THE ROLES OF TREES AND FORESTS IN BUILDING COMMUNITY RESILIENCE AGAINST DROUGHTS IN AUSTRALIA

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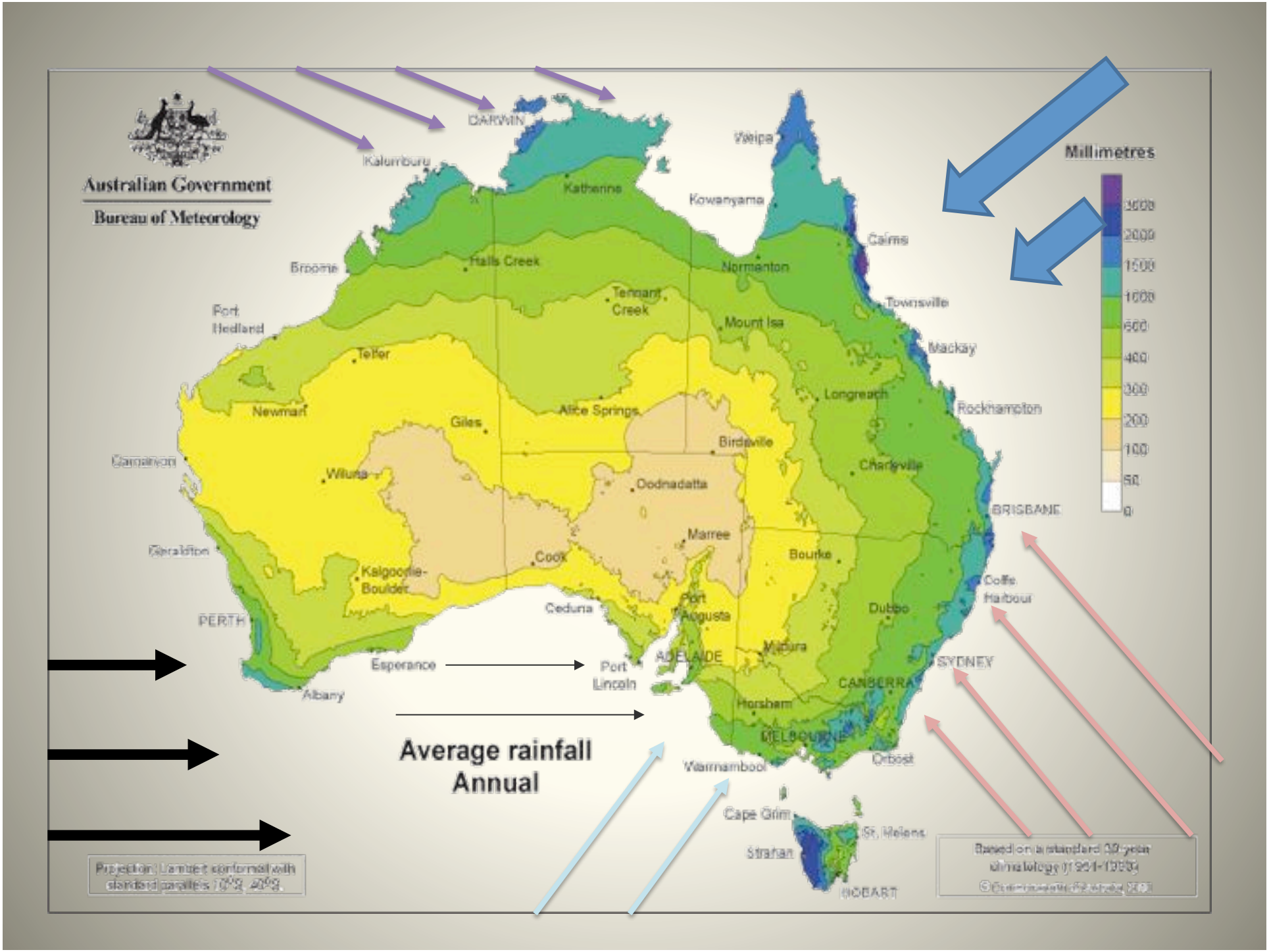
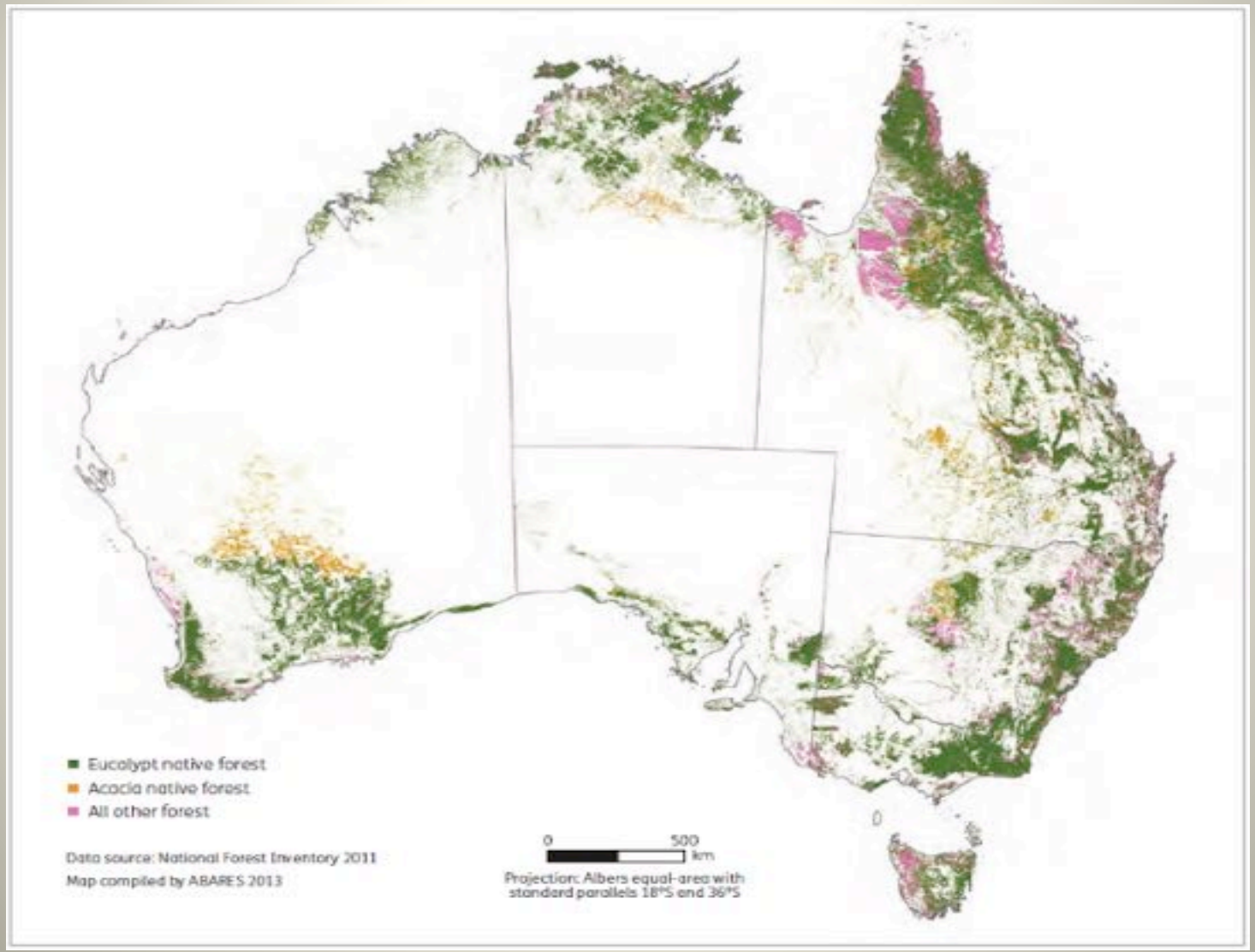

Australian Government
Bureau of Meteorology
Millimetres
3000
2000
1500
1000
600
400
300
200
100
50
0
DARWIN
Kalumburu
Katherine
Weipa
Kowanyama
Cairns
Broome
Halls Creek
Normanton
Tennant Creek
Townsville
Port Hedland
Mount Isa
Mackay
Telfer
Longreach
Newman
Alice Springs
Rockhampton
Giles
Birdsville
Carnarvon
Charleville
Wiluna
Oodnadatta
BRISBANE
Marree
Geraldton
Bourke
Cook
Coffs Harbour
Kalgoorlie-Boulder
Dubbo
Ceduna
Port Augusta
PERTH
Madura
ADELAIDE
SYDNEY
Esperance
Port Lincoln
CANBERRA
Albany
Horsham
MELBOURNE
Warrnambool
Orbost
Cape Grim
St. Helens
Strahan
HOBART
Average rainfall
Annual
Projection: Lambert conformal with standard parallels 18°S, 36°S
Based on a standard 30-year climatology (1961-1990)

Current distribution of forests & woodlands



Land Tenure

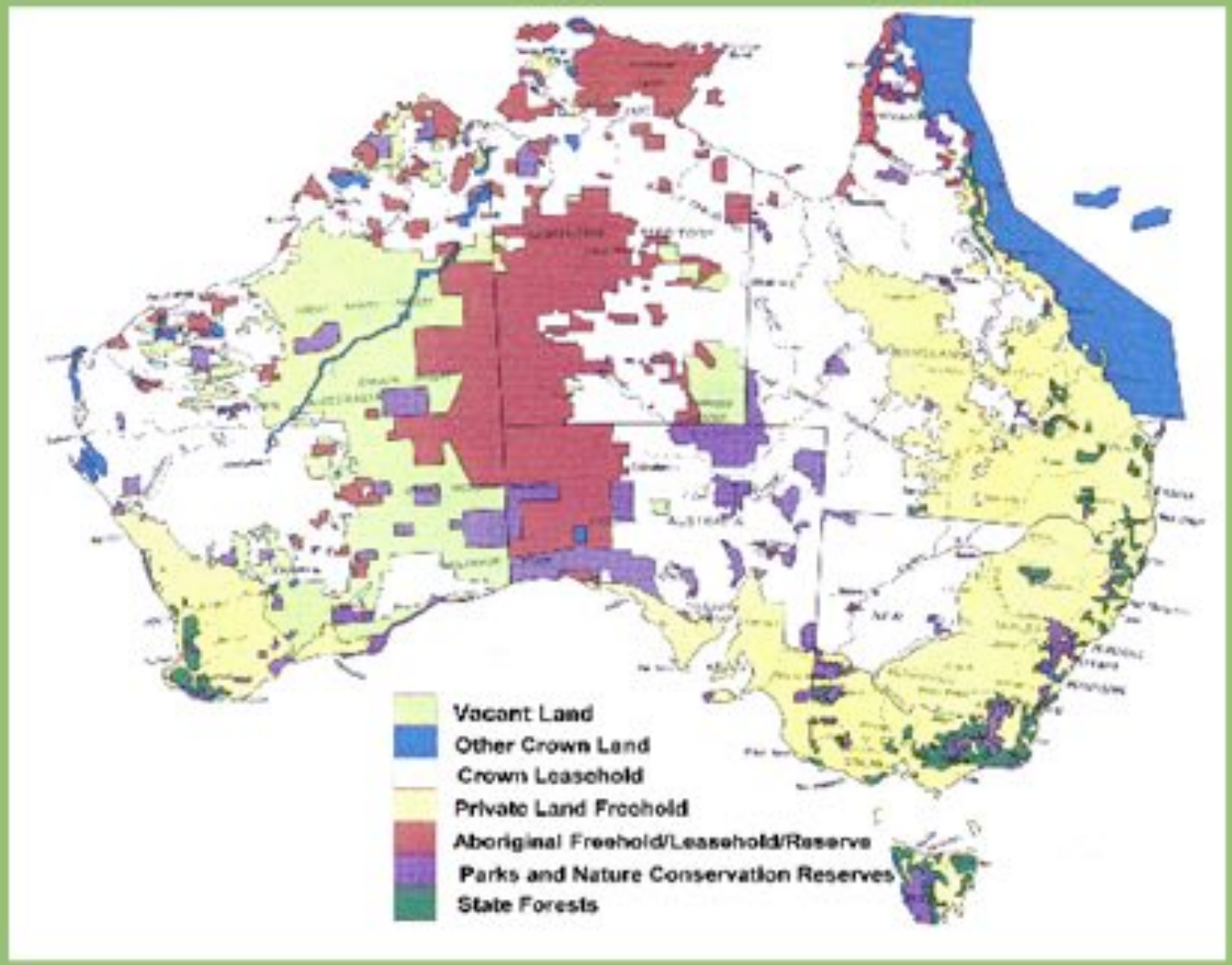
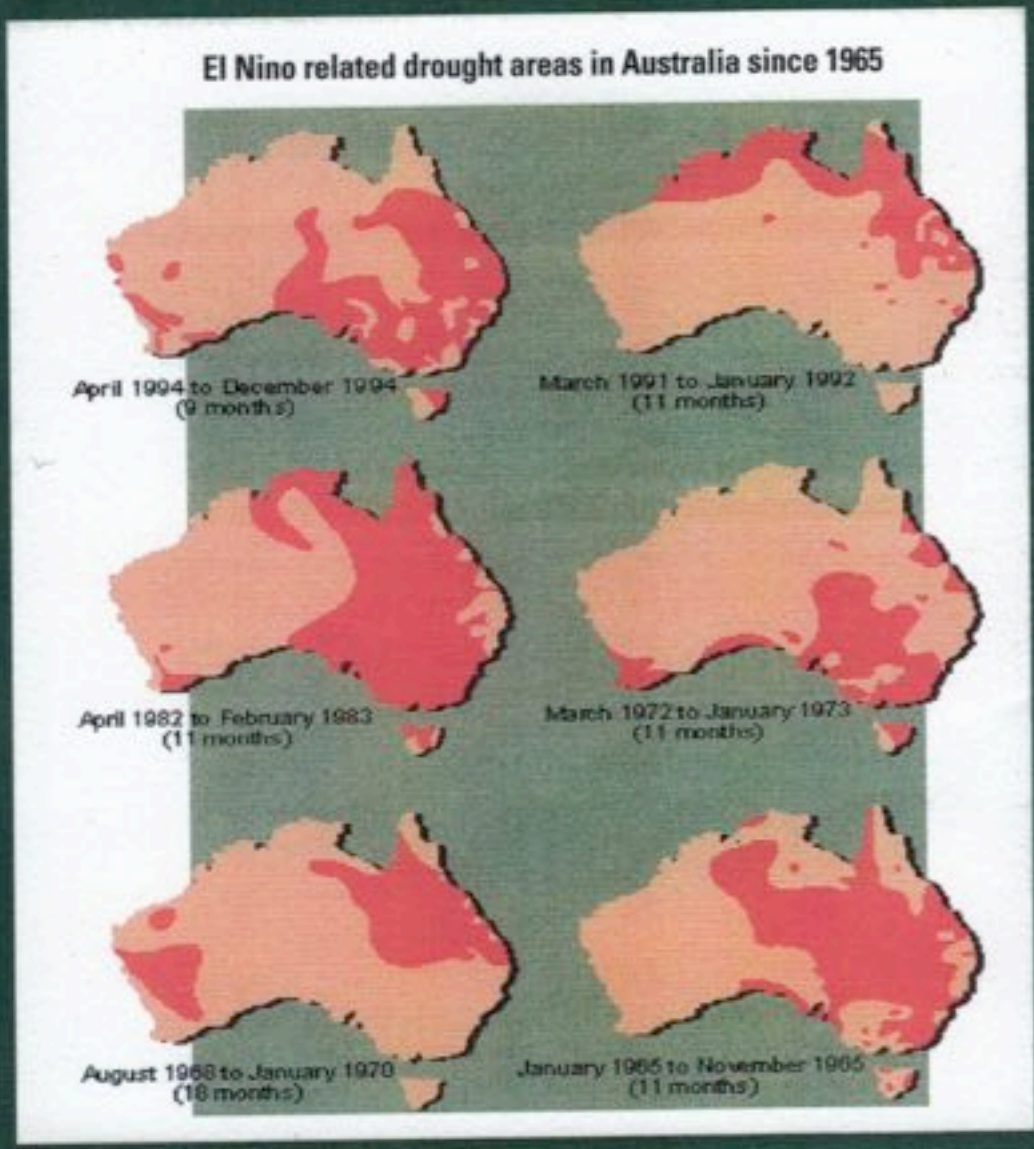
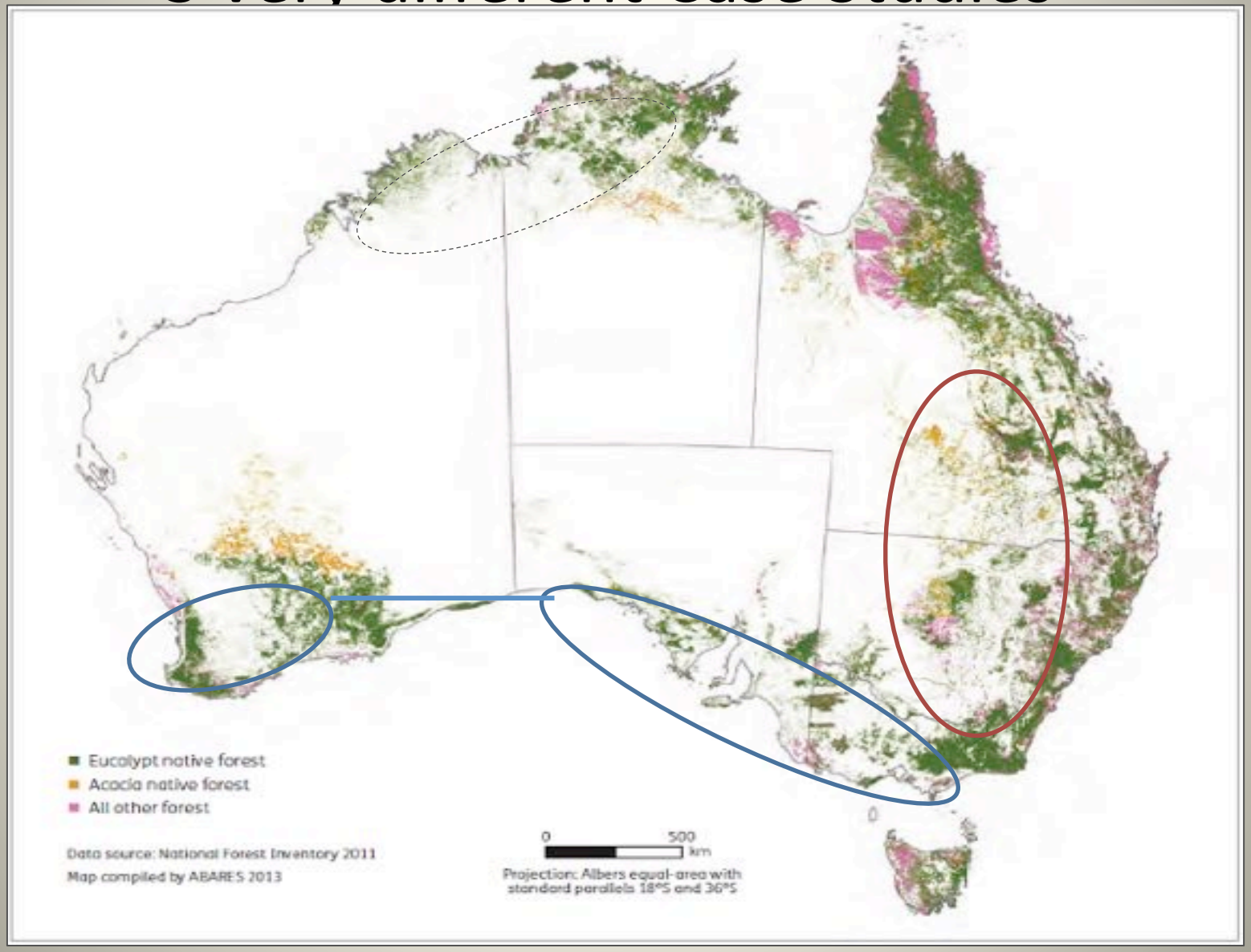

Vacant Land
Other Crown Land
Crown Leasehold
Private Land Freehold
Aboriginal Freehold/Leasehold/Reserve
Parks and Nature Conservation Reserves
State Forests

FIGURE 6 Some El Niño-related drought areas between 1965 and 1995.
Source: information in Box 4 was adapted from the Bureau of Meteorology website[1]



[1] See http://www.bom.gov.au

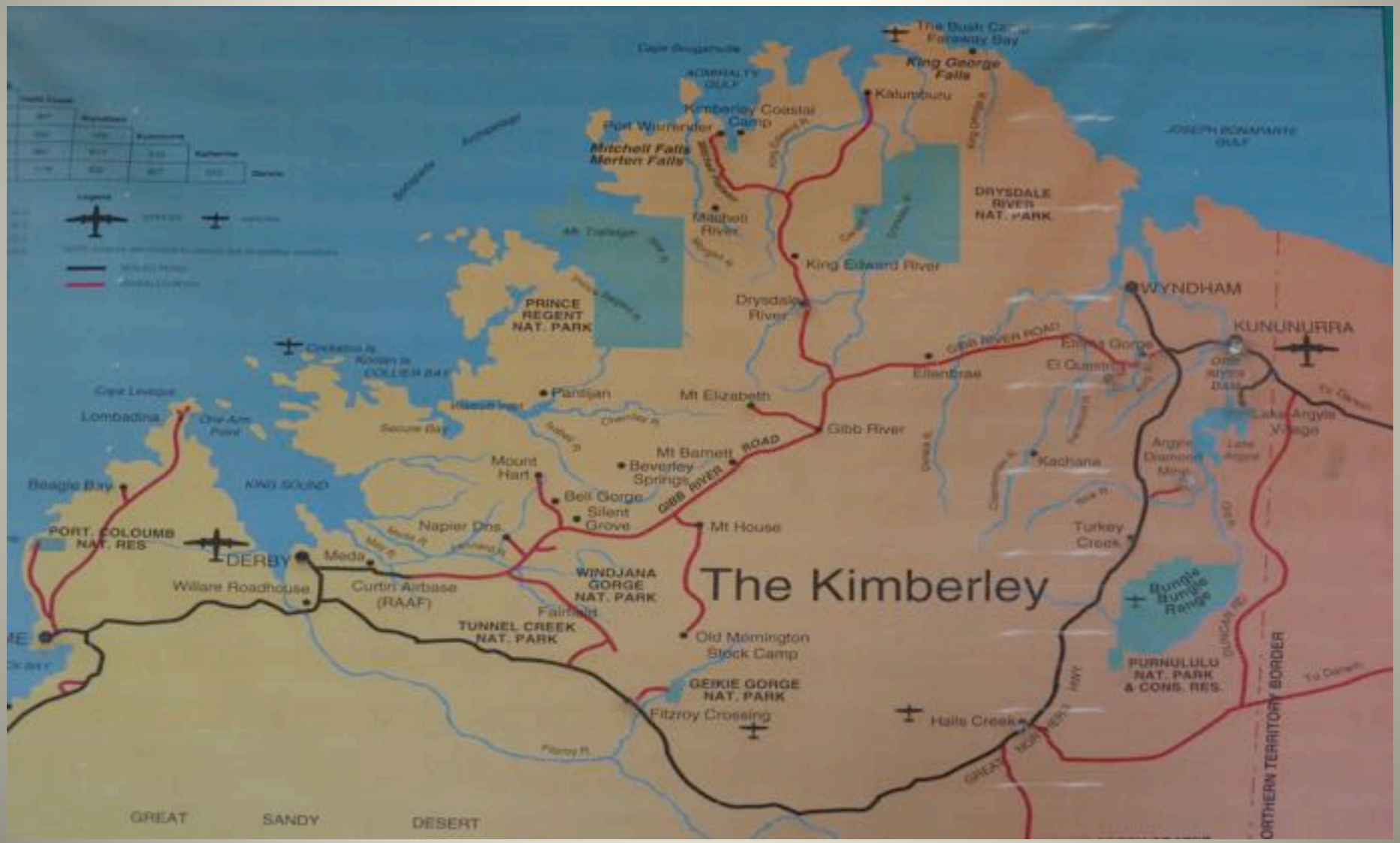
3 very different Case Studies



The Northwest

- Semi-arid woodlands, seasonal monsoons
- V sparse population (<20,000)
- Mining, beef cattle, & traditional subsistence

The Kimberley






The South

- Wet sclerophyll forests, winter rainfall
- Mod dense population (> 10 mill people)
- Highly productive forests (and agriculture)
- High risk of catastrophic bushfires in drought

The Southwest of Western Australia

Sharing the responsibility

"Noongar people are culturally obliged to care for country. This comes to us through our Nyitting, the Noongar Dreaming, which tells us that we are custodians of our country.

We must recognise that country provides for our needs. In return we must provide for its needs.

Country is a gift from our ancestors. We must in turn pass it on to our descendents. We have a strong responsibility to country, ourselves and our children.

For tens of thousands of years we have fulfilled our obligations through responsible use of fire, ceremony and natural resources.

We have used song and story to transmit information through the ages. Intimate knowledge of the land and its features enables us to manage our country for the health and prosperity of the land and ourselves.

It surprises many that within this country which initially appears uniform that there are huge variations and changes. Often these changes occur very quickly. It is important to know where they are. Caring for country requires local knowledge to avoid mistakes. Take care."

by Traditional Owners and Associates

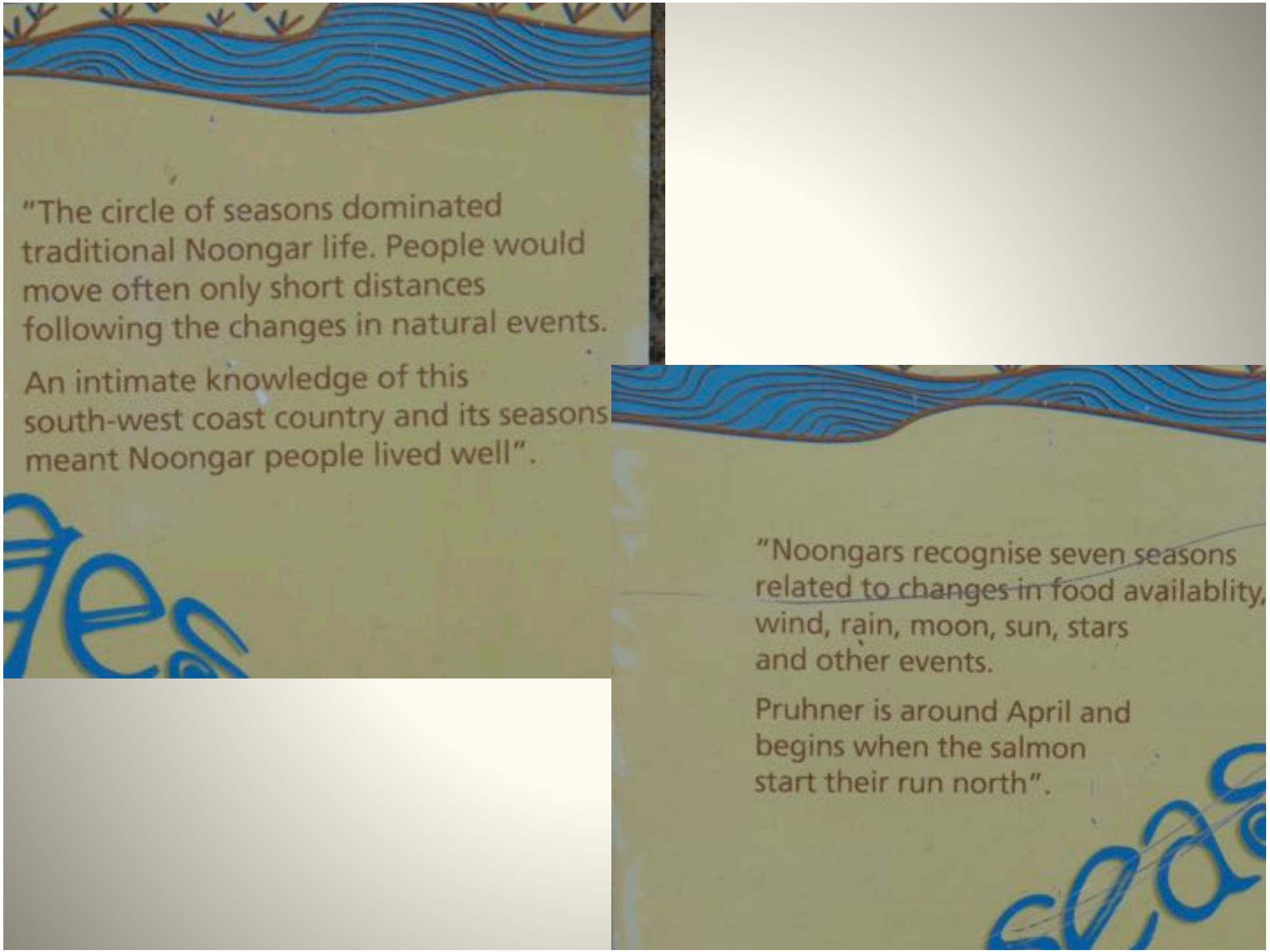
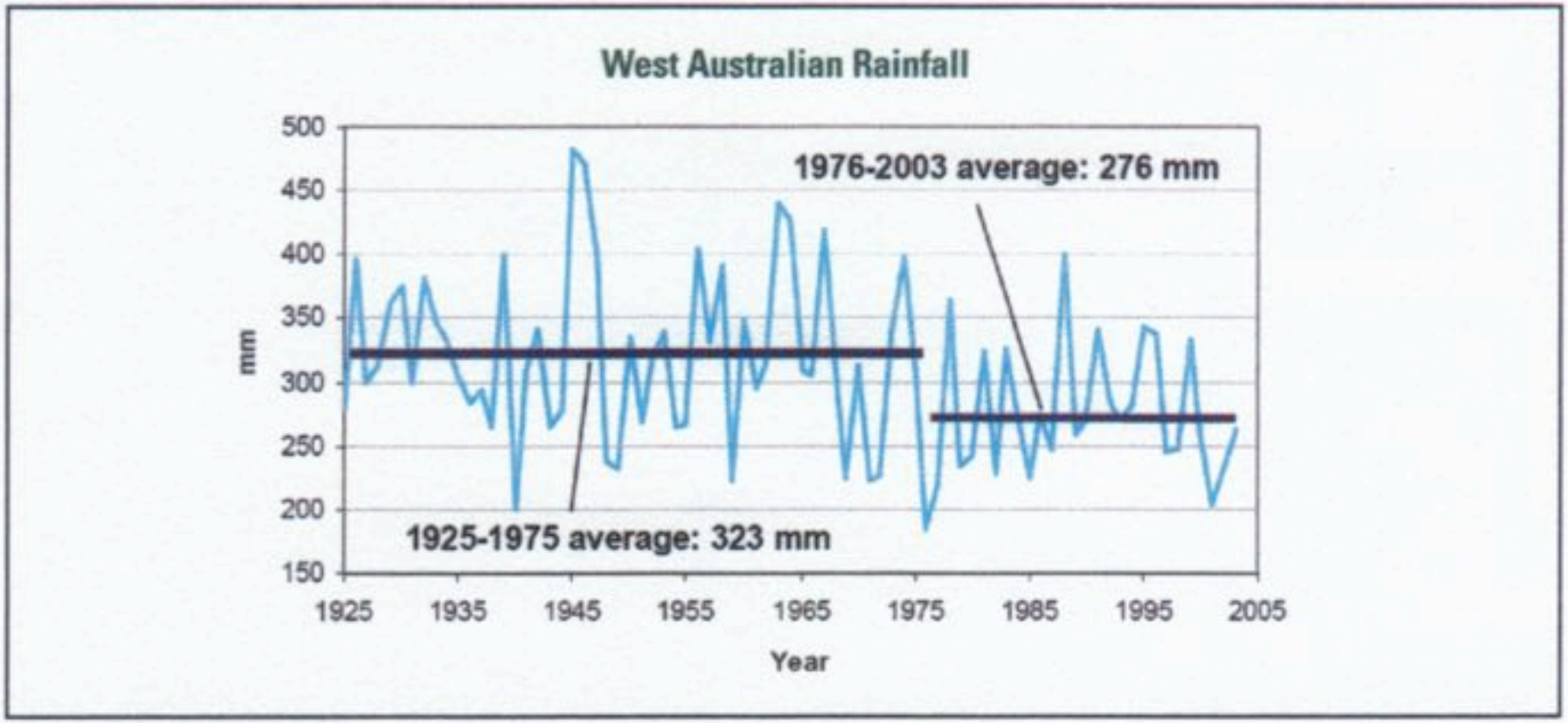
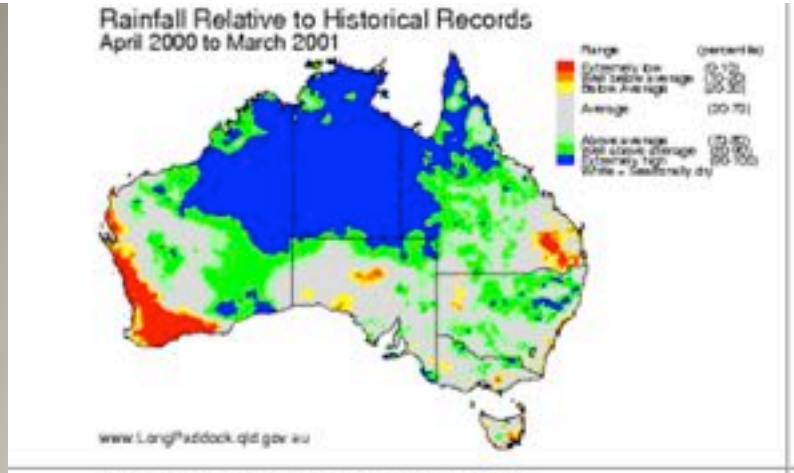

"The circle of seasons dominated traditional Noongar life. People would move often only short distances following the changes in natural events.
An intimate knowledge of this south-west coast country and its seasons meant Noongar people lived well".
"Noongars recognise seven seasons related to changes in food availablity, wind, rain, moon, sun, stars and other events.
Pruhner is around April and begins when the salmon start their run north".

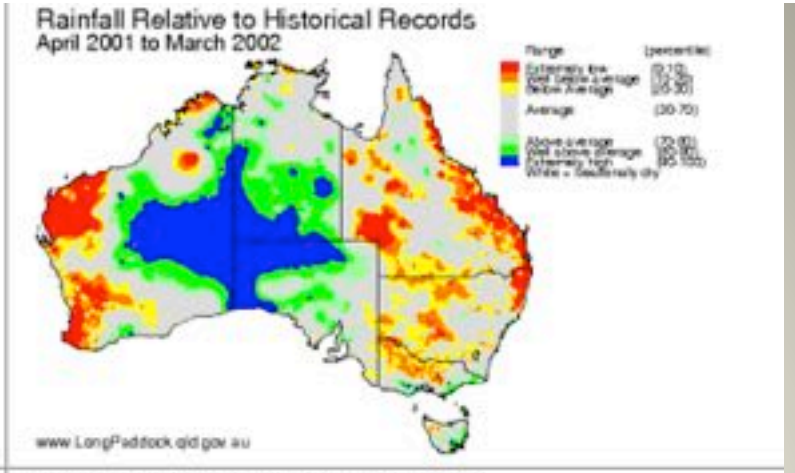
FIGURE **Average annual winter rainfall (mm) for southwest Western Australia for the period 1925–2003.** Source: Bureau of Meteorology

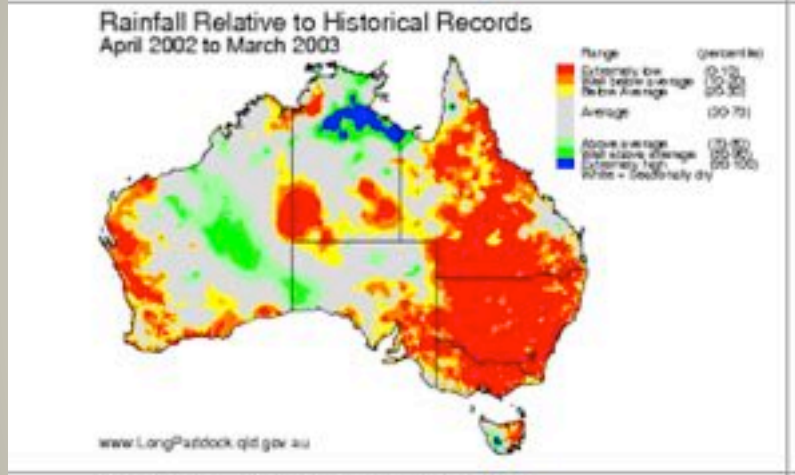


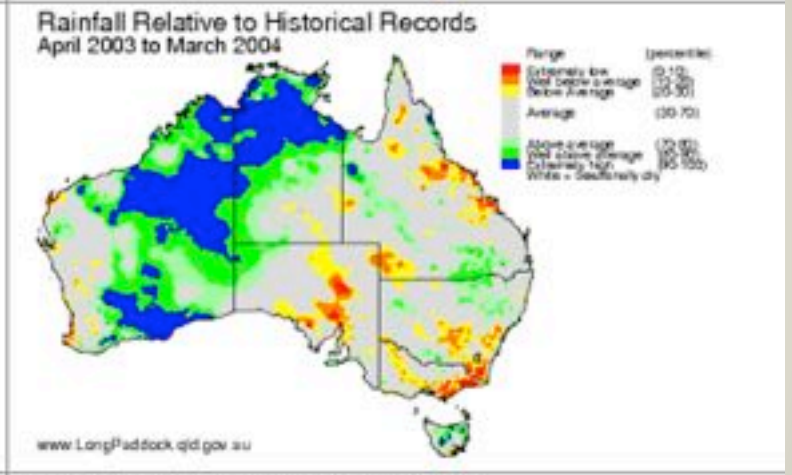
Inland NSW/Qld

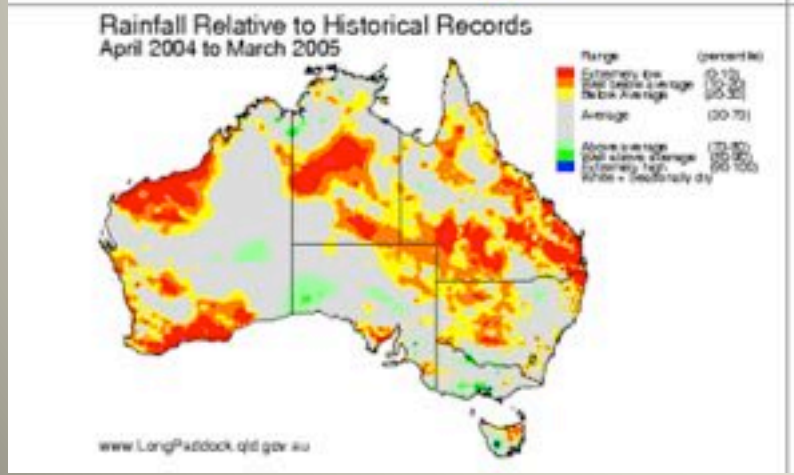
- Semi-arid woodlands, summer rains (cyclones)
- Low population (<100,000)
- Beef and sheep grazing, mining, *callitris* forestry

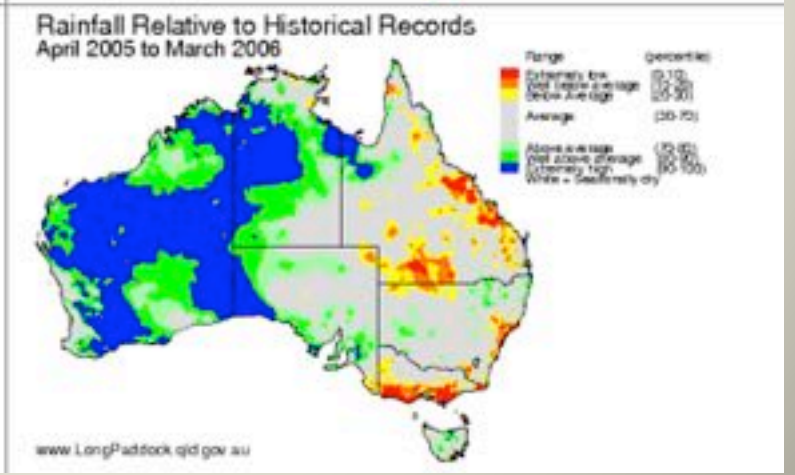

Rainfall Relative to Historical Records
April 2000 to March 2001
www.LongPaddock.qld.gov.au


Rainfall Relative to Historical Records
April 2001 to March 2002
www.LongPaddock.qld.gov.au


Rainfall Relative to Historical Records
April 2002 to March 2003
www.LongPaddock.qld.gov.au

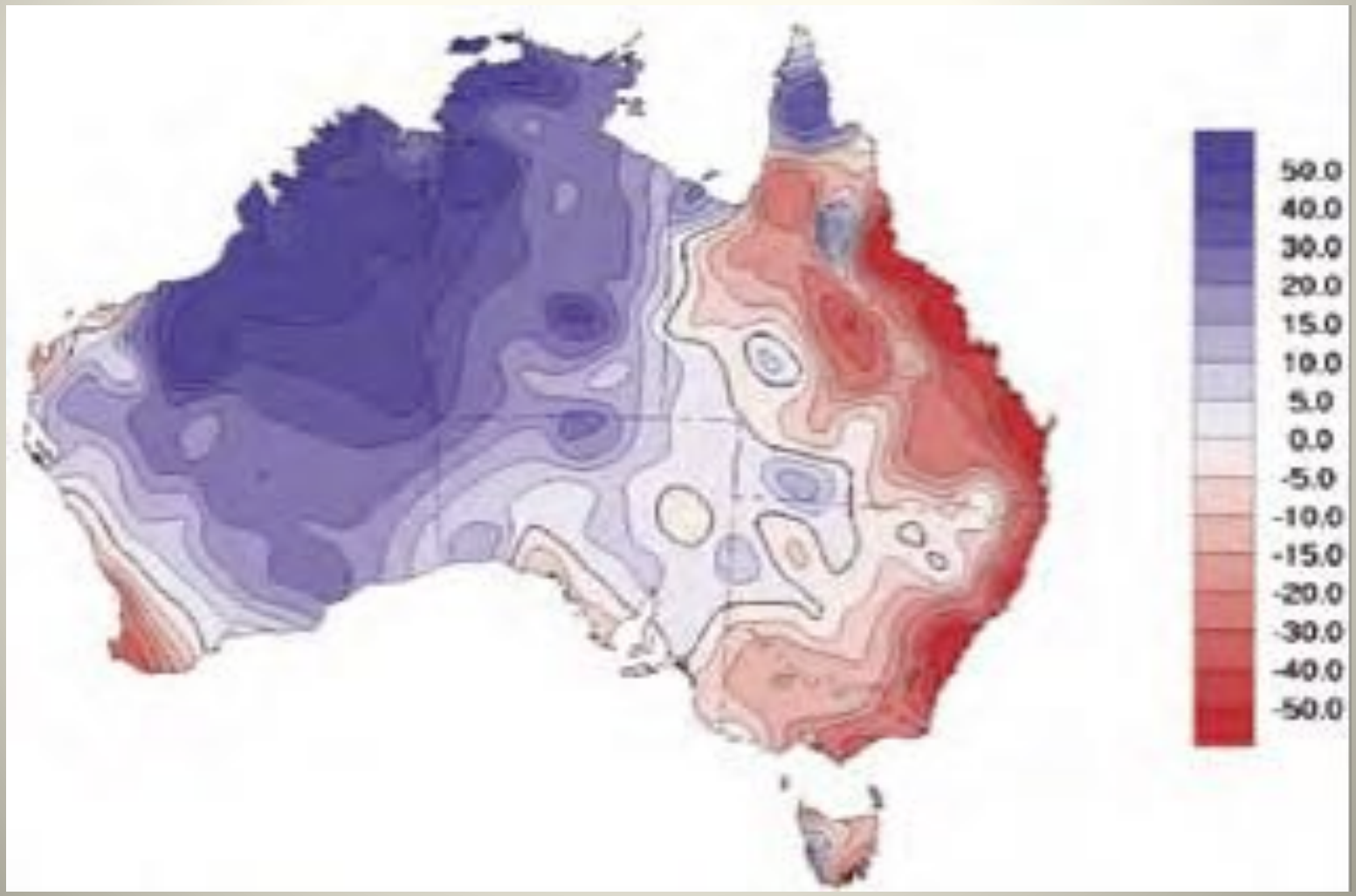

Rainfall Relative to Historical Records
April 2003 to March 2004
www.LongPaddock.qld.gov.au


Rainfall Relative to Historical Records
April 2004 to March 2005
www.LongPaddock.qld.gov.au


Rainfall Relative to Historical Records
April 2005 to March 2006
www.LongPaddock.qld.gov.au

Trend in annual total rainfall in mm/10 years for the past 100 years.

Blue indicates areas that have become wetter and red/pink indicate areas that have become drier.



Lessons

The frequency, extent, duration and severity of droughts in Australia is highly variable across the continent; natural vegetation (and fauna) in Australia evolved in a hostile and variable climate, so well-adapted to surviving droughts;

Resilience to drought through flexible production systems, self-reliance, preparation during good years for inevitable drought years, the ability to relocate, to find other employment and livelihoods, and/or get buffers and reserves to survive 3-5years with little income.

Possible Actions

(based only on the Australian case studies)

- build knowledge and awareness
- build preparedness (social & institutional)
- don't make problems worse e.g. through excessive clearing
- build ecological connectivity & adaptation pathways
- develop better coping mechanisms and alternative livelihoods
- don't wait for post-crisis "recovery aid"