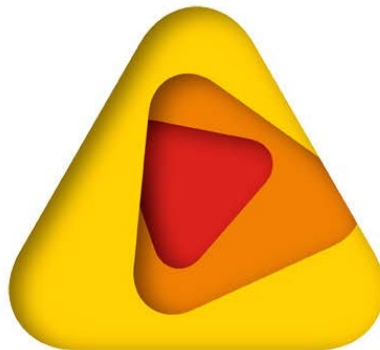


# The economic benefits of 'being on country'

Kamaljit Sangha & Jeremy Russell-Smith  
Darwin Centre for Bushfire Research  
Charles Darwin University, Darwin



**Darwin Centre for Bushfire Research**  
Research Institute for Environment and Livelihoods



bushfire&natural  
**HAZARDS**CRC

# Main topics

- Current socio-economic and biophysical situation of northern Australia
- Alternative scenario proposing opportunities for
  - C economy
  - Ecosystem Services-based economies



# Socio-economic analysis of northern Australia

- ~ 200,000 Indigenous people and most of them live in remote locations, on 'country'
- Low levels of employment and earnings
- Low levels of education and health
- Lack of economic/work opportunities

....a 'mismatch'?

# Where is the mismatch?

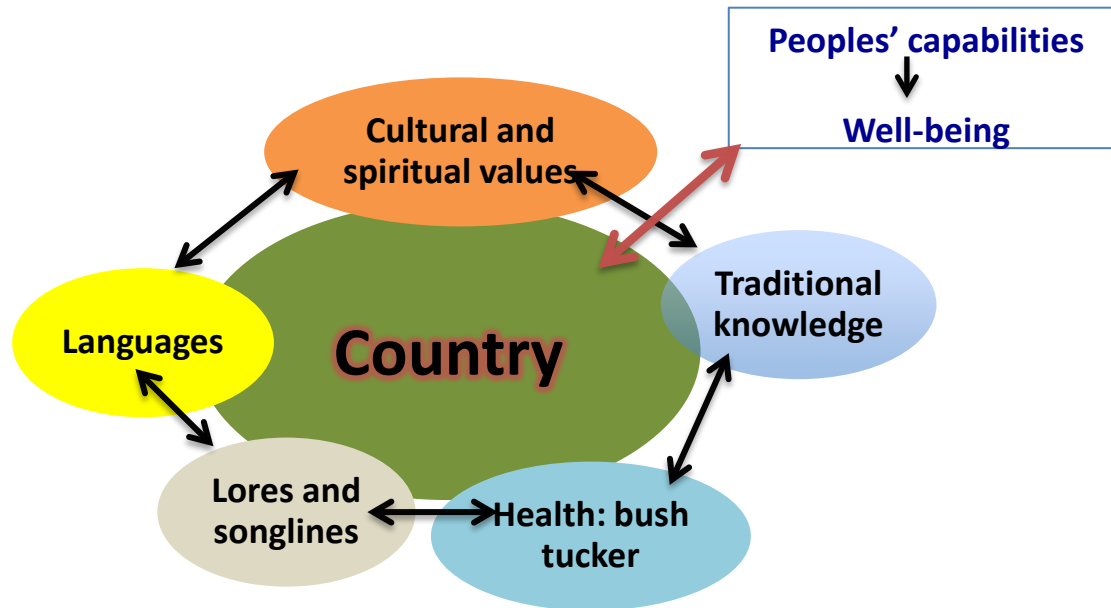


Artist: Charlie Waters, Qld

**Policies AND  
Peoples'  
aspirations/capabiliti  
es**

# 'Being on Country'?

- A 'gap' in current understanding of what country really means to people
- A 'disconnect' between policy and peoples' capabilities/aspirations
- 'Silo' approach



# Northern Development

- Little consideration of Indigenous peoples' aspirations and capabilities who have rights on 80% of land in northern Australia
- Northern landscape
  - What does it look like?
  - What suitable opportunities exist for Indigenous people?

# Northern Landscape

Great potential for supporting a sustainable ES economy



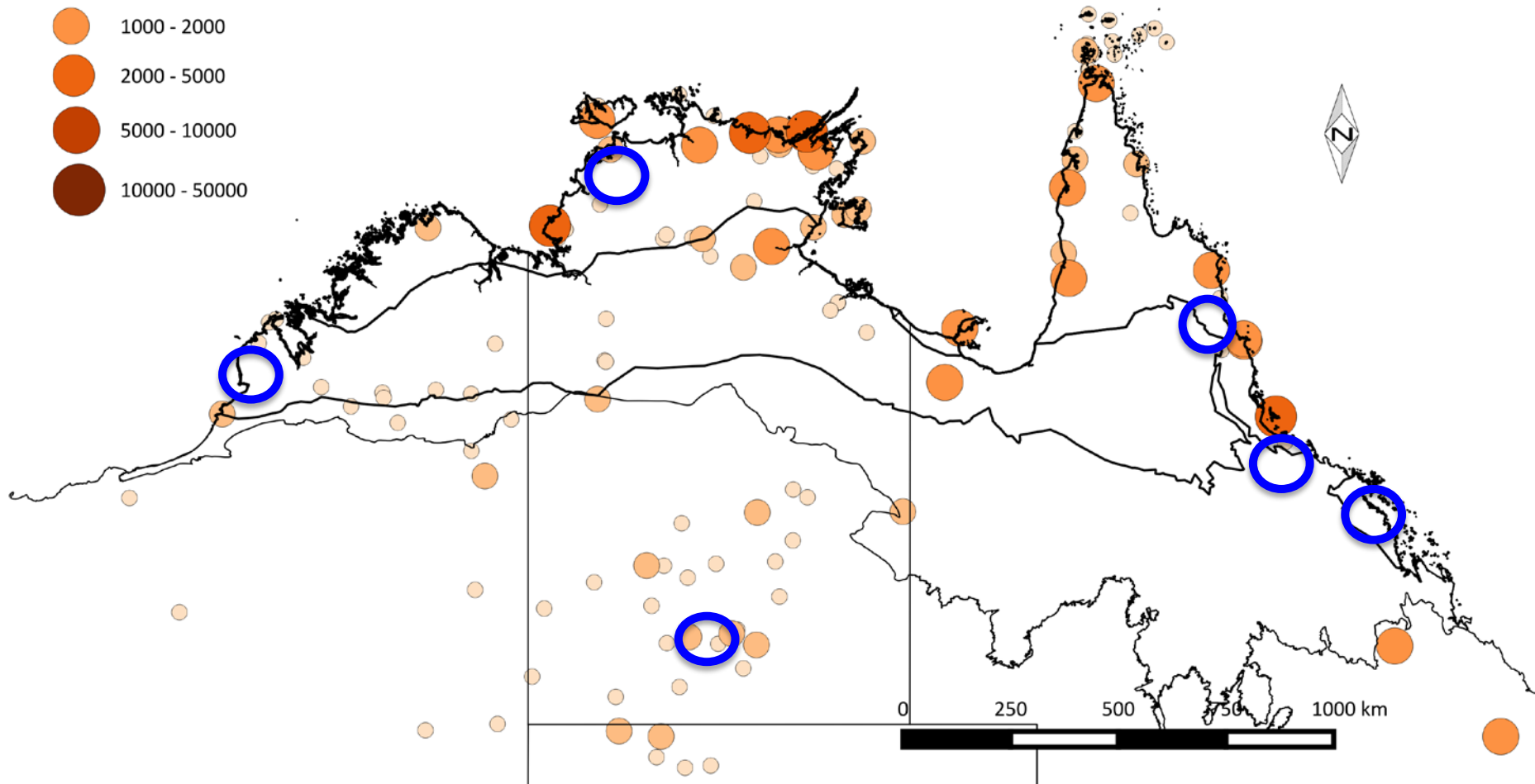
# Population centers

## Legend

### Discrete Indigenous communities



Indigenous cultural landscape





# Indigenous land rights and discrete communities



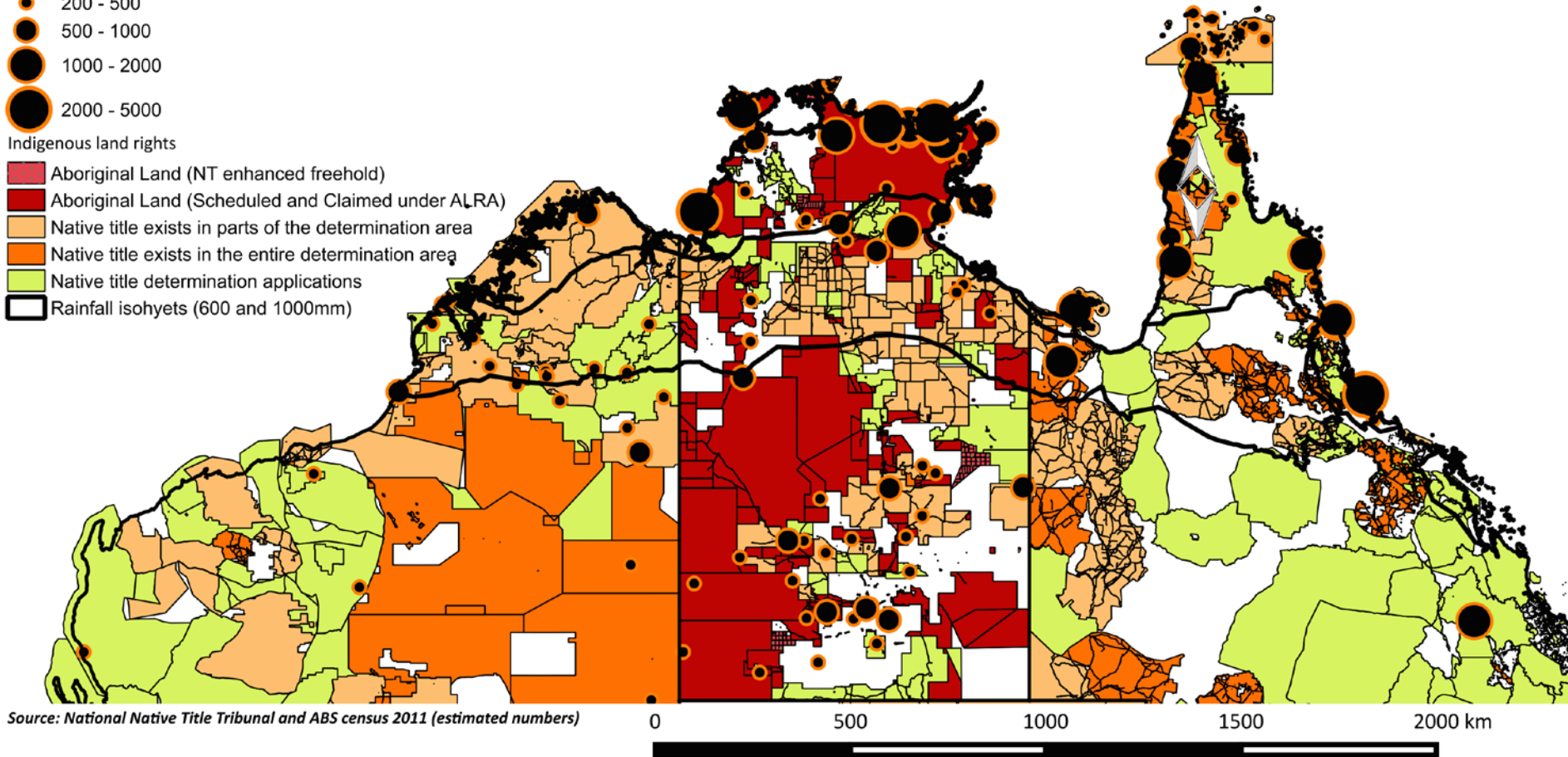
## Legend

Indigenous population: Discrete communities

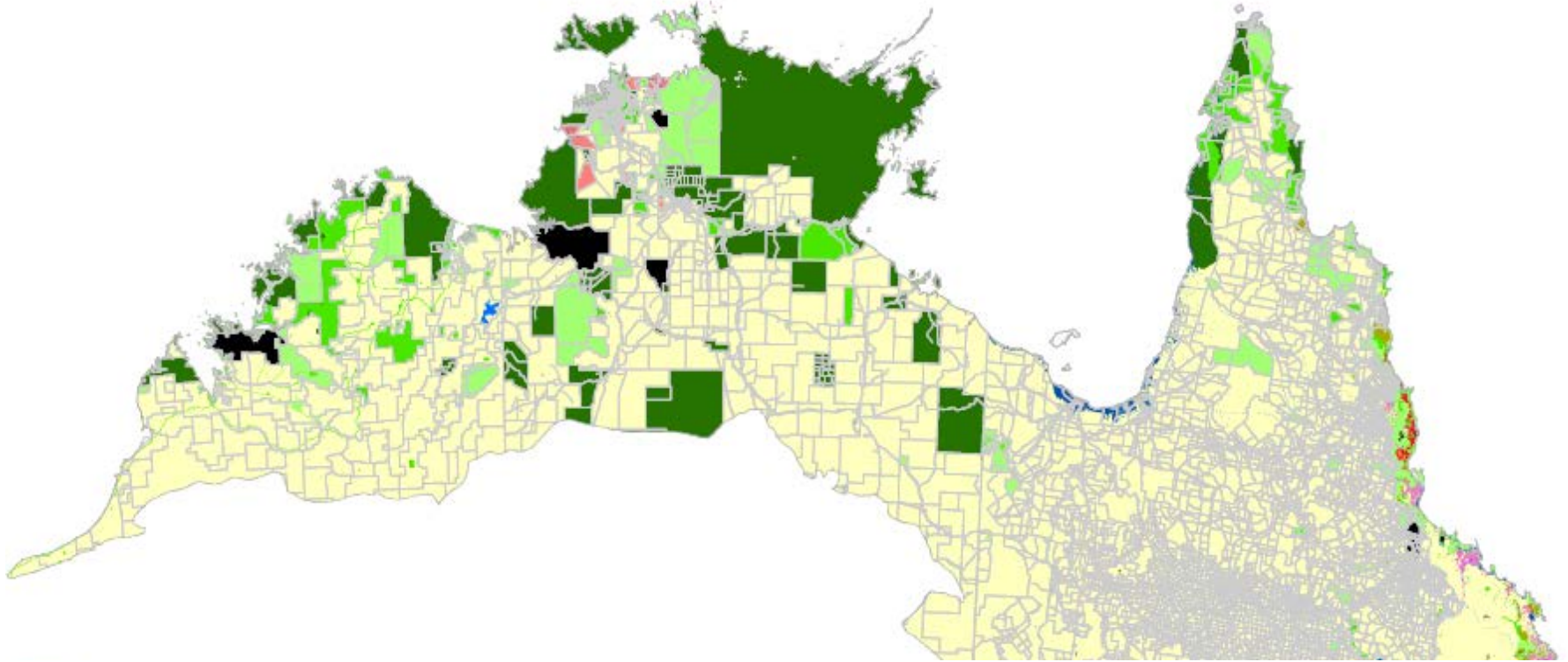
- <200
- 200 - 500
- 500 - 1000
- 1000 - 2000
- 2000 - 5000







Indigenous land rights

- Aboriginal Land (NT enhanced freehold)
- Aboriginal Land (Scheduled and Claimed under ALRA)
- Native title exists in parts of the determination area
- Native title exists in the entire determination area
- Native title determination applications
- Rainfall isohyets (600 and 1000mm)








# Land use



 Nature conservation  
 Managed Resource Protection  
 Other minimal use  
 Traditional Indigenous uses  
 Grazing Natural Vegetation  
 Production Forestry

 Grazing Modified Pastures  
 Cropping  
 Irrigated Cropping  
 Lake  
 River  
 Marsh wetlands

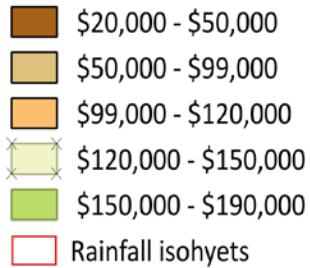
 Defence  
 Residential  
 Transport and Communication  
 Mining  
 Property Boundary

# Economically unsustainable pastoral enterprise

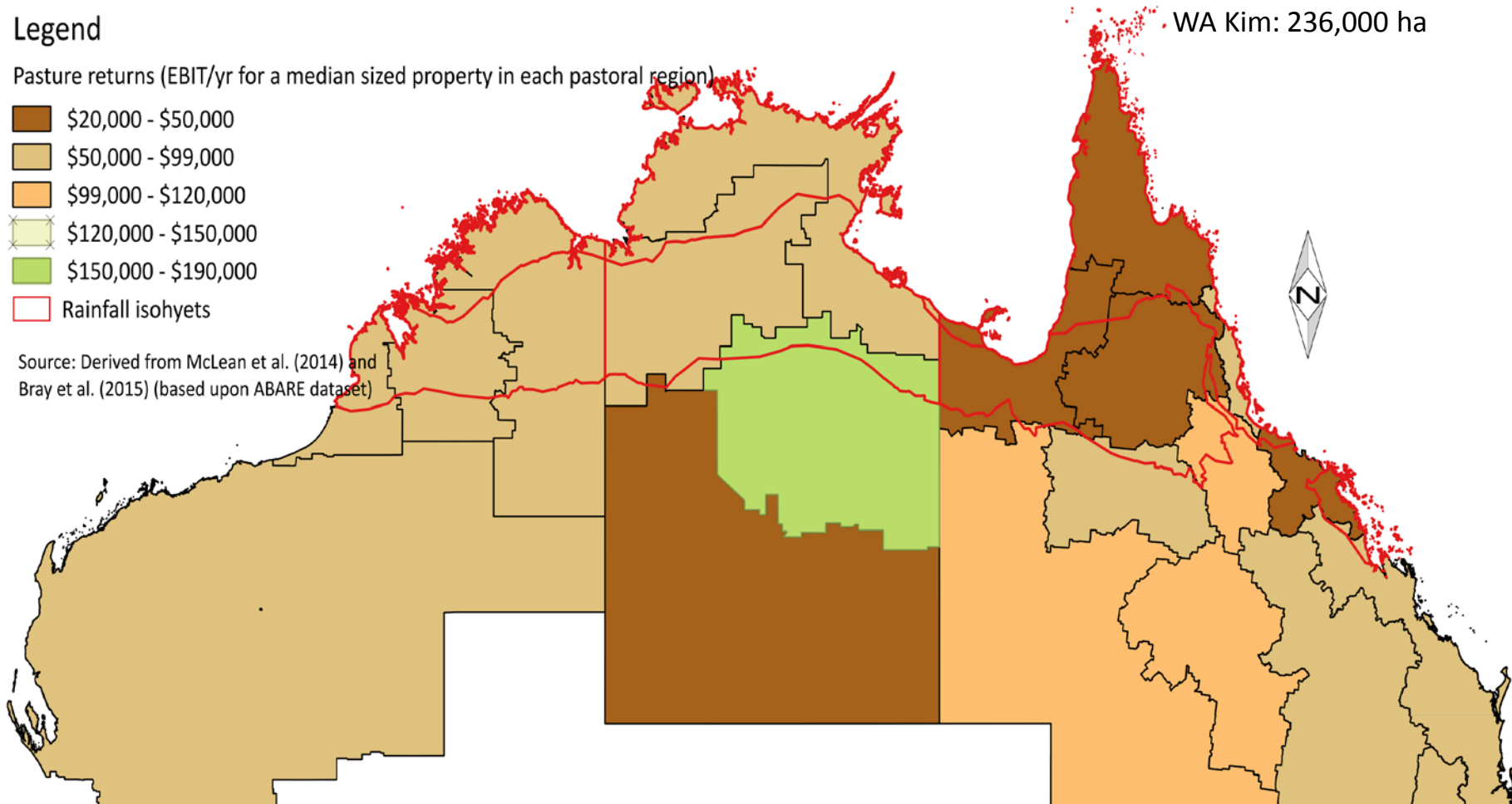
**Median property sizes**  
(ABARE 2001-2012):  
NT-N: 114,000 ha  
NT-AS: 379,000 ha  
NT Barkly: 355,000 ha  
CYP: 122,000 ha  
Qld L: 70,000-122,000 ha  
Qld M & H: 15,000 ha  
WA Kim: 236,000 ha

## Legend

Pasture returns (EBIT/yr for a median sized property in each pastoral region)



Source: Derived from McLean et al. (2014) and Bray et al. (2015) (based upon ABARE dataset)



# Economically unsustainable pastoral enterprise

- Profit reducing for majority of the pastoral businesses (EBIT <\$100,000/yr for a median sized property in a region; data derived from McLean et al. 2014)
- **EBIT** (Earning before Interest and Tax) as a primary measure of profit (**income-total operating expenses**)
- An average business profit is \$6/AE over a long-term (2001-2012)
- Only 25% businesses perform sustainably (EBIT \$61/AE over 2001-2012)
- If interest and taxes were included, this profit will reduce further!

## Other costs:

- Soil loss
- Biodiversity loss
- GHG emissions etc.

# Pasture potential

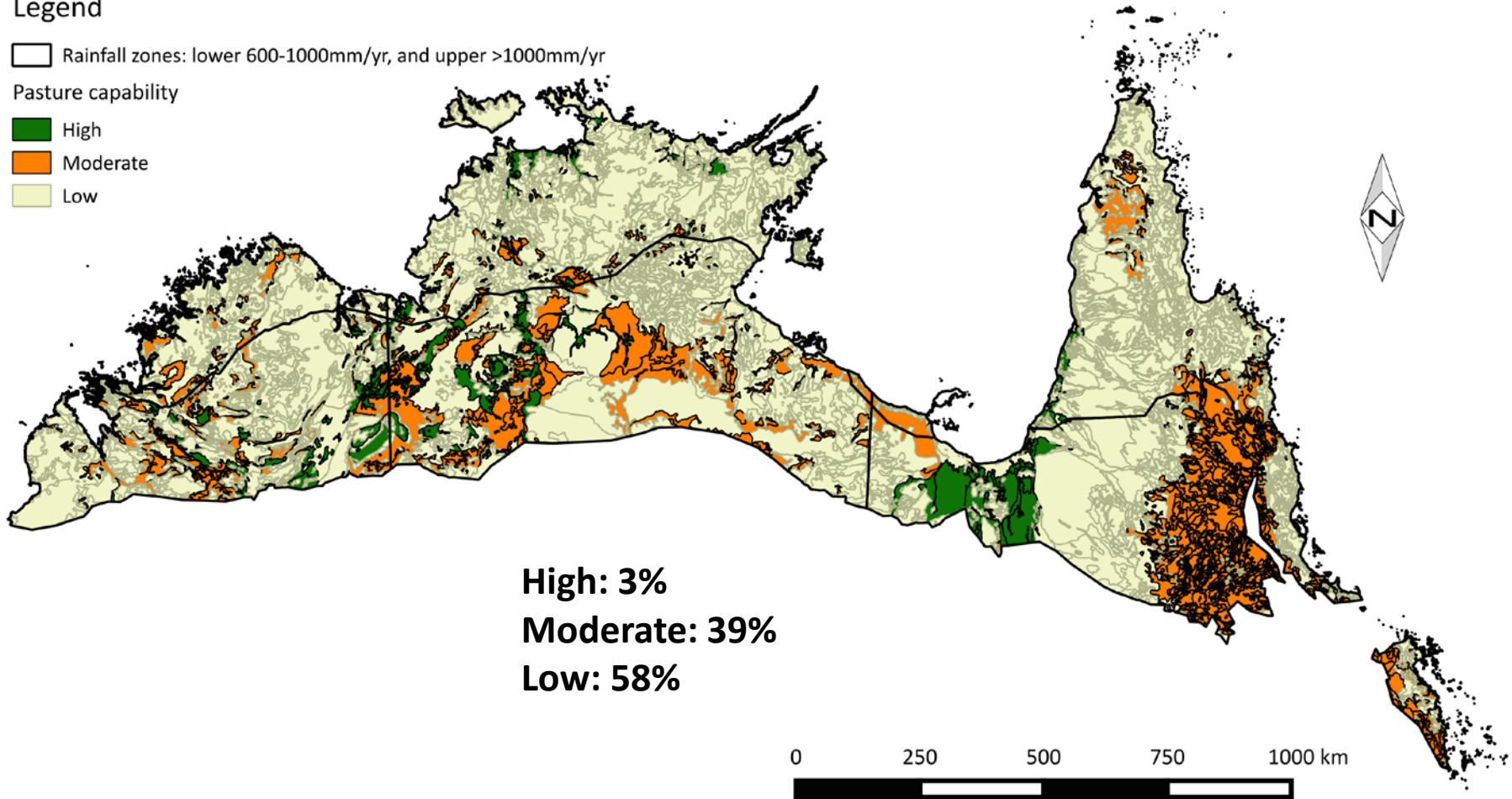
## Complementary – ES economies

### Legend

☐ Rainfall zones: lower 600-1000mm/yr, and upper >1000mm/yr

Pasture capability

- High
- Moderate
- Low

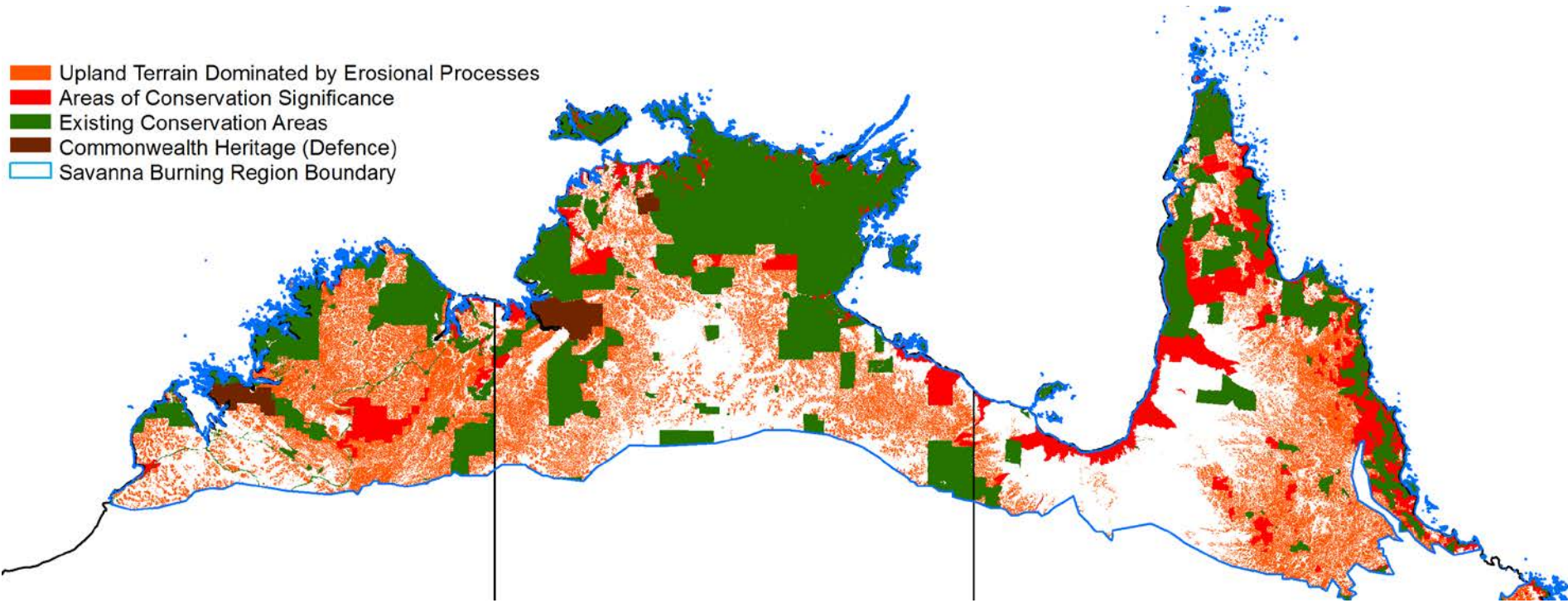


**High: 3%**  
**Moderate: 39%**  
**Low: 58%**

Source: Tothill and Gillies (1992), with minor modifications (for categorising Ribbongrass and Black Spear grass - M, applying expert opinion)

# High value Biodiversity conservation estate

- Upland Terrain Dominated by Erosional Processes
- Areas of Conservation Significance
- Existing Conservation Areas
- Commonwealth Heritage (Defence)
- Savanna Burning Region Boundary



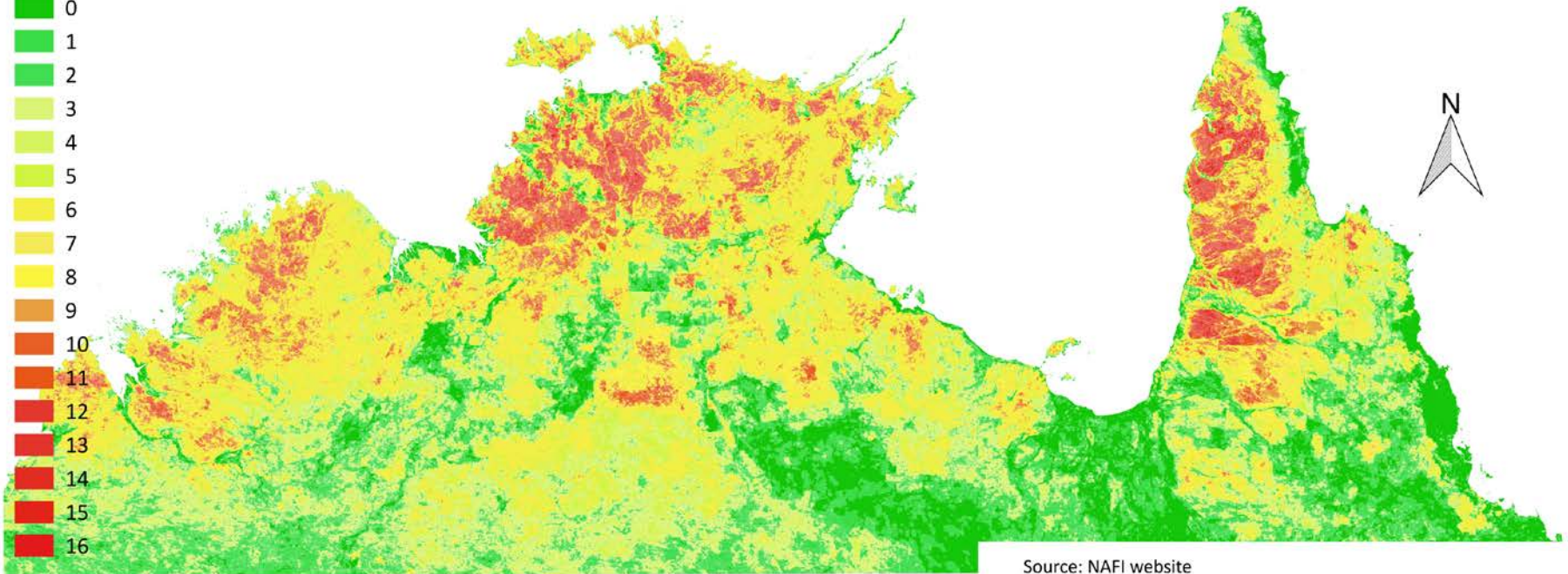
# Alternative scenario: Diversified landscape services-based economies

- C economies - fire management
- Ecosystem services (ES) based economies –
  - land & fire management
  - biodiversity management
  - cultural site management
- ES  $\cong$  Caring for country

# Fires

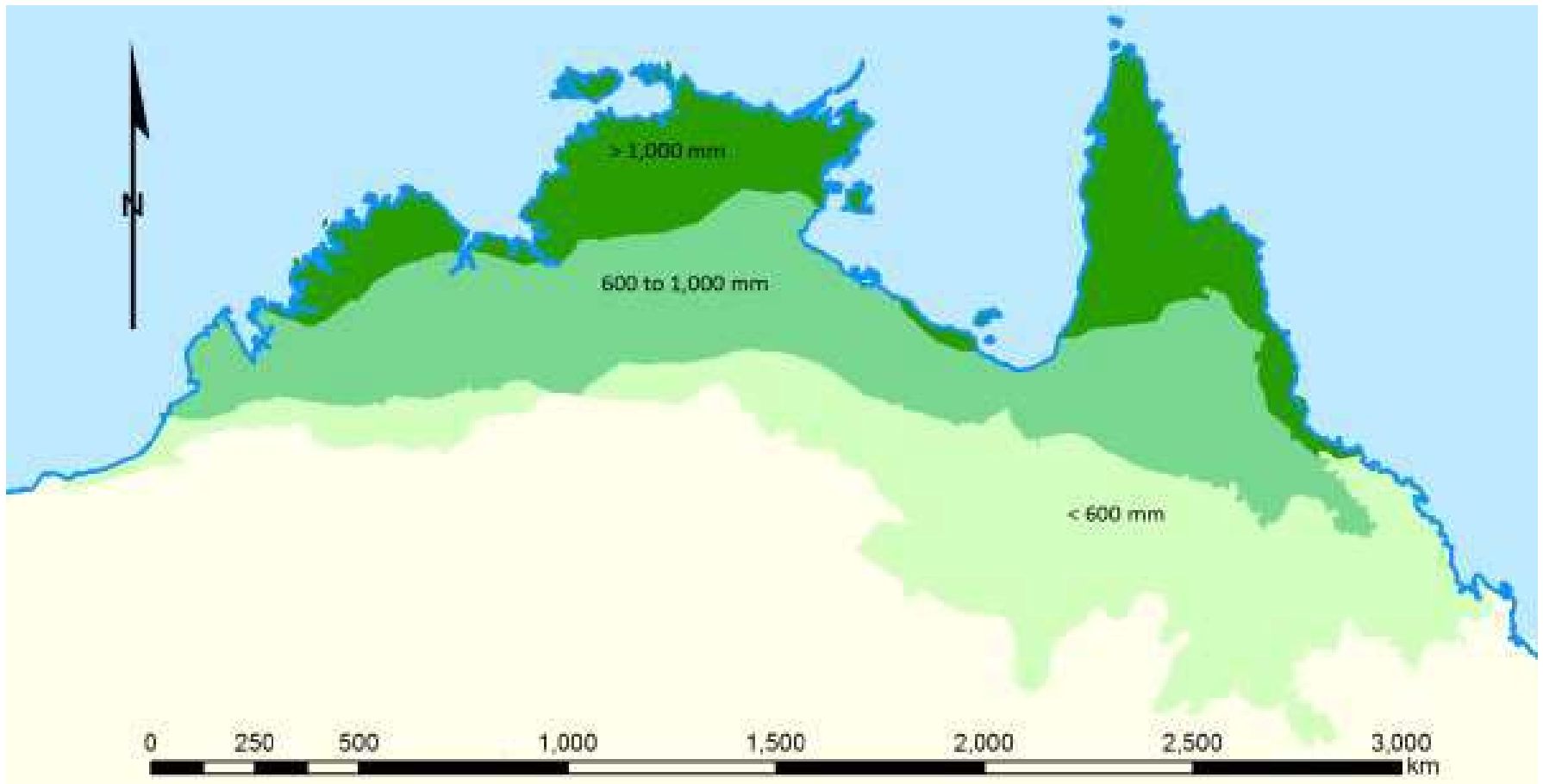
## Legend

Fire frequency 2000-2015





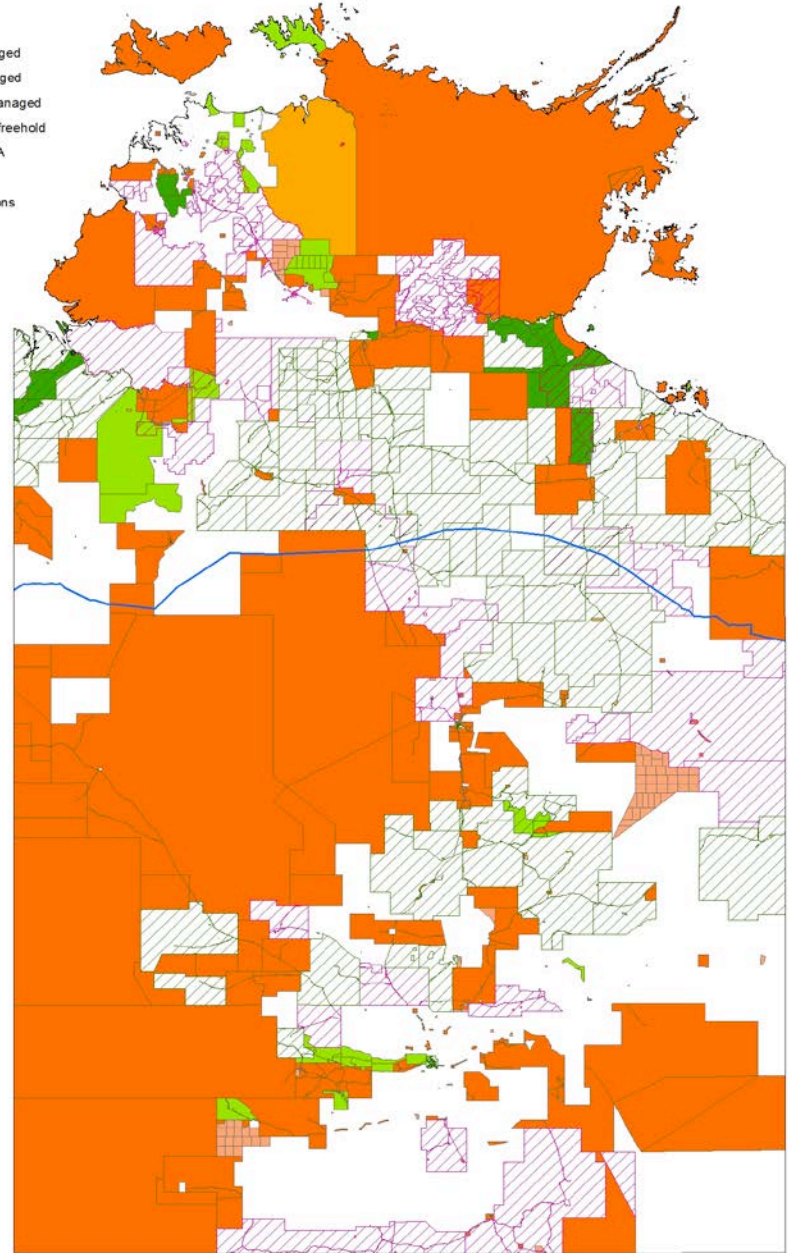
# GHG emissions abatement under 'Savanna fire management' methodology



# Potential C economy in the NT upto 600 mm isohyet

## Legend

- NT Parks Gov. Managed
- NT Parks Joint Managed
- Cwth. Parks Joint Managed
- Aboriginal Land NT freehold
- Aboriginal Land ALRA
- Native Title exists
- Native Title applications
- 600mm isohyet



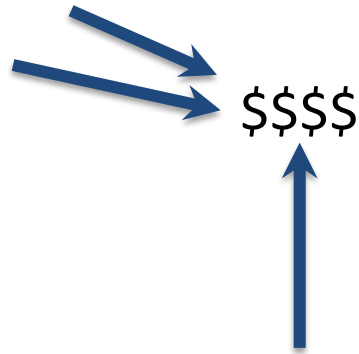
## Potential C economy in the NT:

current abatement & future sequestration methods due in next few years

<b>Land Tenure type</b>	<b>Area</b>	<b>Indicative annually achievable savanna burning emissions abatement</b>	<b>Indicative annual returns from savanna burning</b>
	(km <sup>2</sup> )	(t CO <sub>2</sub> -e)/yr	(\$ M/yr)
Commonwealth Parks - jointly managed	19,195	122,504	18
NT Parks - NTG managed	13,919	23,074	3.5
NT Parks - jointly managed	25,570	57,220	8.5
Indigenous Land - Freehold	9,787	14,412	2
Indigenous Land - ALRA	593,910	824,178	124
Native Title exists	248,870	47,666	7
Native Title application	163,360	144,956	21.7
<b>Total</b>	<b>1,074,611</b>	<b>1,233,928</b>	<b>185 M/yr</b>

# PES: Payments for Ecosystem Services (ES)

Organizations



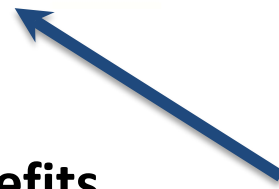
Land and fire management

*Reforms: value of natural systems, policy framework and regulations*

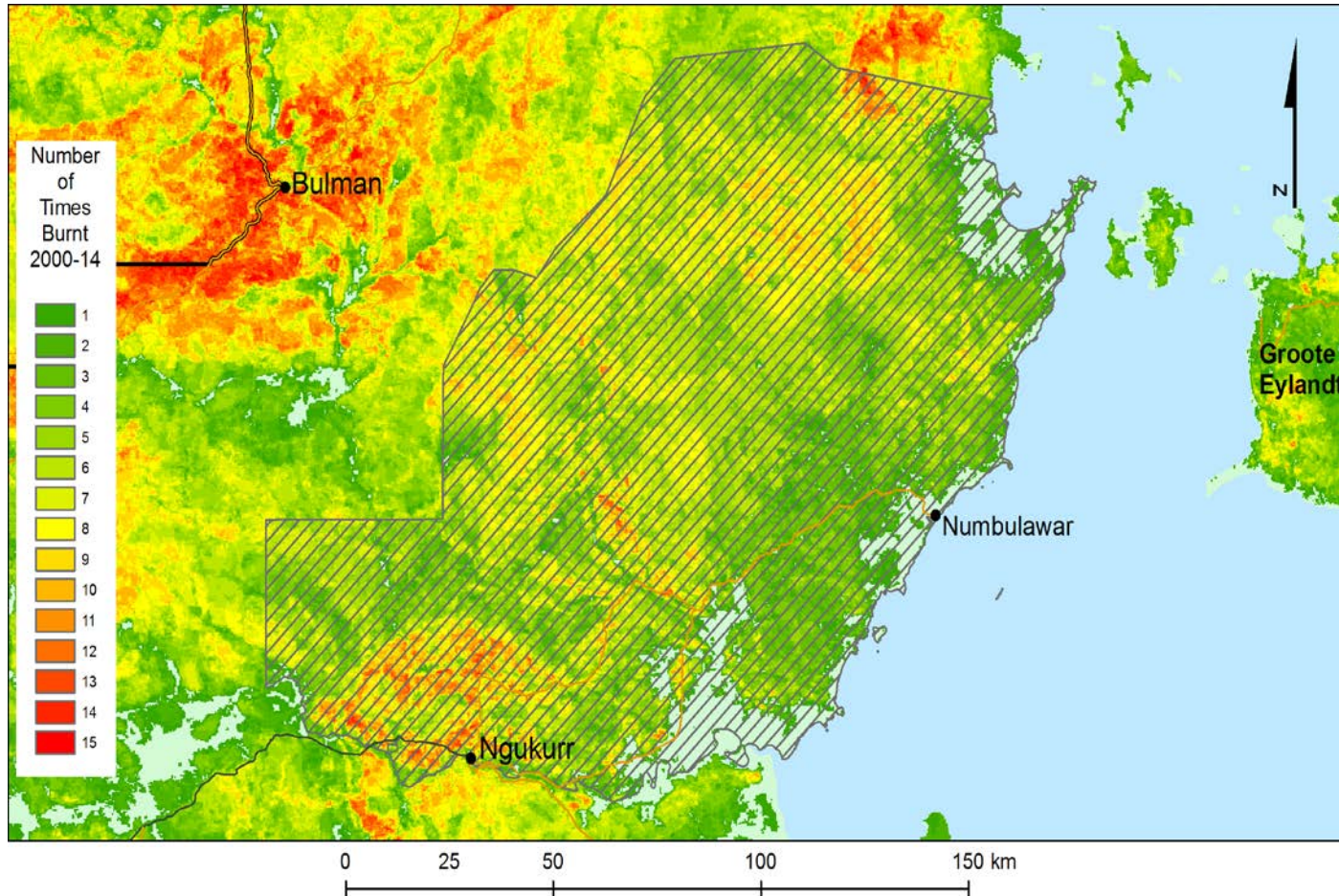
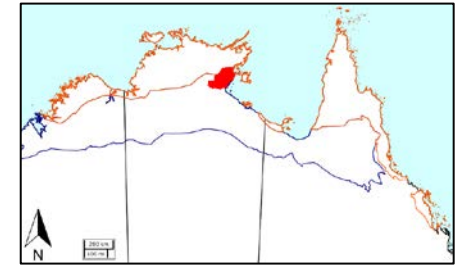


Australian public

Benefits



# Ngukurr



# Potential C economy at Ngukurr: 0.5M-4M/yr

Land area (project area)	Mean proportion burnt (2006-2014)		Average annual GHG emissions (2004-2013)	Achievable GHG abatement	Achievable C sequestration
	EDS	LDS			
15,000 Km <sup>2</sup>	9%	26%	108,000 t CO <sub>2</sub> -e	41,000 t CO <sub>2</sub> -e	325,000 t CO <sub>2</sub>
				<b>\$528,000</b>	<b>\$4,225,000</b>

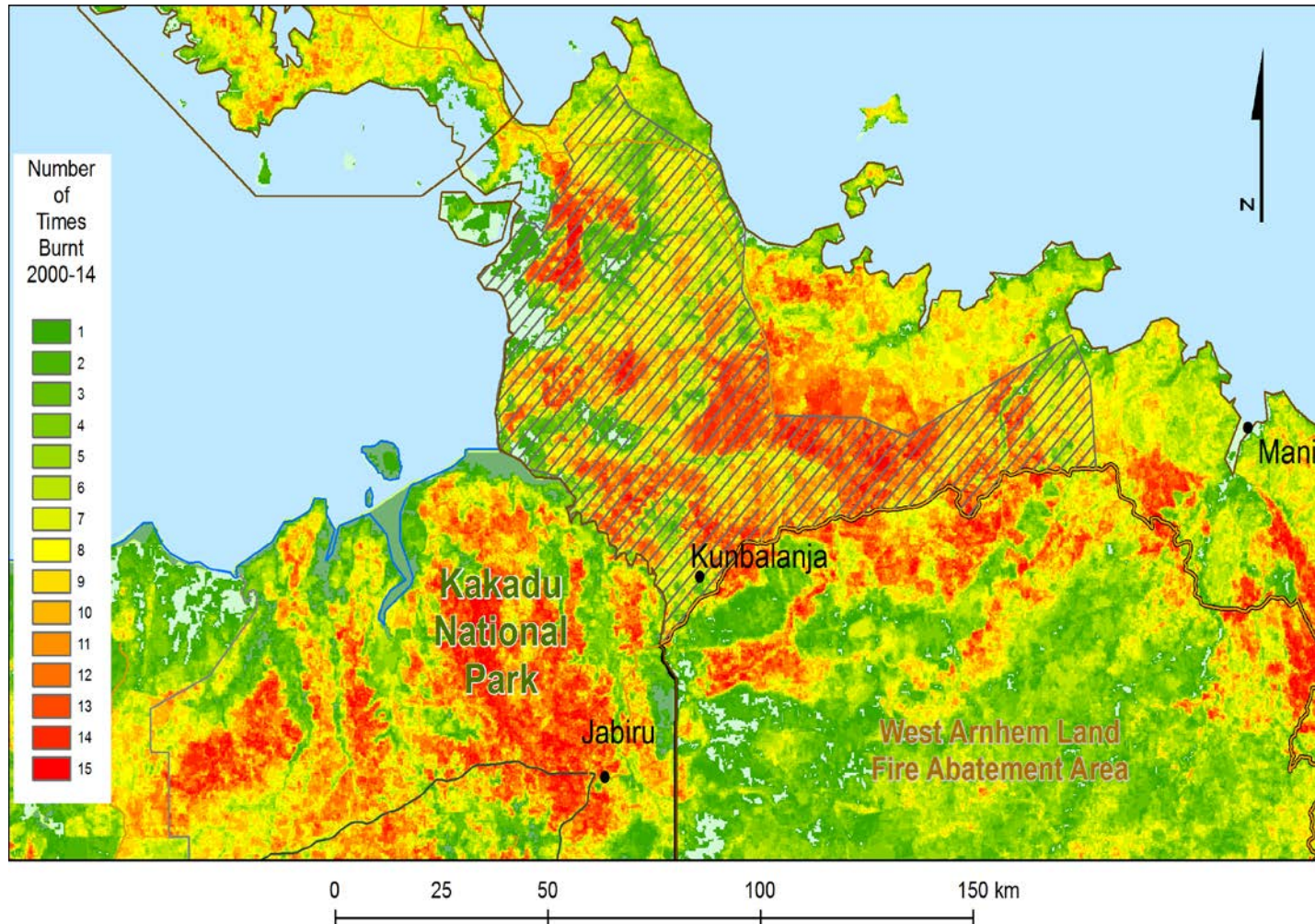
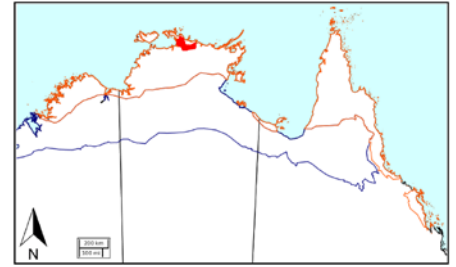
C price @\$13/t

# Ngukurr

## AND...other ES – the key to Indigenous wellbeing

Current scenario: Welfare dependent economy	Costs (AUD/yr)	Alternative Scenario: People managing their country – C/ES economy	Benefits/saved costs (AUD/yr)
Estimated welfare payments for persons >15 yrs of age	-19,421,703	Income from GHG emissions abatement and C sequestration	528,281 4,226,274
Weed and pest management costs per year	-3,639,130	Saved costs for reducing the risk of weed and pest spread (only 50% of the current costs)	1,819,565
Capability building expenditure (although not always linked to culturally appropriate work opportunities)	-1,012,748	Saved costs for job training (considering 50% of current job training costs only)	506,374
Health expenditure	-8,755,776	Saved costs of health expenditure	4,377,888
		Saved costs of welfare payments	9,710,852
<b>Estimated total government expenditure/yr (welfare, weed and pest management, and on work training)</b>	<b>-\$33 M/yr</b>	<b>Total benefits for being on country in terms of creating work opportunities and applying cultural knowledge and practices</b>	<b>\$21 M/yr</b>

# Gunbalanya





# Potential C economy at Gunbalayna: 0.5M-4M/yr

Land area (FM project area)	Mean proportion burnt (2006-2014)		Average annual GHG emissions (2004-2013)	Achievable GHG abatement	Achievable C sequestration
	EDS	LDS			
6,670 Km <sup>2</sup>	27%	29%	103,000 t CO <sub>2</sub> -e	39,000 t CO <sub>2</sub> -e	310,000 t CO <sub>2</sub>
				<b>\$507,000</b>	<b>\$4,030,000</b>

C price @\$13/t

THANK YOU

