comprehensive, Adequate and Representative network of dedicated and secure forest reserves.
  
- A CAR reserve system will facilitate
  - the maintenance of an extensive and permanent native forest estate;
  
  - and the protection of nature conservation values in forests.

# Nationally Agreed Forest Reserves Criteria

## **1997 - Completed and Agreed by all jurisdictions**

These criteria will be used in the development of reserves in the Regional Forest Agreements

### **Principles:**

#### **1. COMPREHENSIVENESS**

Full range of forest communities

#### **2. ADEQUACY**

The level required to ensure viability of populations, species and communities (including replication)

#### **3. REPRESENTATIVENESS**

The sampling required to ensure that biotic diversity is protected

# Nationally Agreed Forest Reserves Criteria

## **Biodiversity Criteria**

1. 15% of pre-1750 distribution of each forest ecosystem in reserves
2. 60% of vulnerable forest ecosystems in reserves  
(vulnerable = 70% depleted and threatening processes continuing)
3. 100% of rare and endangered forest ecosystems in reserves  
(rare = total area less than 1000 hectares)

# Nationally Agreed Forest Reserves Criteria

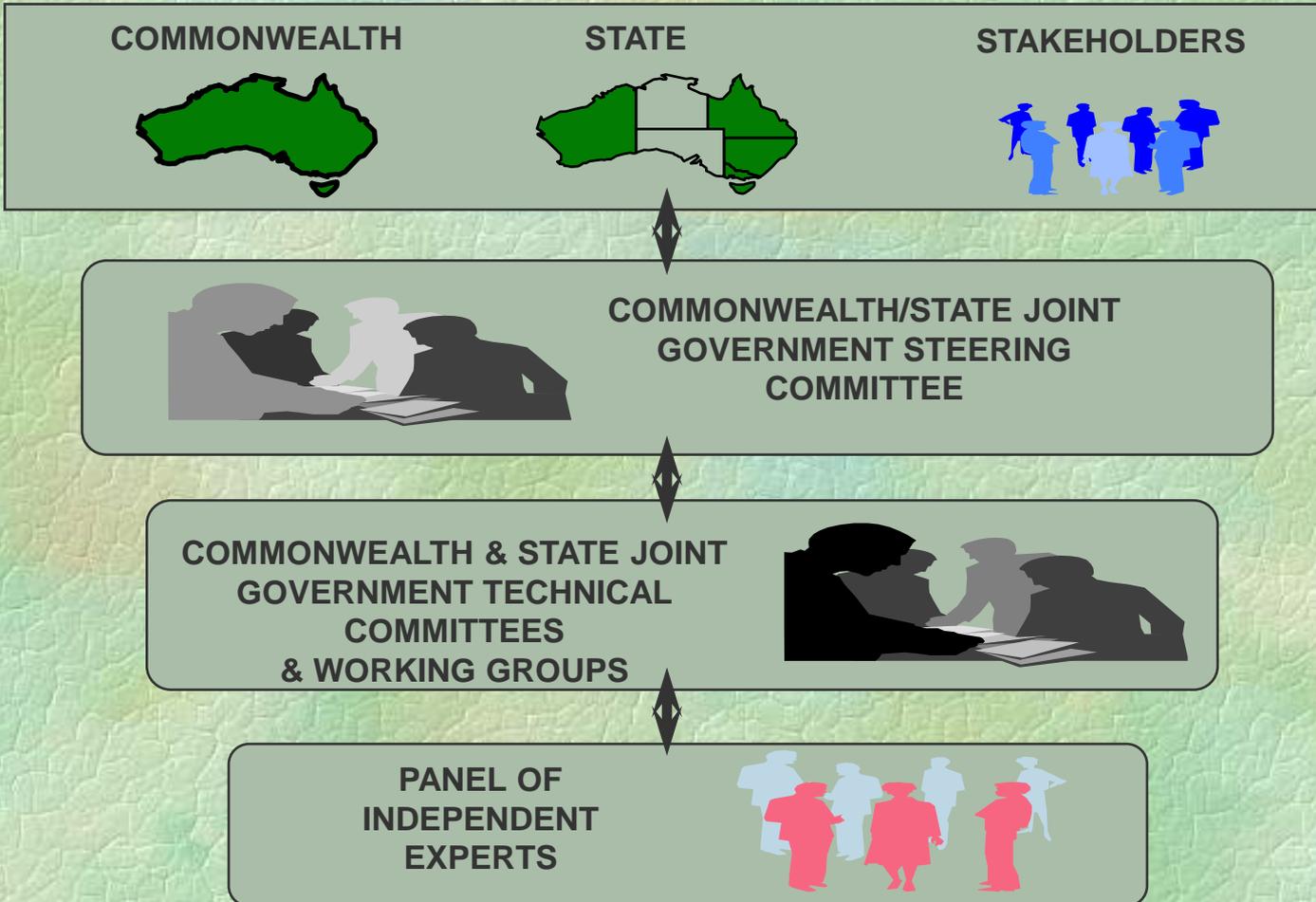
## Old Growth Forest Criteria

### *Definition:*

“Old growth is forest which is ecologically mature and which has been subjected to negligible disturbance.”

1. 60% of remaining old growth in each forest ecosystem to be protected in reserves
2. 100% of rare or depleted old growth to be protected in reserves  
(rare = less than 10% of current distribution is old growth)

# RFA Management



# Regional Forest Agreement, Western Australia

## Stages in the Process

- **ASSESSMENT STAGE**
  - **Comprehensive Regional Assessment**
  - **Assessment of Ecologically Sustainable Forest Management**
  
- **DATA INTEGRATION AND OPTIONS DEVELOPMENT STAGE**
  - **Includes public consultation**
  
- **AGREEMENT NEGOTIATION STAGE**
  - **Final CAR reserve system**
  - **National Estate listings**
  - **Threatened species**
  - **World heritage**
  - **ESFM**
  - **Employment and industry development**
  - **Sustainability indicators**

# Regional Forest Agreement, Western Australia

## Assessment of Ecologically Sustainable Forest Management

### Management Principles

- Conservation of biological diversity
- Maintenance of productive capacity
- Maintenance of forest ecosystem health and vitality
- Conservation of soil and water resources
- Maintenance of global carbon cycles
- Maintenance and enhancement of long term multiple socio-economic benefits

# Regional Forest Agreement, Western Australia

## Comprehensive Regional Assessment Outcomes

### **Biodiversity**

- **Mapping of 27 Forest Ecosystems**
  - 11 jarrah forest ecosystems
  - 6 karri forest ecosystems
  - 2 wandoo forest ecosystems
  - 3 ecosystems below 15% reservation
  
- **Mapping of Vegetation Complexes**
  - 312 vegetation complexes
  - pre-1750 distribution
  - approximately 40 complexes not reserved
  
- **Flora Assessment**
  - 153 000 records
  - 3244 species
  - map of species richness ~ 4 “hotspots”
  - maps of endemic flora, disjunct populations, relictual flora
  
- **Fauna Assessment**
  - new database
  - 76000 records
  - 796 species
  - maps of endemic, relictual fauna, refugia

# Forest Ecosystems on Crown Land



## Legend

- |                                  |                                |
|----------------------------------|--------------------------------|
| Jarrah Forest –North West        | Karri/Yellow Tingle            |
| Jarrah Forest –North East        | Karri/Rates Tingle             |
| Jarrah Forest –South             | Wandoo Forest                  |
| Jarrah Forest –Sandy Basins      | Wandoo Open Woodland           |
| Jarrah Forest –Blackwood Plateau | Bullich & Yate Woodland        |
| Jarrah Forest –Leeuwin Ridge     | Peppermint & Coastal Heathland |
| Jarrah Forest –Unicup            | Shrub, Herb and Segdelands     |
| Jarrah Forest –Mt Lindesay       | Swamps                         |
| Jarrah Forest/Red Tingle         | Rocky Outcrops                 |
| Jarrah Forest/Yellow Tingle      | Sand Dunes                     |
| Jarrah Forest/Rates Tingle       | Darling Scarp Vegetation       |
| Jarrah Open Woodland             | Swan Coastal Plain Vegetation  |
| Karri –West Coast                | Dandaragan Plateau Vegetation  |
| Karri –Main Belt                 | Wheatbelt Vegetation           |
| Karri –South Coast               | Exotics & Cleared              |
| Karri/Red Tingle                 | Private Property               |



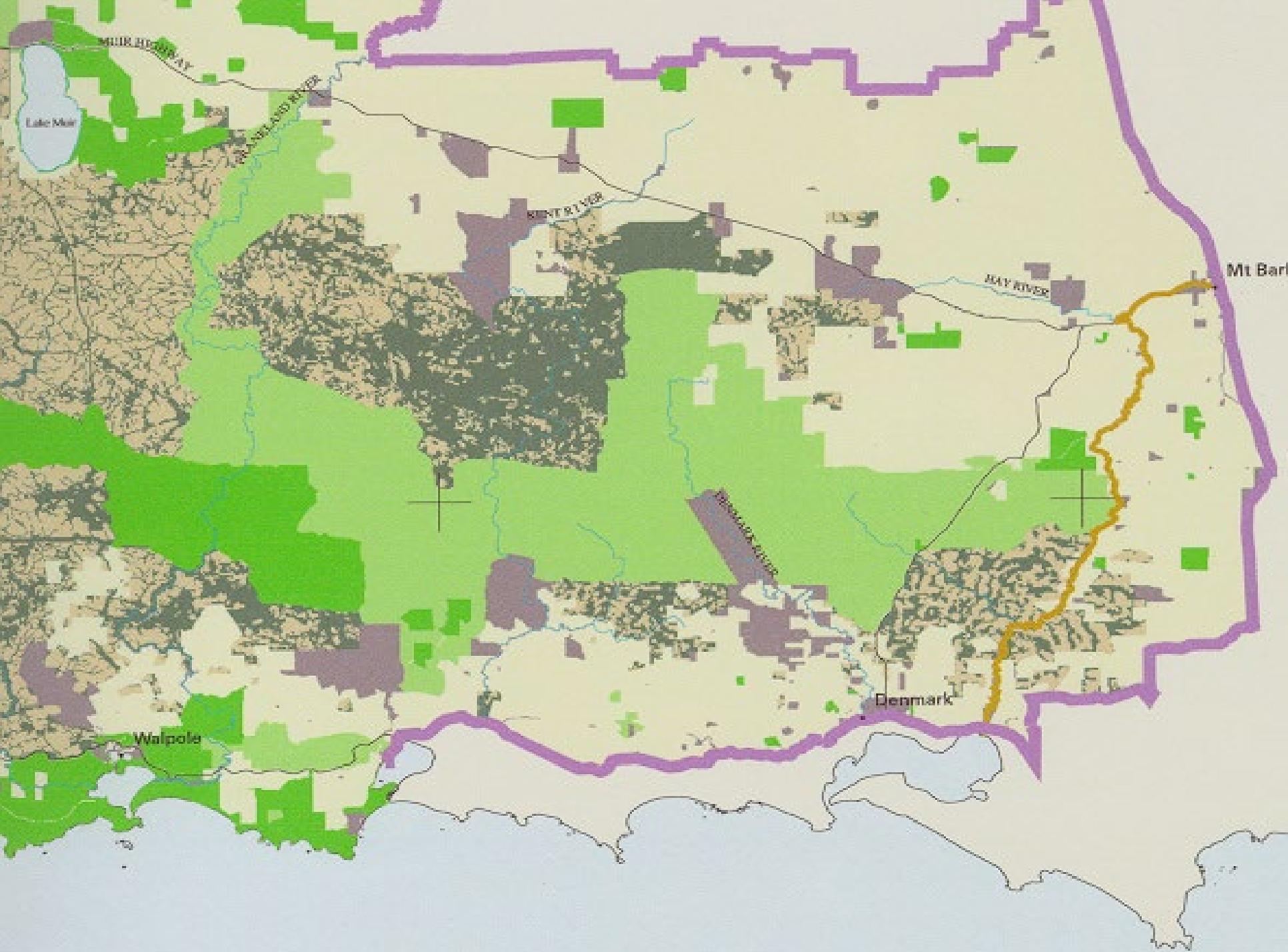
# Regional Forest Agreement, Western Australia

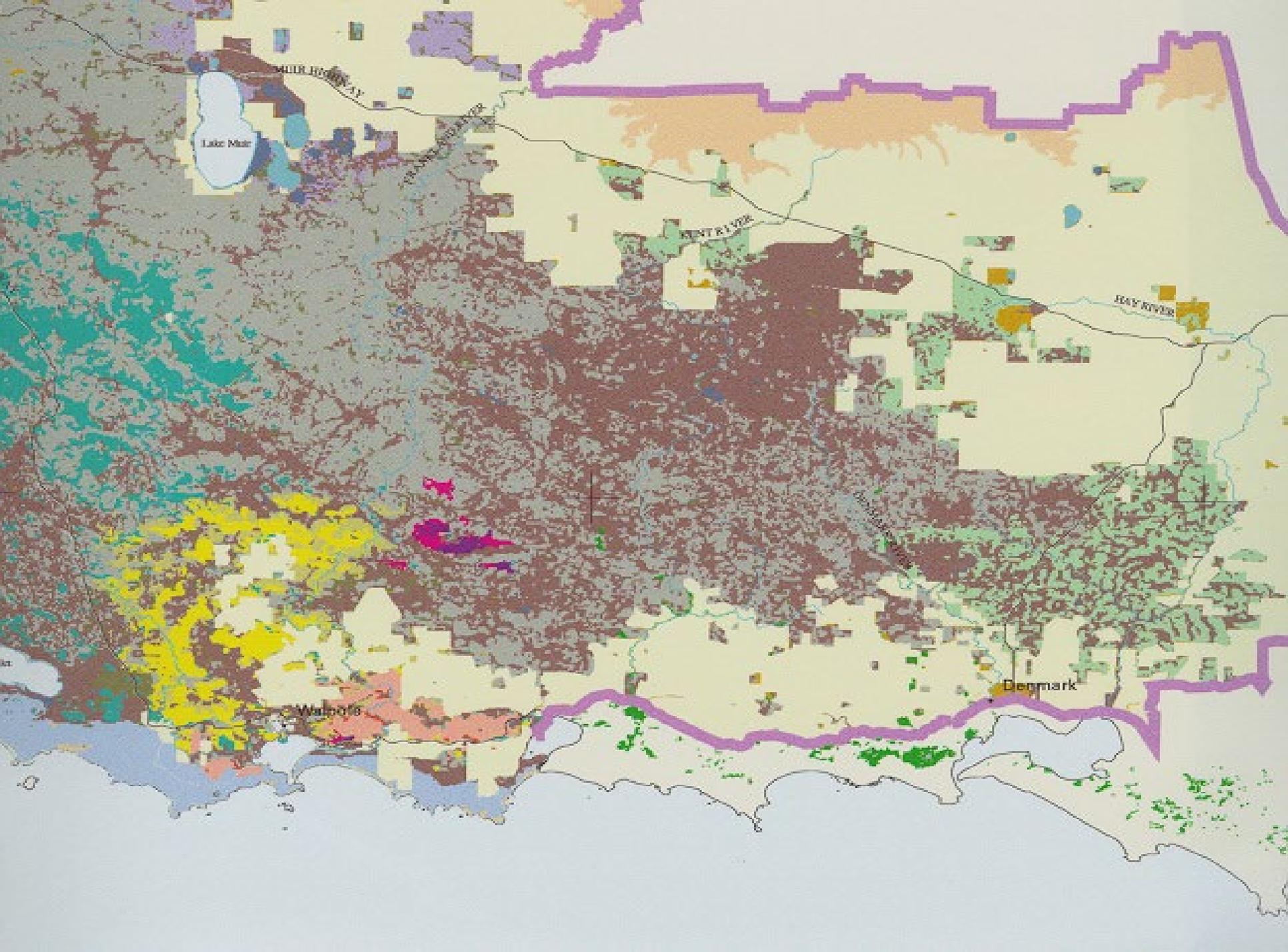
## Comprehensive Regional Assessment Outcomes

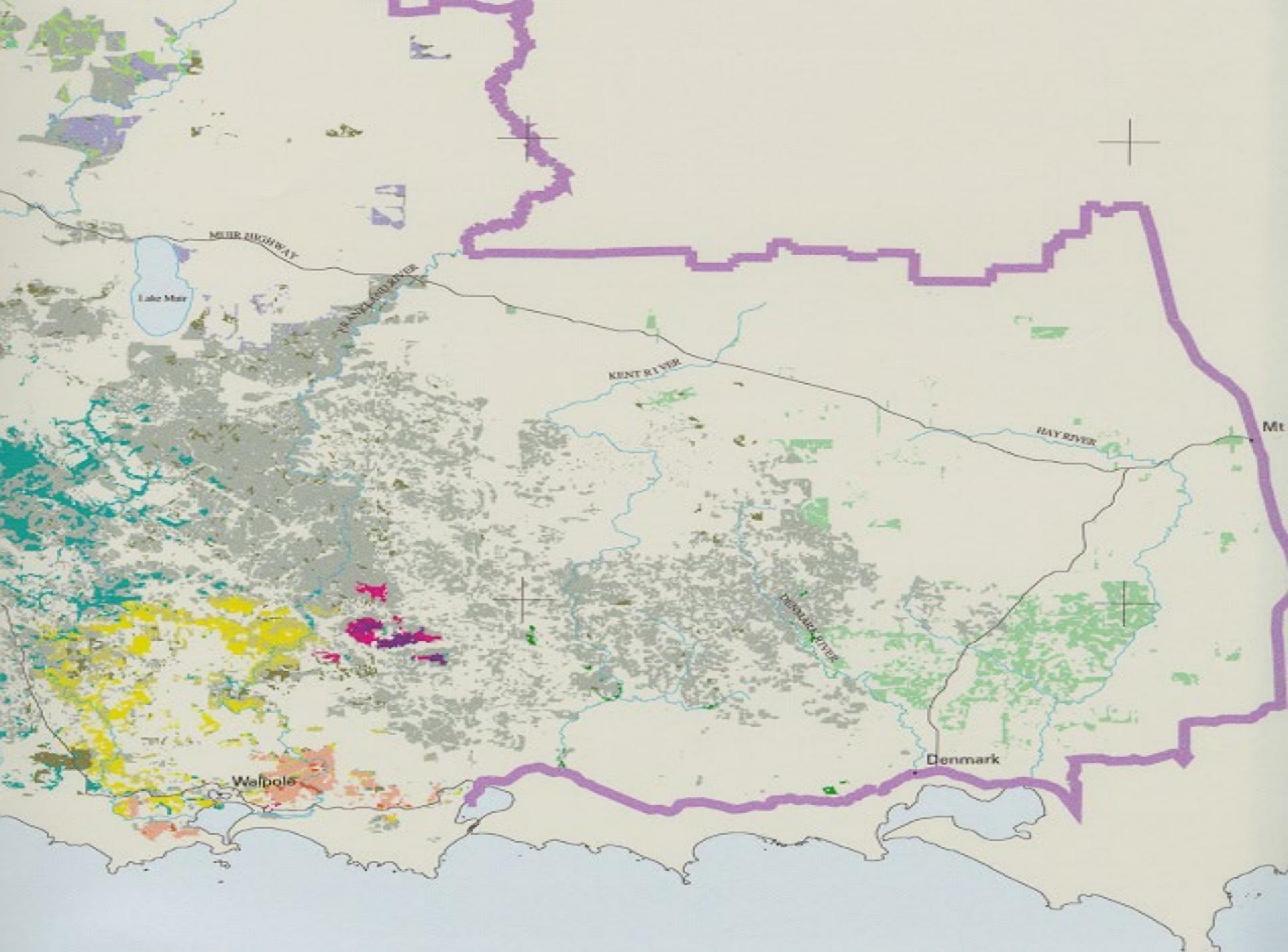
### Old Growth

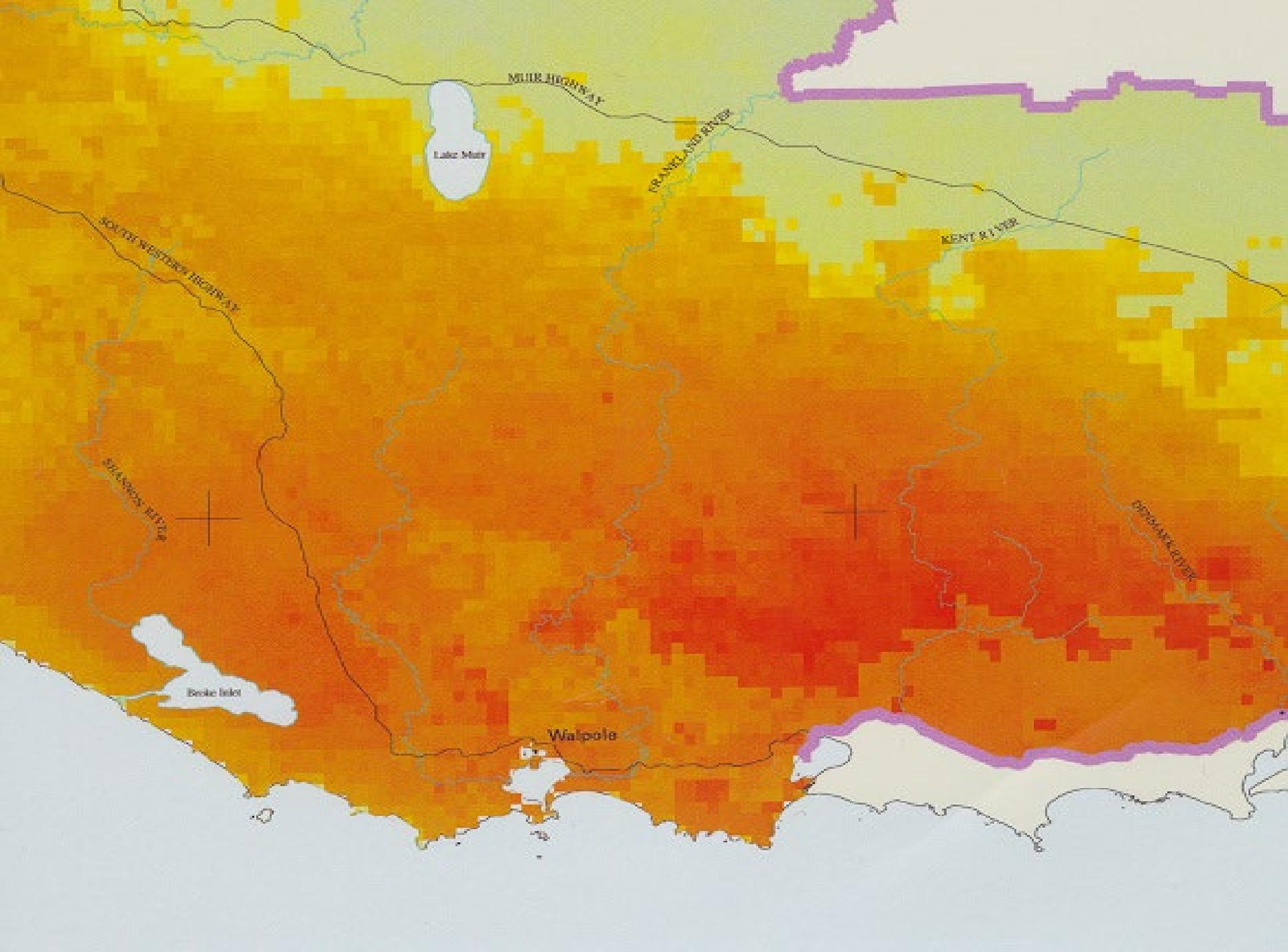
*“Forest that is ecologically mature where the effects of disturbance are now negligible.”*

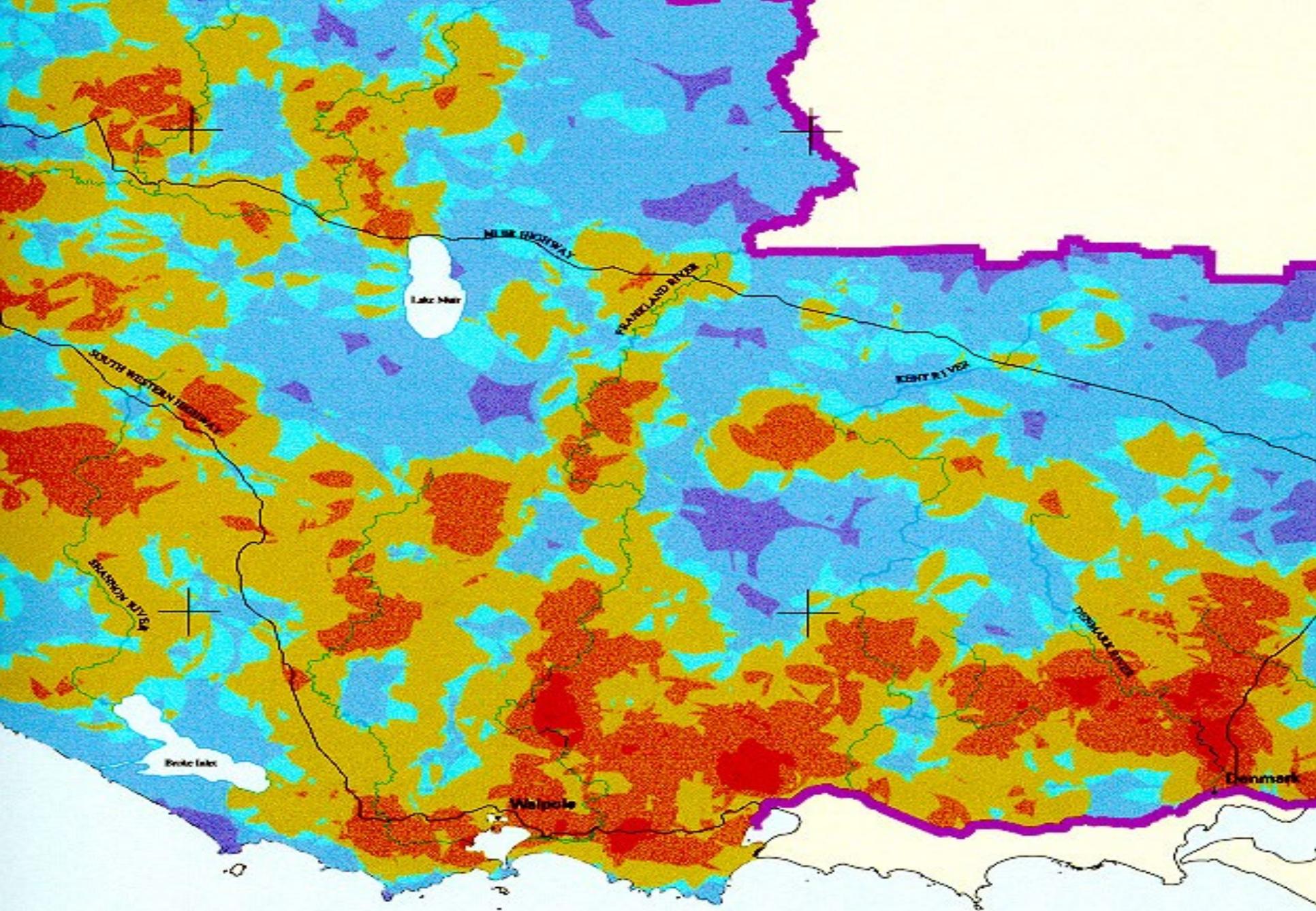
- Mapping of growth stages (karri only) and disturbances across the region
- Disturbances include - clearing, logging, mining, grazing, dieback
- 347 300 hectares of old growth forest
- 202 942 hectares (58.4%) reserved
- |                    |                  |     |
|--------------------|------------------|-----|
| Jarrah (South)     | 160 000 hectares | 56% |
| Karri (Main Belt)  | 53 000 hectares  | 72% |
| Jarrah (Blackwood) | 48 000 hectares  | 33% |
- |             |               |
|-------------|---------------|
| 100% target | 10 ecosystems |
| 60% target  | 9 ecosystems  |

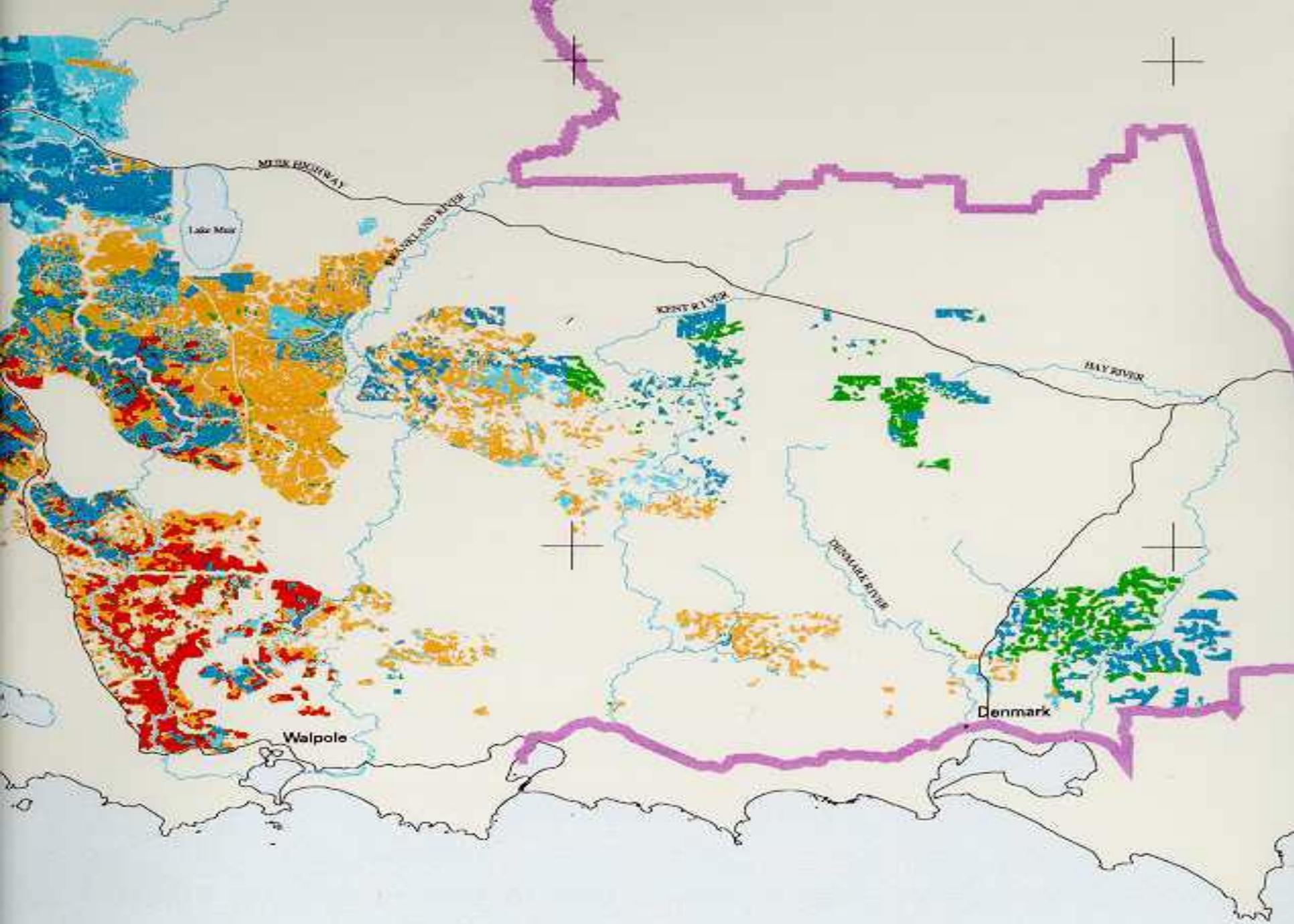












# Regional Forest Agreement, Western Australia

## Comprehensive Regional Assessment Outcomes

### Timber

- **1.2 million hectares out of 2.4 million hectares is available for timber production**
- **Annual turnover                      \$850 million**
- **Total employment                      20 000 direct/indirect**
- **Development Opportunities (Hardwood)**
  - **veneer products**
  - **high value sawn timber**
  - **secondary processing**
  - **particle board and MDF**
  - **pulp and paper**
- **Plantations**
  - **148 000 hectares of plantations (58% public)**
  - **20 000 hectares per annum**
  - **500 000 hectares potentially suitable for bluegums**

