Planetary Stewardship & Land-caring

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Ecosystem Management
University of New England, Australia

Social welfare

Nursing

Forest activism

Landcare chairperson

Landcare Coordinator

Regional NRM Coordinator

PhD

Post doc researcher

Overview

- **Acknowledging Stewardship**
  - Decolonization
- **Australian issues & context:**
  - Environmental
  - Agricultural/Social
- **The Anthropocene and Planetary Stewardship**
  - The importance of sustainable agriculture
- **Challenges & Opportunities for Landcare**

Australian Geographer

Routledge

ISSN: 0004-9182 (Print) 1465-3311 (Online) Journal homepage: http://www.tandfonline.com/loi/cage20

Aboriginal Memories of Inundation of the Australian Coast Dating from More than 7000 Years Ago

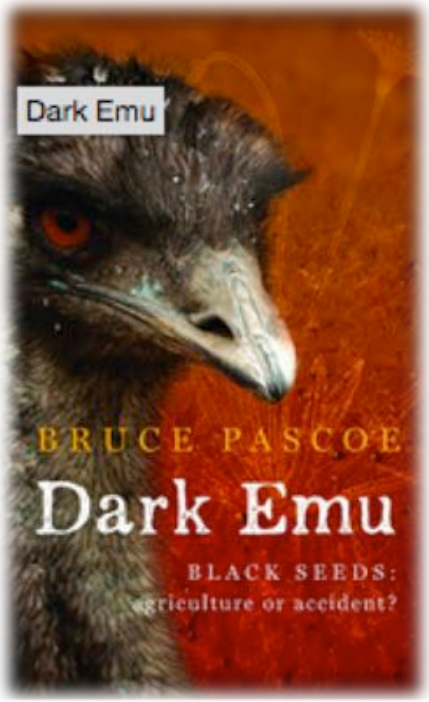
Patrick D. Nunn & Nicholas J. Reid

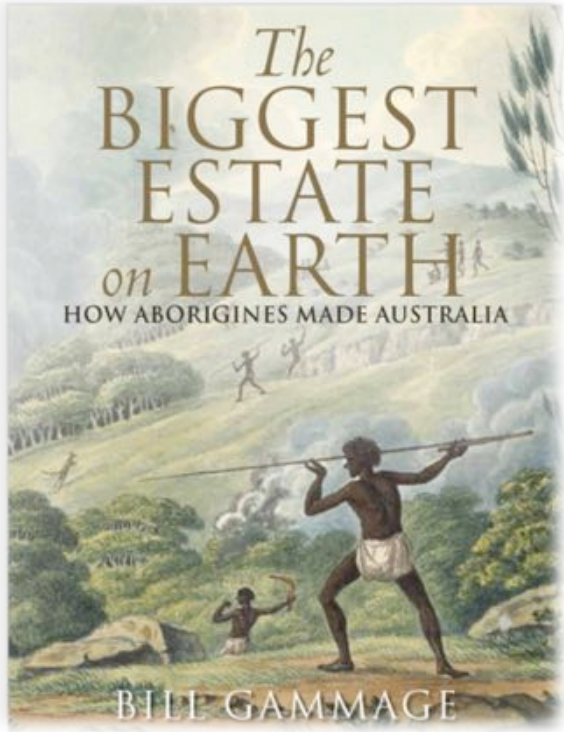
Emu in the sky

Indigenous astronomer Ray Norris explains to ABC Radio Sydney about finding Dreamtime stories among the stars.

© Ray Norris 2007

PHOTO: The Orion constellation tells the story of the kingfisher brothers. (Supplied: Ray Norris)



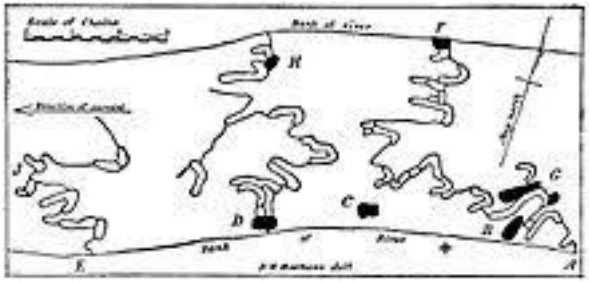


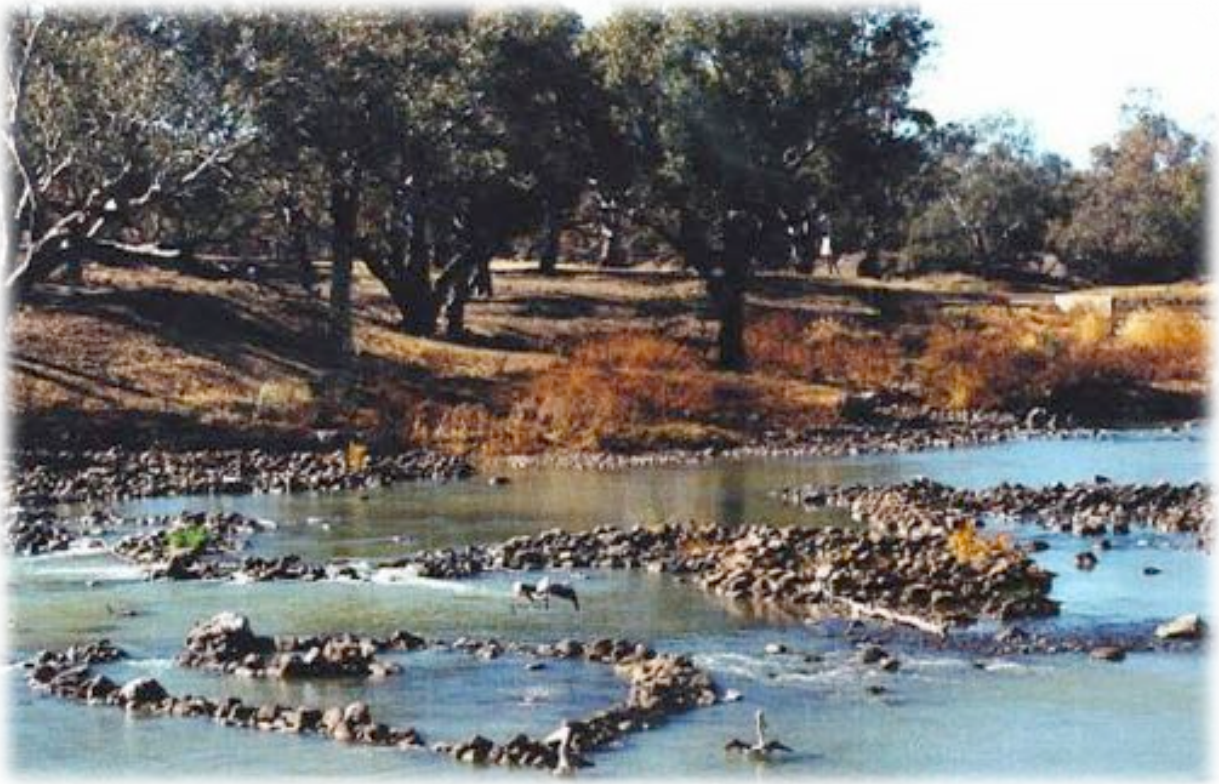
Hear the full story

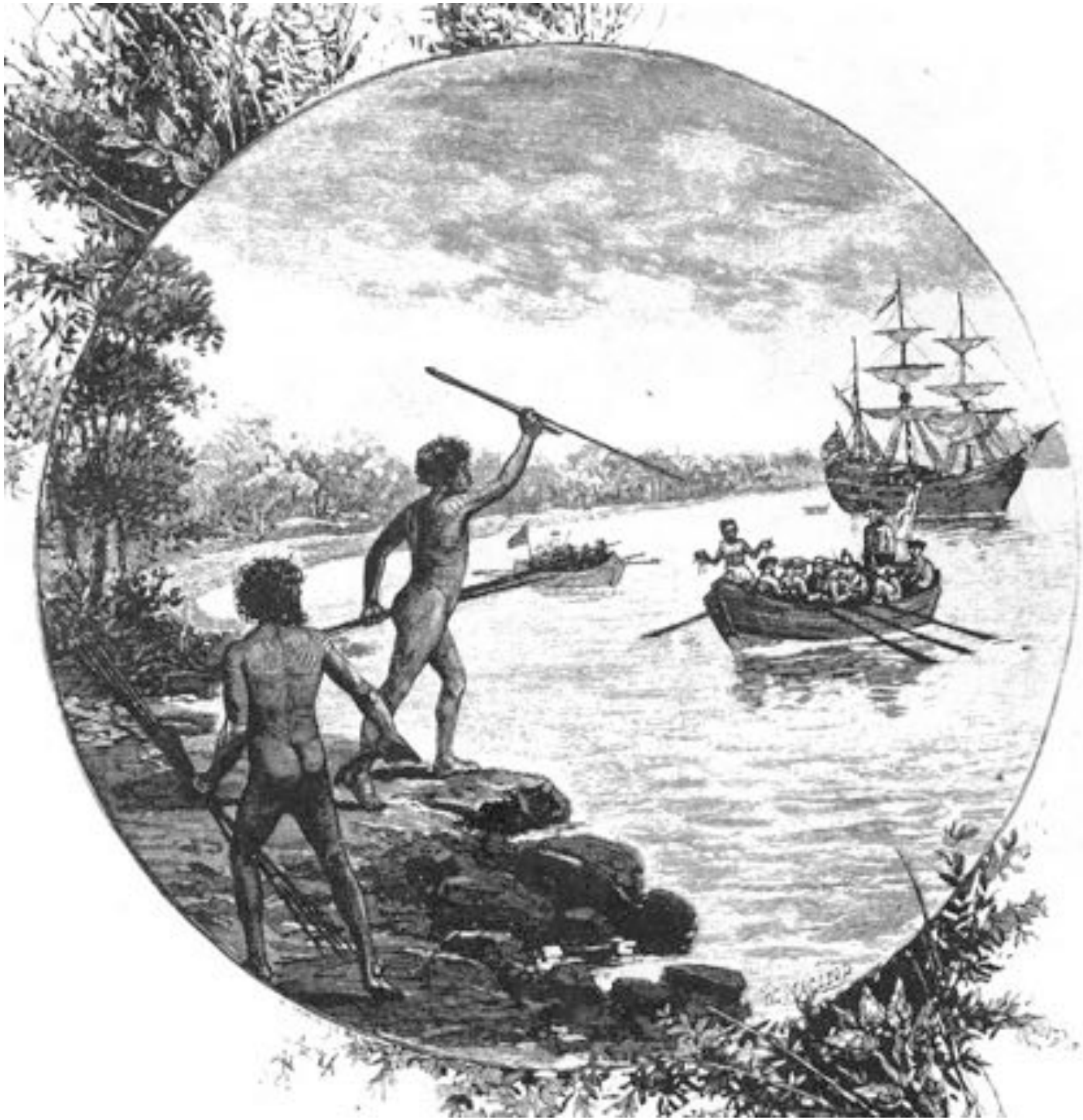
Sunday 3 July 2016

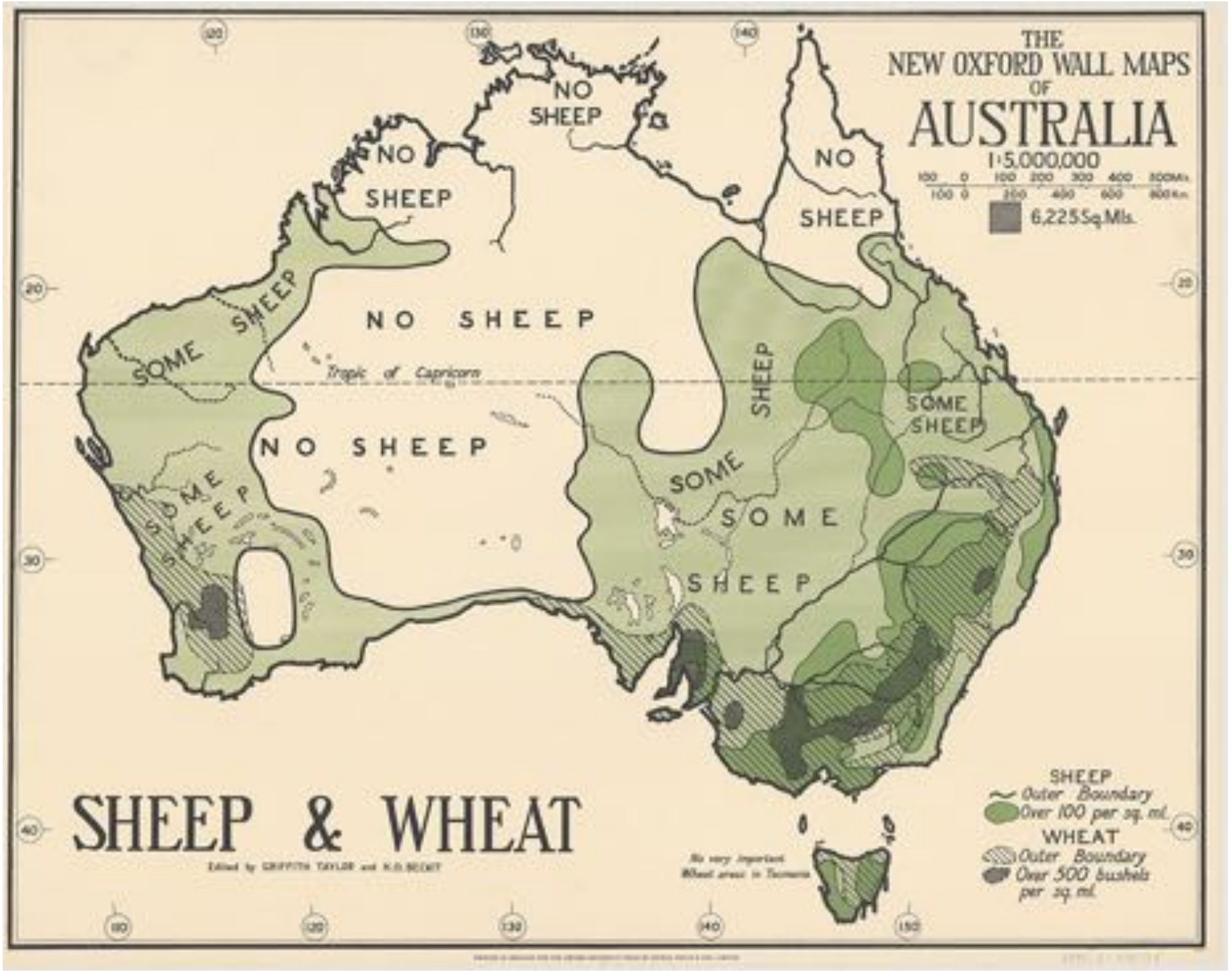
Songlines hold the key to a powerful memory technique used by indigenous people around the world.

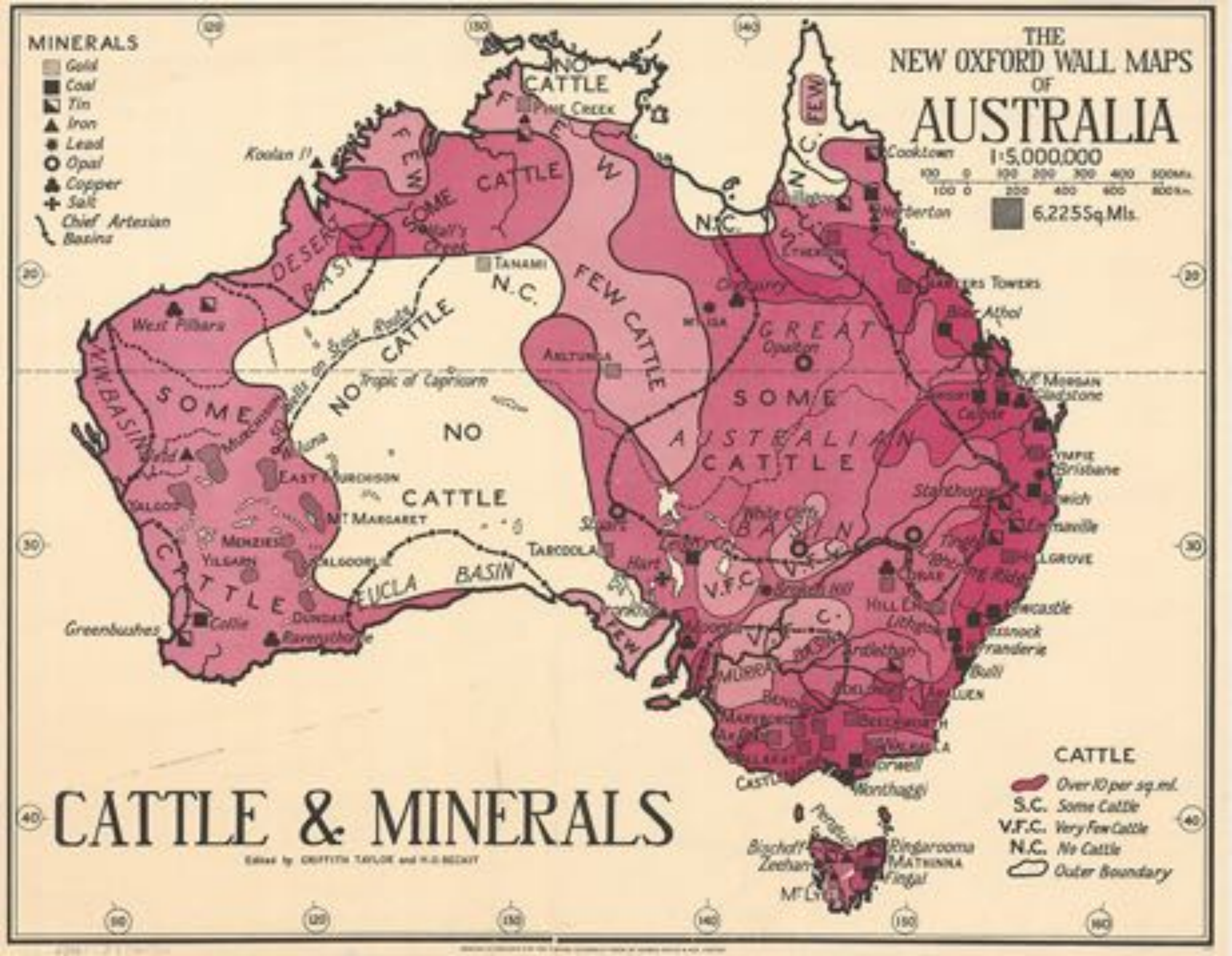
More



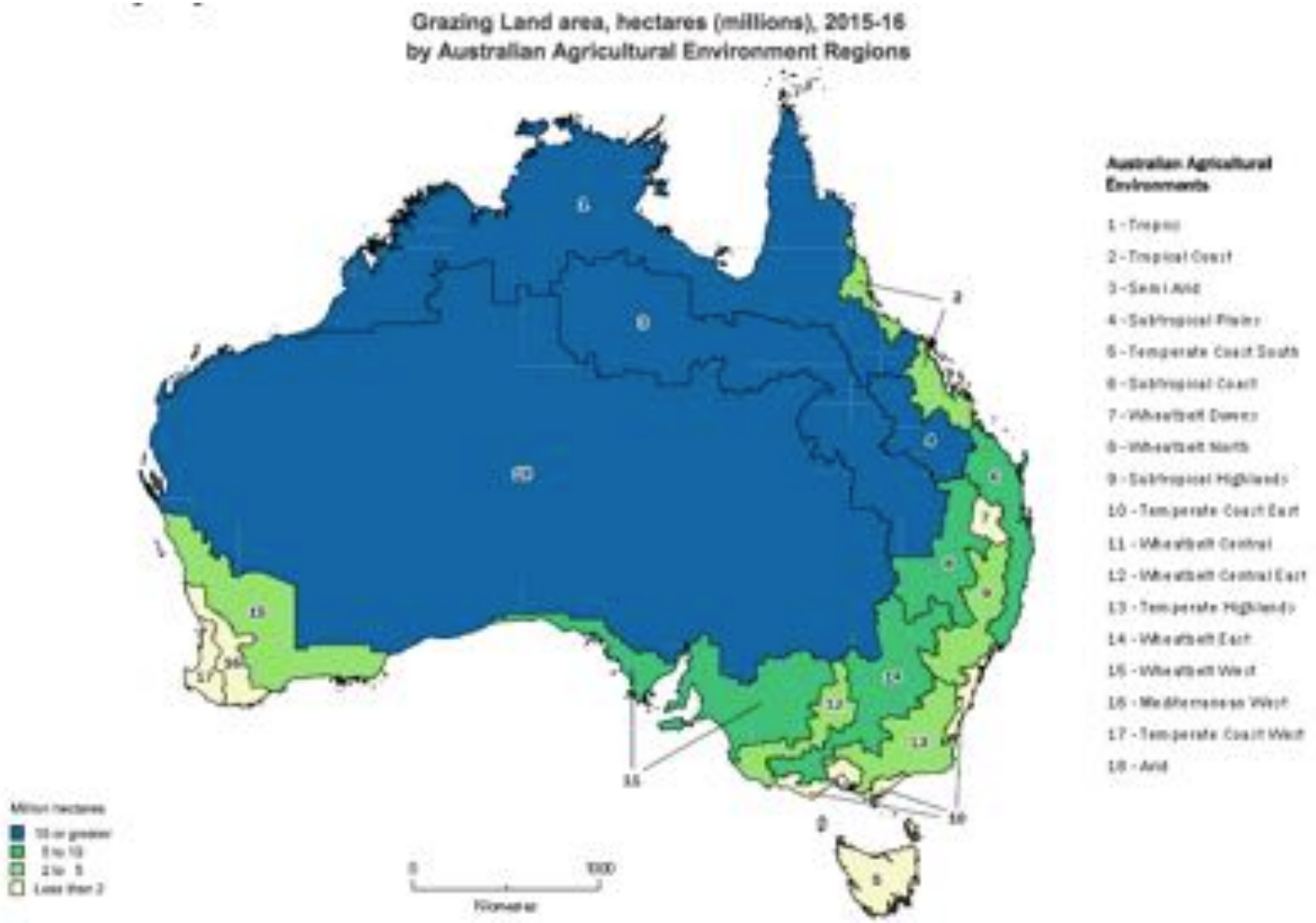





THE
NEW OXFORD WALL MAPS
OF
AUSTRALIA
1:5,000,000
100 0 100 200 300 400 500Mls.
100 0 200 400 600 800Kms.
6,225Sq.Mls.
NO SHEEP
NO SHEEP
NO SHEEP
NO SHEEP
SOME SHEEP
SOME SHEEP
NO SHEEP
Tropic of Capricorn
SOME SHEEP
SOME SHEEP
SOME SHEEP
SOME SHEEP
SOME SHEEP
SHEEP & WHEAT
Edited by GRIFFITH TAYLOR and K.D.BECKET
No very important Wheat areas in Tasmania
SHEEP
Outer Boundary
Over 100 per sq. mi.
WHEAT
Outer Boundary
Over 500 bushels per sq. mi.


THE NEW OXFORD WALL MAPS OF AUSTRALIA
1:5,000,000
6,225 Sq. Mls.
MINERALS
Gold
Coal
Tin
Iron
Lead
Opal
Copper
Salt
Chief Artesian Basins
CATTLE
Over 10 per sq. ml.
S.C. Some Cattle
V.F.C. Very Few Cattle
N.C. No Cattle
Outer Boundary
NO CATTLE
PINE CREEK
FEW
SOME CATTLE
Koolan I.
DESERT BASIN
TANAMI
N.C.
FEW CATTLE
West Pilbara
N.W. BASIN
SOME CATTLE
NO CATTLE
Tropic of Capricorn
NO CATTLE
ARLTUNGA
GREAT AUSTRALIAN BASIN
SOME CATTLE
Cooktown
Herberton
CHARTERS TOWERS
Opalton
MT MORGAN
Gladstone
Brisbane
Stanthorpe
Newcastle
EAST MURCHISON
MT MARGARET
MENZIES
YILGARN
KALGOORLIE
DUNDAS
Ravensthorpe
Greenbushes
Collie
TARCOOLA
EUCLA BASIN
White Cliffs
V.F.C.
Broken Hill
COBAR
HILL END
Lithgow
Bull
FEW
MURRAY BASIN
Wonthaggi
Bischoff
Zeehan
Ringarooma
MATHINNA
Fingal
CATTLE & MINERALS
Edited by GRIFFITH TAYLOR and H. G. BECKIT

Gross value of Australia's agricultural production: $56 billion in 2015–16.


Grazing Land area, hectares (millions), 2015-16
by Australian Agricultural Environment Regions
Australian Agricultural Environments
1 - Tropics
2 - Tropical Coast
3 - Semi Arid
4 - Subtropical Plains
5 - Temperate Coast South
6 - Subtropical Coast
7 - Wheatbelt Downs
8 - Wheatbelt North
9 - Subtropical Highlands
10 - Temperate Coast East
11 - Wheatbelt Central
12 - Wheatbelt Central East
13 - Temperate Highlands
14 - Wheatbelt East
15 - Wheatbelt West
16 - Mediterranean West
17 - Temperate Coast West
18 - Arid
Million hectares
10 or greater
5 to 10
2 to 5
Less than 2
0
1000
Kilometres


Australia
State of the Environment
2016
Overview

SoE 2016 overview

The main pressures facing the Australian environment today are the same as in 2011: climate change, land-use change, habitat fragmentation and degradation, and invasive species.

In addition, the interactions between these and other pressures are resulting in cumulative impacts, amplifying the threats faced by the Australian environment.

Key challenges

- An overarching national policy that establishes a clear vision for the protection and sustainable management of Australia's environment to the year 2050 **is lacking.**

- **Poor collaboration and coordination** of policies, decisions and management arrangements exists across sectors and between different managers (public and private).

- Follow-through from policy to **action is lacking**. Data and long-term monitoring **are inadequate**.

- Resources for environmental management and **restoration are insufficient**.

- The understanding of, and capacity to identify and measure, cumulative **impacts is inadequate**, which reduces the potential for coordinated approaches to their management.

SoE 2016 Biodiversity theme

Since 2011, we have improved our understanding of the data, tools and technologies required to achieve balance between biodiversity, human population growth and economic development, however investment and implementation are not keeping pace with the increase in pressures exerted by the key drivers of environmental change. **As a result, pressures on biodiversity have mostly increased since 2011, and the status of biodiversity has mostly decreased.**

It has been difficult to assess what progress has been achieved in implementing Australia's Biodiversity Conservation Strategy 2010–2030 during the past 5 years. Most targets established under the strategy **cannot currently be measured with national-scale data, and some have simply not been achieved.**

SoE 2016 Land theme

During the past 5 years, native vegetation has continued to be cleared, bushfire frequencies have increased, and the number of invasive species has also increased. Many agricultural practices have improved, reducing impacts on the environment, but there is room for further improvement.

Agricultural/Social issues

- Food and water security & climate change
- Lack of policy focus on agri-environmental and cultural factors
- Land use conflicts: agriculture not highly valued
- Migration: rural to urban
- Lack of recognition of agri-environmental managers
- Limited government farmer support
- Lack of farm scale data (models, GIS: field data?)
- Pressures on farmers
    - **Aging**
    - **Land values**
    - **Levels of debt**
    - **Red tape**
    - **Technology (access and capacity)**
    - **Competing resource demands (environment/development)**
    - **Urban perceptions**
    - **Value chain requirements**
    - **Lack of extension services**

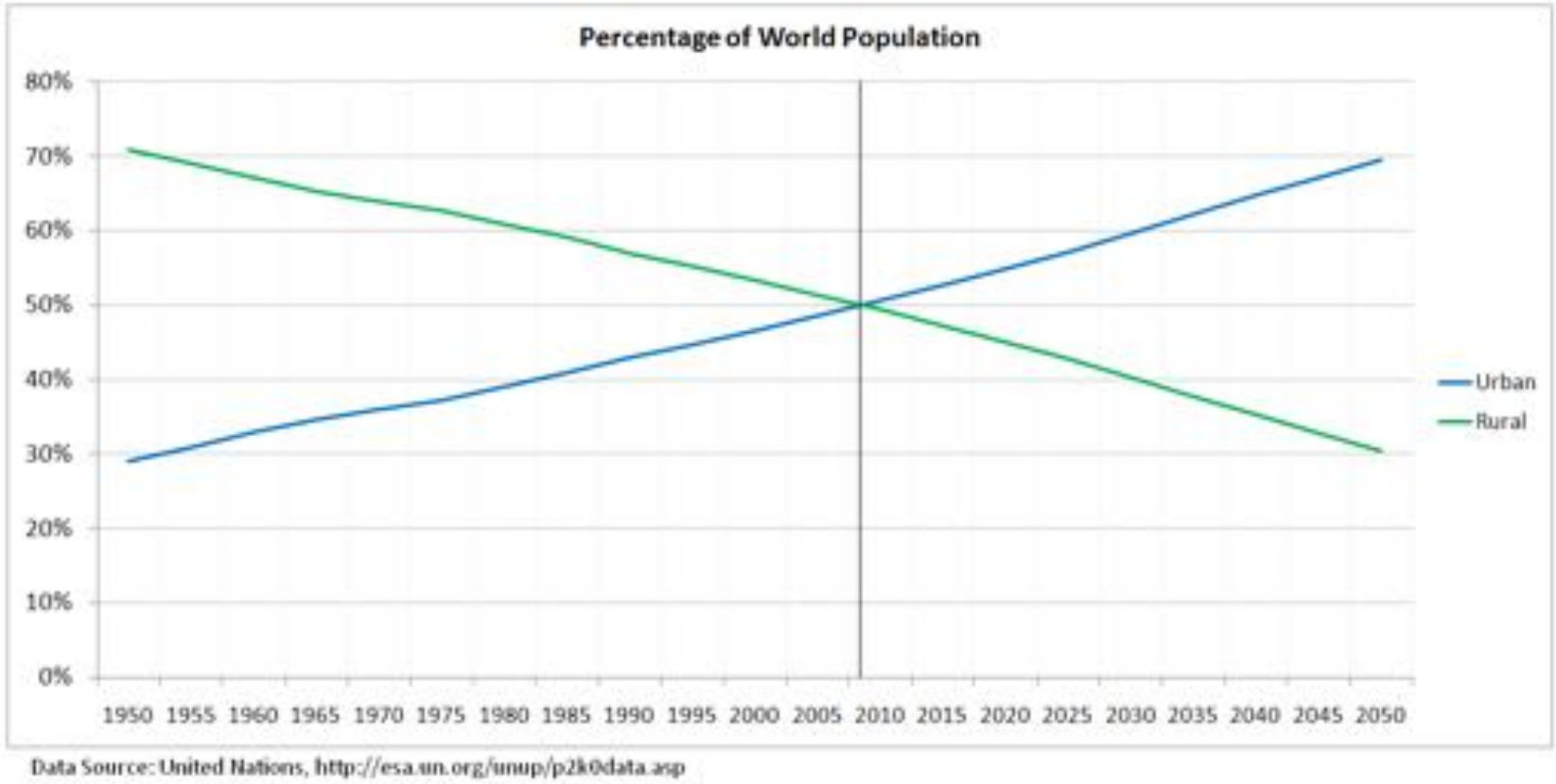
These are global problems

Global pressures

No systematic global index of environmental sustainability of agriculture currently exists

World Resources Institute (2014)

Global migration trends….urban vs rural



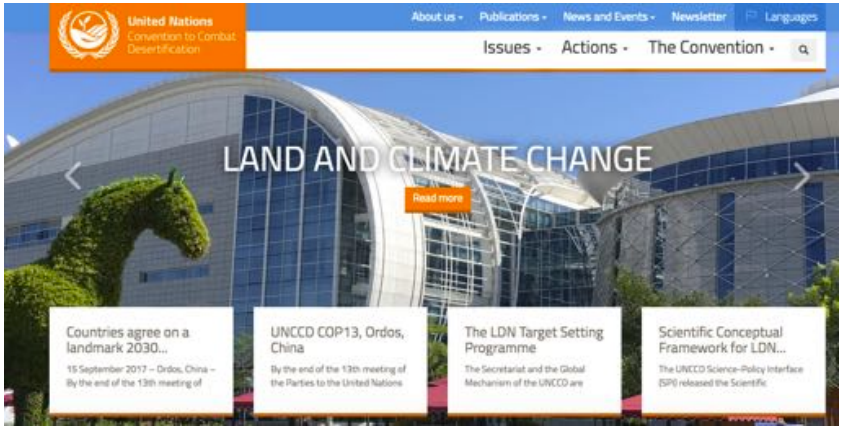
World population projected to reach 9.8 billion in 2050, and 11.2 billion in 2100 – says UN


Beyond the Anthropocene | Johan Rockström
WORLD ECONOMIC FORUM
Arctic Sea Ice Extent (2002-2016)
SIE (×10⁶ km²)
12
11
10
9
8
7
6
5
4
3
Jul
Aug
Sep
Oct
Nov
Dec
1980s
1990s
2000s
2016

The need for Planetary Stewardship

- In 50 years we tipped from 10,000 year Holocene to the Anthropocene.
- What we do in the next 50 years will determine the outcome for the next 10,000 years.
- We are the generation at that tipping point. We were alive during that exponential journey that took us here, we will probably be alive during the journey that will decide the outcome for the next 10,000 years.
- Emphasizes that **sustainable agriculture** and sustainable forestry are fundamental pre-requisites to succeed in remaining in the Holocene….. **to lead us towards a transformation to sustainability.**

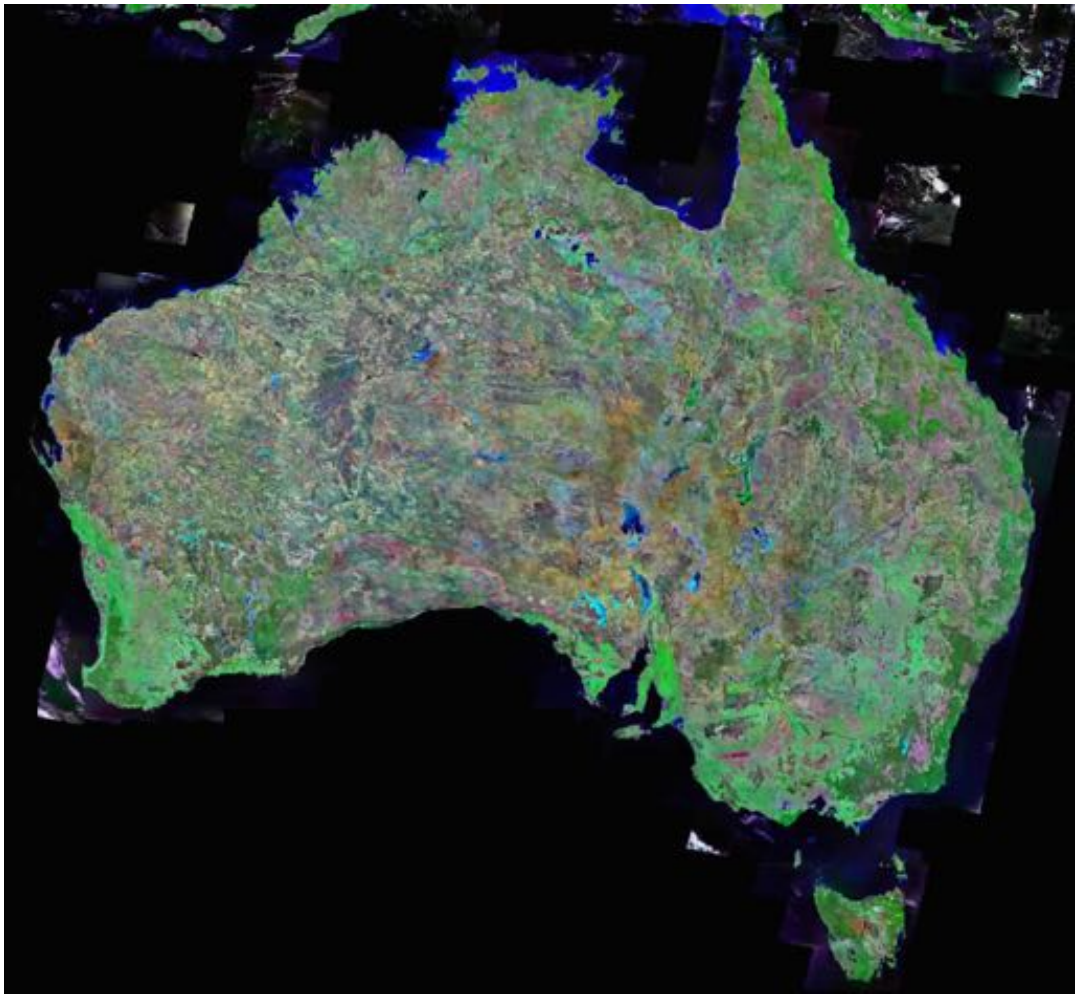
Convention on Biological Diversity

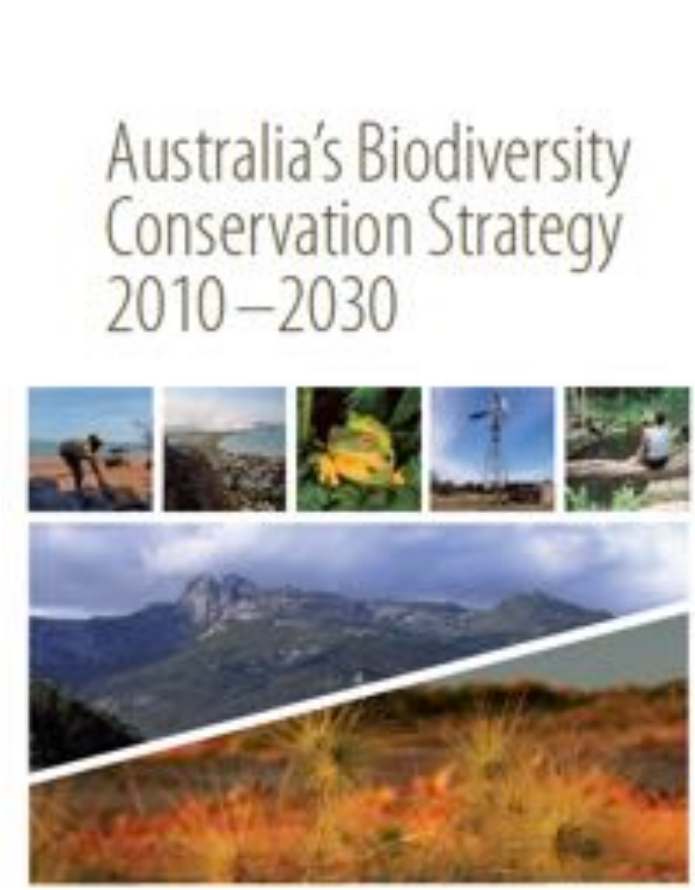


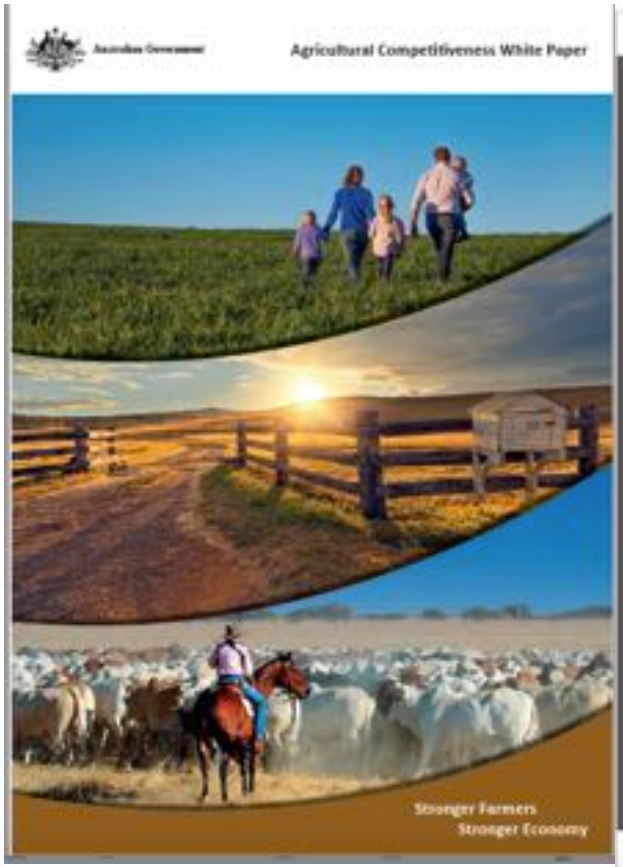
International Obligations

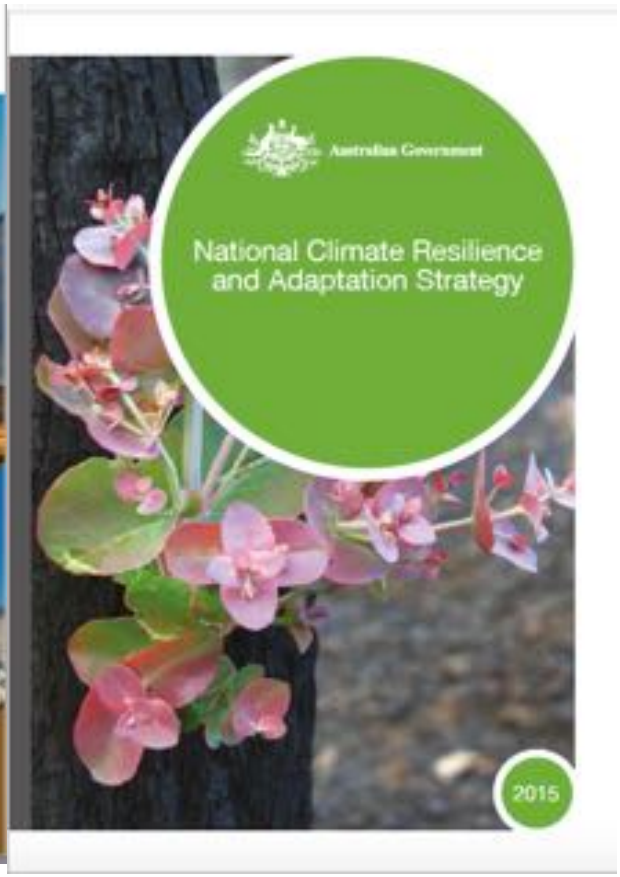
- **Sustainable Development Goals (SDGs):**
  - Area of productive and sustainable agriculture (voluntarily report)
  - Agreed global definition and measures
    - Indicator 2.4.1
- **Aichi Targets for Biodiversity (CBD)**
  - Target 7: that by 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity
- **International Treaty on Plant Genetic Resources for Food and Agriculture**:
  - Article 6 (sustainable use policy & legal measures)
- **Paris Agreement**
  - Climate friendly farming, agriculture included in INDCs
- **The United Nations Convention to Combat Desertification**
  - Land Degradation Neutrality (LDN)
  - Sustainable Land Management

What is happening in Australia?




Australia's Biodiversity Conservation Strategy 2010–2030


Agricultural Competitiveness White Paper
Stronger Farmers
Stronger Economy


Australian Government
National Climate Resilience and Adaptation Strategy
2015


Natural Resource Management Ministerial Council
Australian Government
AUSTRALIA'S CHIEF SCIENTIST
ABOUT
ADVICE TO GOVERNMENT
PUBLICATIONS
MEDIA
EVENTS
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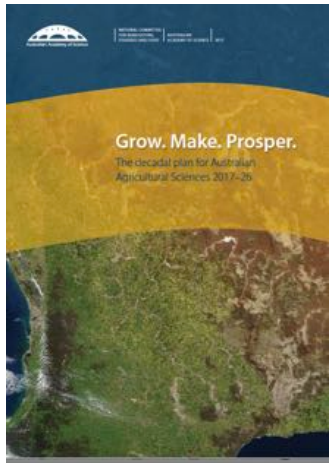
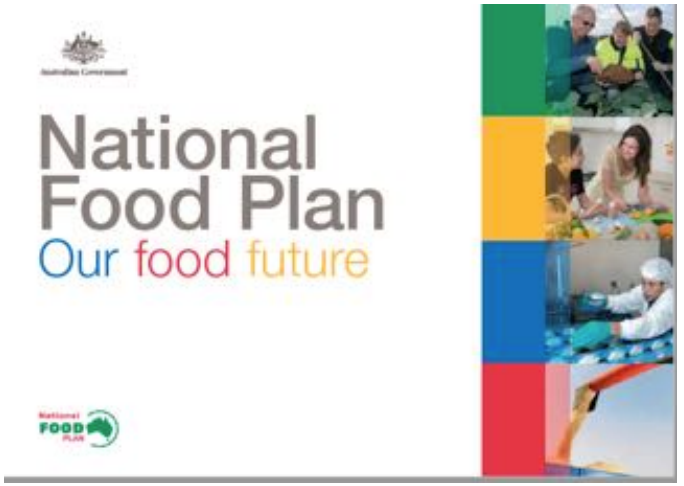
Feeding the future: Sustainable agriculture
With the population exceeding 6.7 billion and growing by over 6 million a month, the need to protect agricultural land and to increase food production has become critical. Does sustainable agriculture have the answers?
Meeting the needs of the present without compromising the ability of future generations to meet their own needs is the key principle behind the concept of sustainability. If natural resources such as soil, nutrients and water are used up at a rate faster than they are replenished, then the farming system is unsustainable. Sustainability is also dependent on maintaining a high level of biodiversity, especially in the soil and the surrounding environment.
Some of the biggest threats to sustainable agriculture are loss of biodiversity, dryland salinity, acid soils and pests and weeds. Farmers, scientists and agricultural authorities are working together on approaches to deal with them.
Sustainable agriculture is a simple concept that embraces a complex web of scientific and economic issues. Developments in information technology will play a key role in managing the complexity.
RELATED ARTICLES
1. Science for sustainable reefs
2. Are we flushing phosphorus and the future of farming?
3. Speech on the role of science in sustainable agriculture


Grow. Make. Prosper.
The decadal plan for Australian Agricultural Sciences 2017–26


National Food Plan
Our food future

The current sustainability dilemma……

Opportunities to trade ecosystem services

Australia

24.7 million

3 people per sq km

3% First Nations Peoples

URBAN:
87% live in 3% of landscape

RURAL:
13% live in 97% of landscape

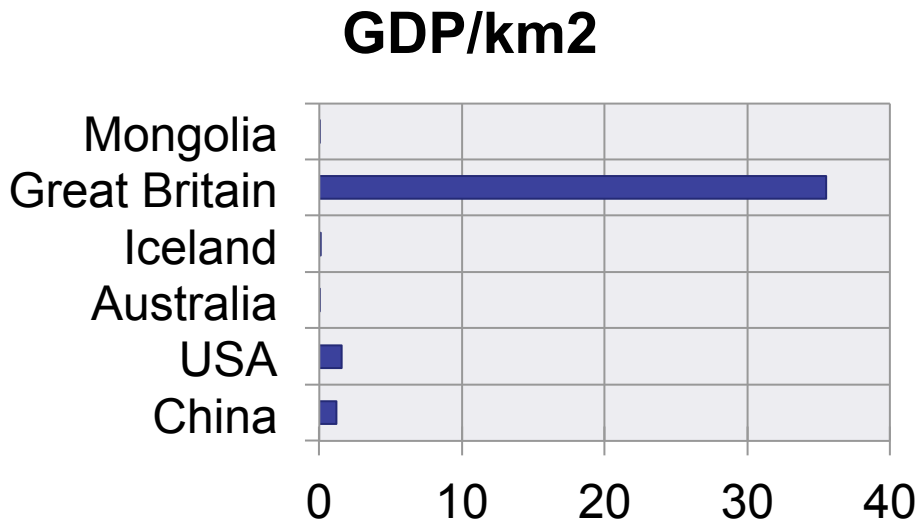
Of 3% First Nations peoples, 60% live in urban areas

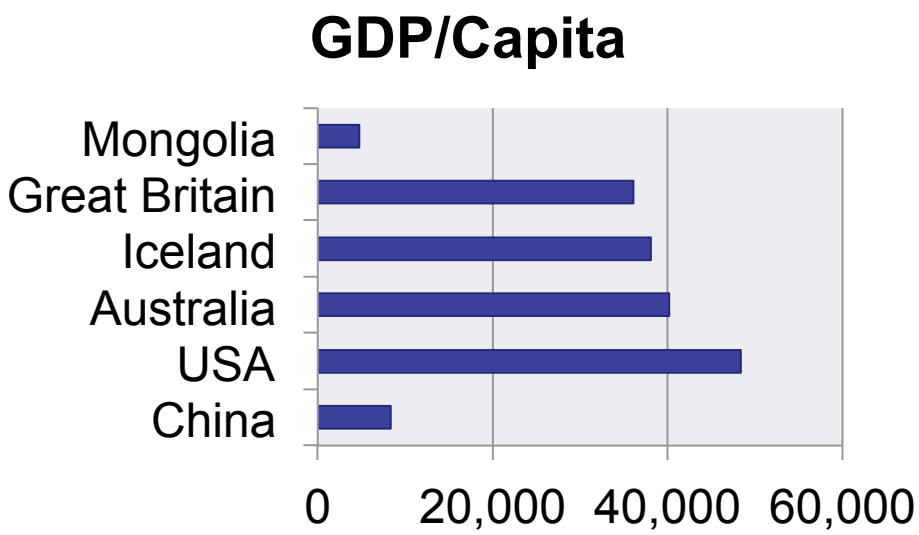
Agrarian communities and First Nations Peoples manage most of the landscape

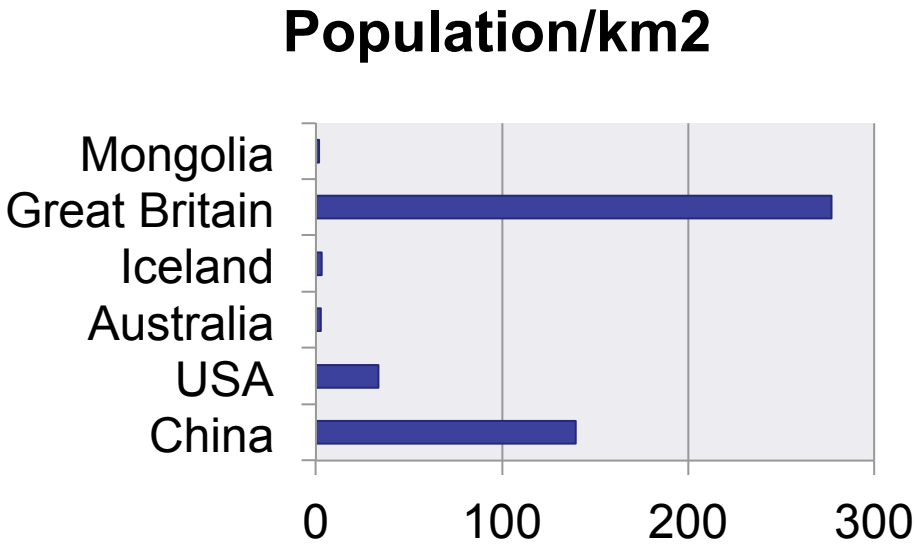
85,000 farms (down 29% since 2012)
Predominantly family farms.

Least farmer support in OECD.

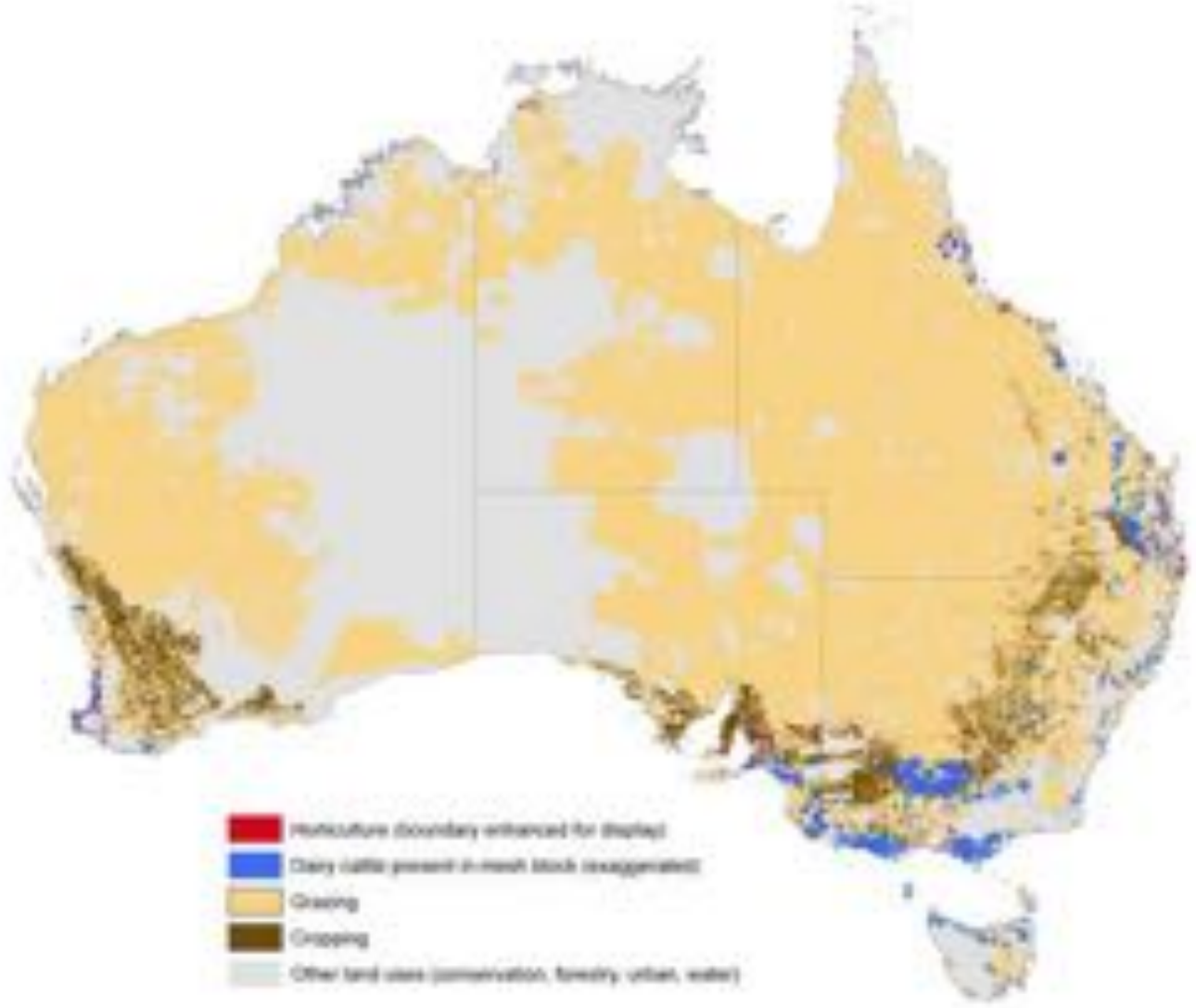
Large area, small population = ?



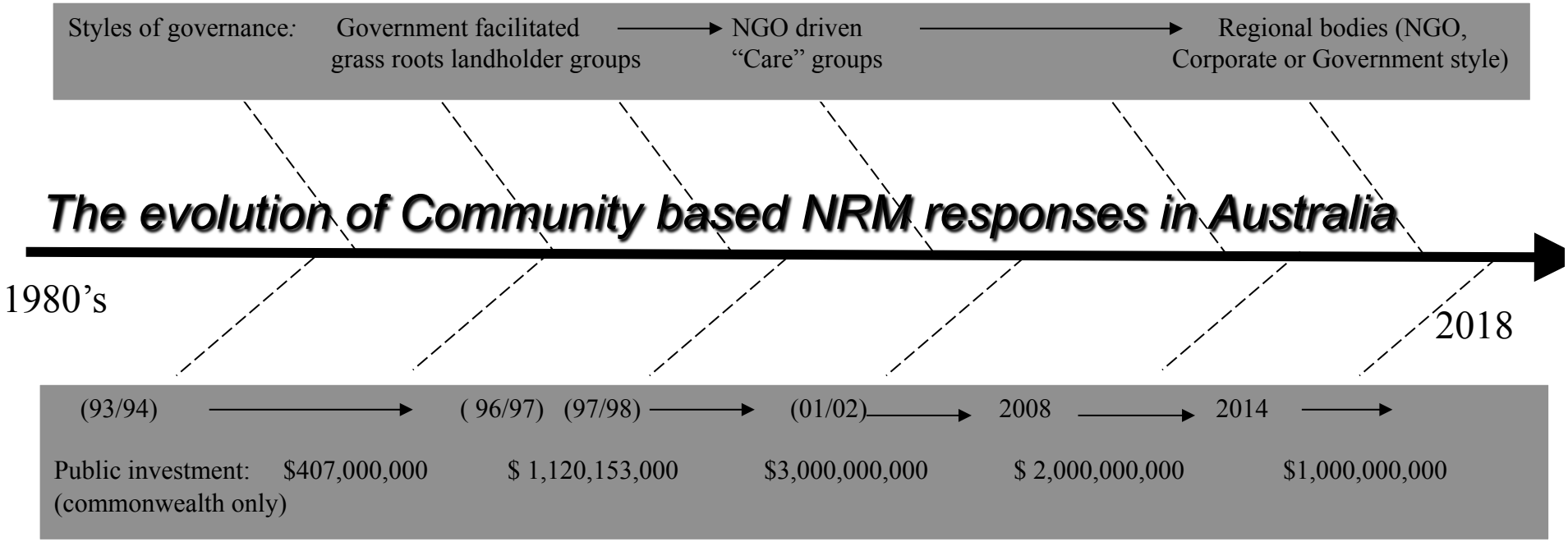




2/3rds of Native Vegetation occurs on land as mapped for Agriculture (ABARES 2012)



Paradoxes



Increased farmer stewardship ($3.7 billion per annum): not recognised

Increased Local Government stewardship ($1.9 billion per annum): not recognised

Indigenous custodianship (unknown per annum): not recognised

Decline in natural resource condition (measurement and lag problems)

Sustaining the environment

Australians aspire to manage the environment sustainably for future generations

Overall progress? | Resources | Land use | Water use | Waste

Technology and Strategies | Climate

A data gap currently exists for sustainable land use

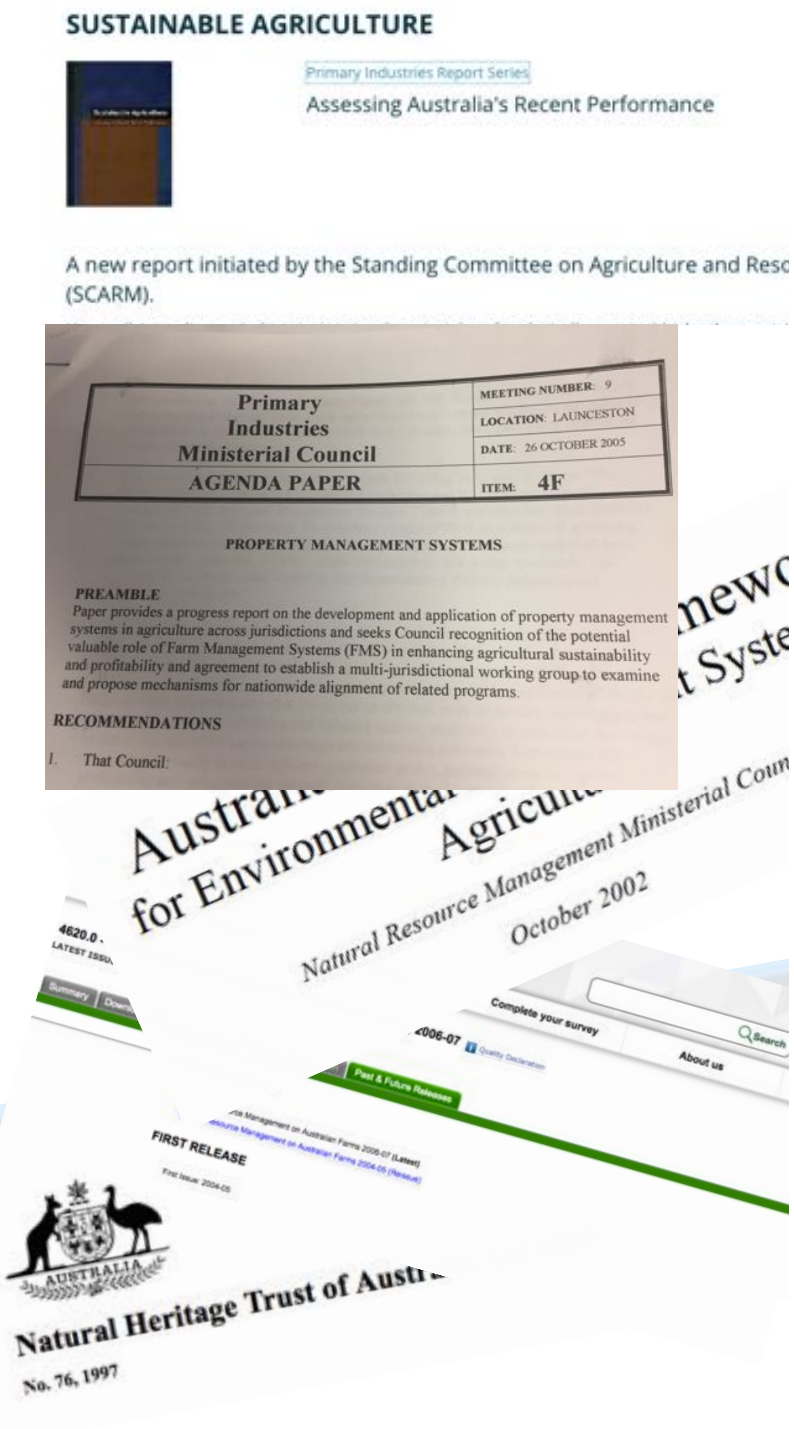
In MAP there are several types of data gaps where:

1. the concept is not yet developed enough to measure;
2. the concept is important for progress but may not lend itself to meaningful measurement;
3. there is no data of sufficient quality to inform on progress; or
4. there is only one data point, so a progress assessment cannot be made.

In order to capture the spirit of this idea in a measure, further development will need to be undertaken. We will continue to explore options for a suitable indicator in the future.

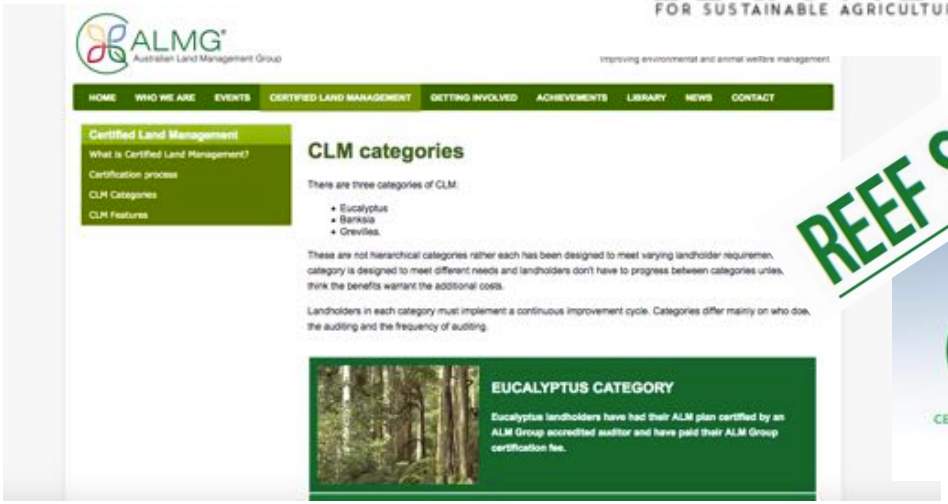
Progress????

- ABS 1996 Report *'Sustainable Agriculture in Australia'*
- *Natural Heritage Trust Act 1997*: definition of sustainable agriculture
- SCARM 1998: indicators for sustainable agriculture
- EMS in Agriculture 2002 – 2006
  - National Framework
  - National pilots
- NRM on Farms 2004-05 and 2005-06 (ABS data)
- Property Management Systems 2005-2006
  - National approach across jurisdictions
  - Ministerial councils (PI and NRM) CoAG
- National Framework for Property Management Systems (shelved from 2007)
- Sustainable Agriculture Policy development (shelved from 2007)
- Sustainable agriculture grants (Landcare)



SAI PLATFORM AUSTRALIA

LEGUMES FOR SUSTAINABLE AGRICULTURE



REEF SAFE SUGAR

Australian Beef Sustainability Framework

BMP COTTON BEST MANAGEMENT PRACTICES

BMP Certified Cotton

BMP is the Australian cotton industry's guide for growing cotton in harmony with our natural environment.

The Australian BMP Cotton trademark is a consumer guarantee that the branded textile product they are buying is made of Australian cotton grown under Best Management Practices by growers who care for our environment.

AUSTRALIAN CERTIFIED ORGANIC

OGA Certified Organic

NASAA CERTIFIED ORGANIC

O.F.C.

TRUE AUSSIE BEEF&LAMB

REEF SAFE BEEF

Sustainable AUSTRALIA WINEGROWING MCLAREN VALE

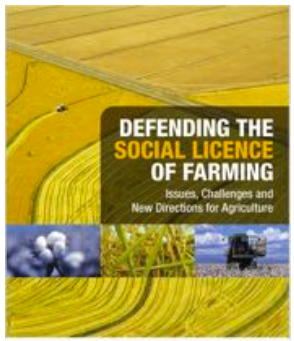
I AM A LANDCARE DEFENDER OF THE EARTH
Landcare Australia

ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001

Sustainable agriculture conceptual framework

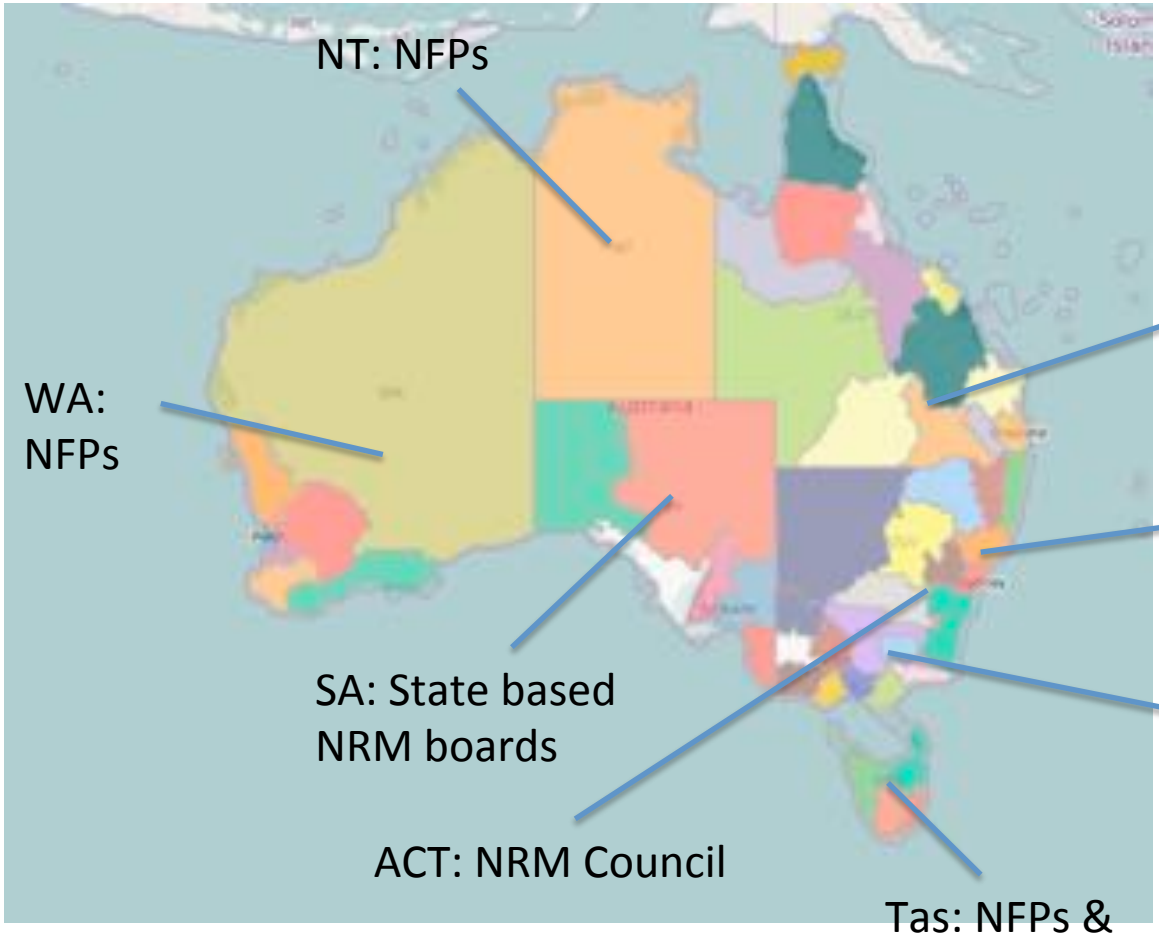
To demonstrate and trade sustainable agriculture (food, fibre & ecosystem services) **consistent with state, national and international standards/metrics/obligations** through:

- Property management planning systems
  - Legally and scientifically valid
  - Governance systems of integrity
  - Government recognition

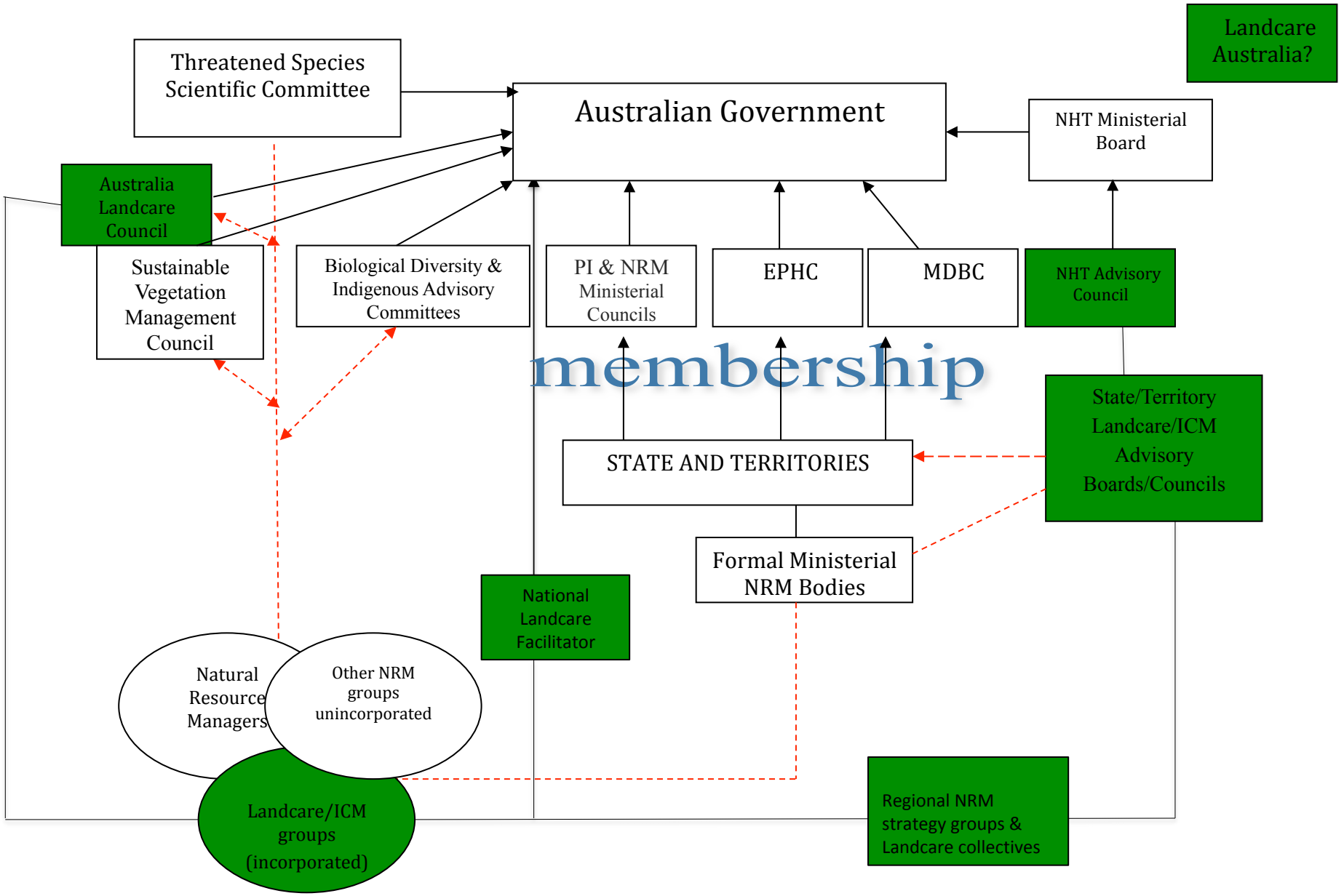


Evolving governance 2002 to 2018….

NRM regions

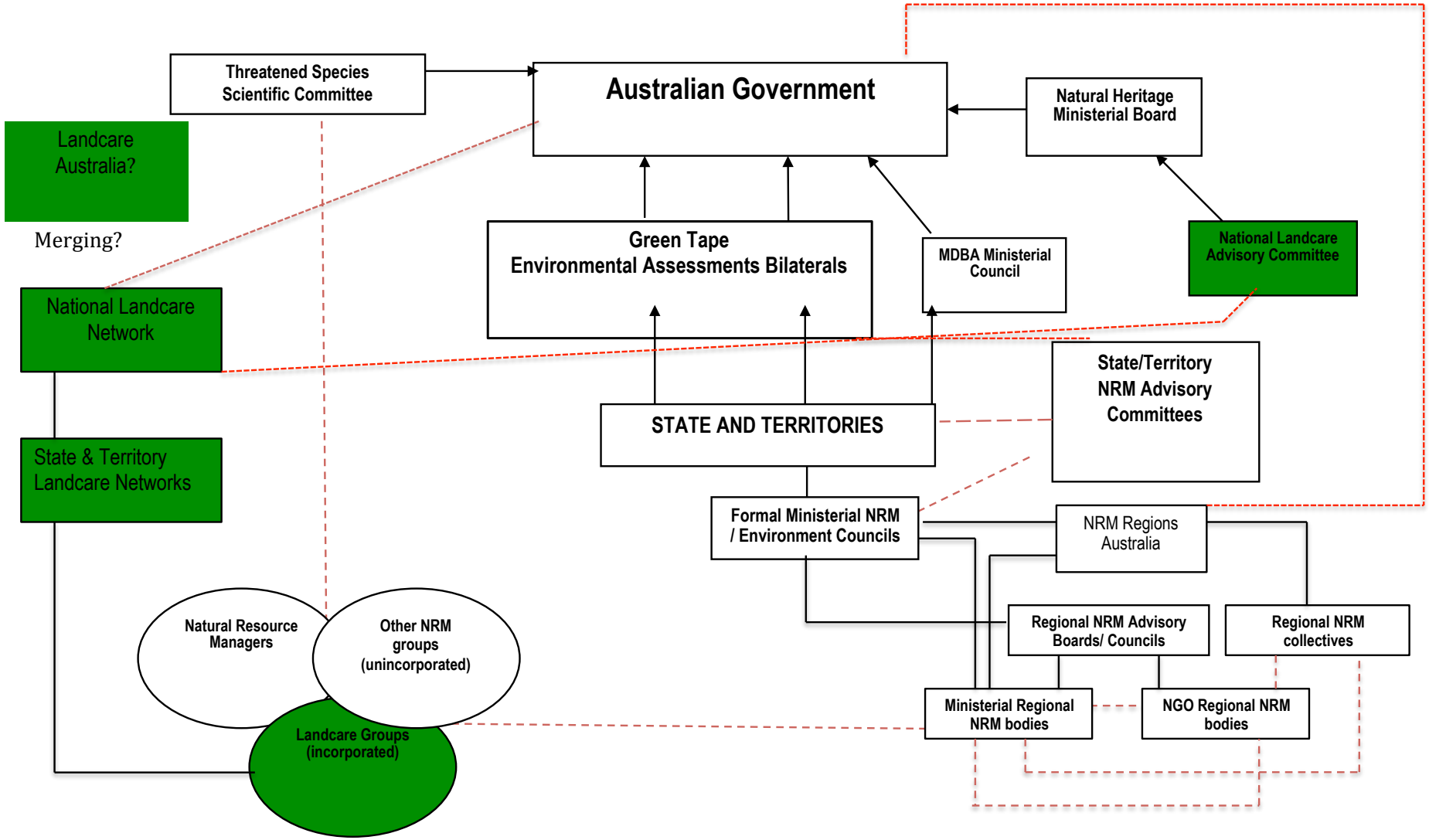

NT: NFPs
Qld: NFPs
WA:
NFPs
NSW: State
based LLSs
SA: State based
NRM boards
Victoria:
State based
CMAs
ACT: NRM Council
Tas: NFPs &
State
framework

NRM Governance 2002



NRM Governance

2018



NFP organisation → *for profit organisation*

Philanthropic funding → *Commercial funding*

Culture change →

Welfare activity	Welfare activity & commercial activity	Commercial activity
Appeal to goodwill	Mixed motives	Appeal to self interest
Mission driven	Mission and market driven	Market driven
Activity at whatever cost	Cost efficiency considered	Best earning at the cheapest cost
Beneficiary pay nothing	Mix of paid and subsidises services	Market rate prices
Work force of volunteers	Volunteers, below market wages, fully paid staff	Market rate compensation
Capital from donations & grants	Mix of donations and grants with debt	Capital of debt and equity
Suppliers donate materials	Materials supplied at special discounts or sold at premium	Market rate prices

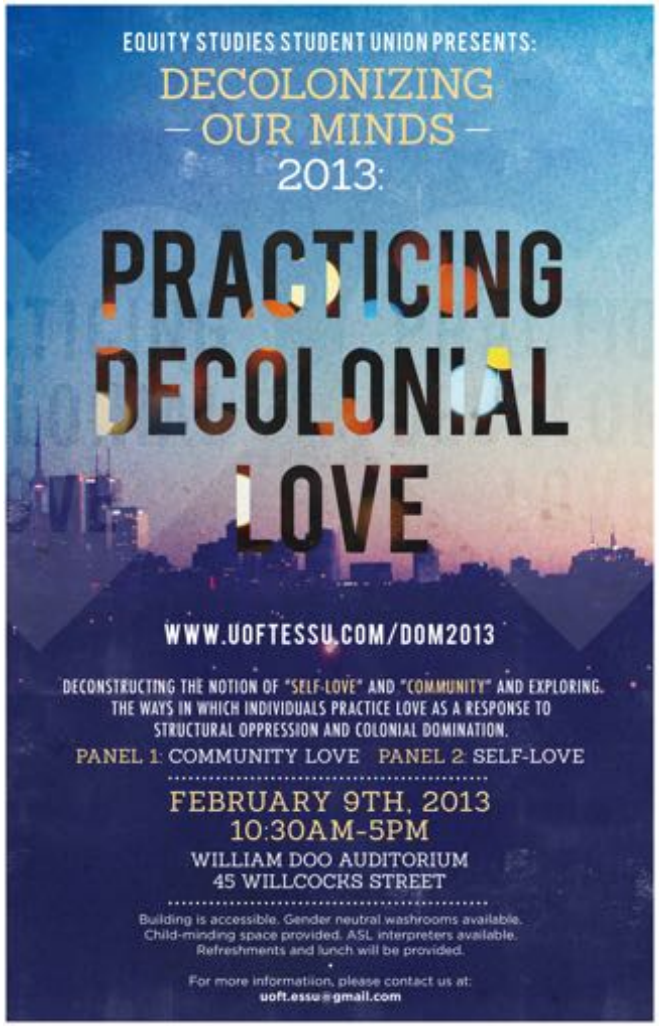
The evolution of NFP to for profits

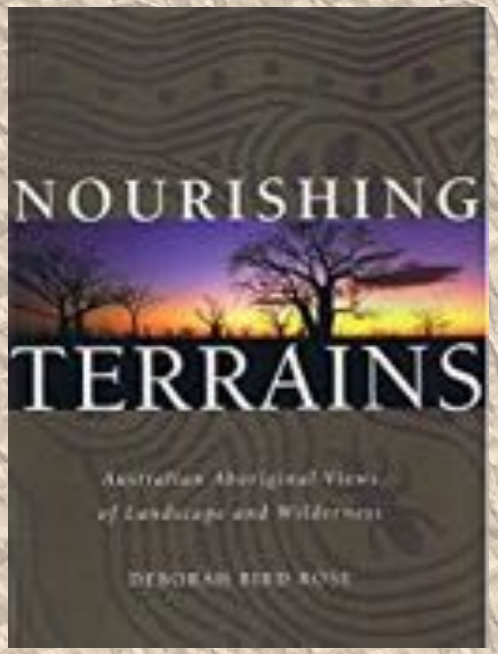
Source: Prakash 2004

Challenges & Opportunities for Landcare Groups

- Honest broker for all Land-carers
- Governance & resourcing:
  - How to decouple from government control/branding
  - Cost sharing between urban and rural: resourcing
- Sustainable agriculture farm systems
  - Technical support for land managers to implement and monitor sustainable agriculture farm systems
  - Farm scale data opportunity: report the good news stories!

Decolonising the Self





Mosaics of cultural ecosystems, both Aboriginal and European
that nourish nature and humans through a variety of
STEWARDSHIP CULTURAL SYSTEMS
healing Country and ourselves,
forming the foundation of a new stewardship form of governance.