Scoping sustainable land sector economies in the North

Kamaljit K Sangha and Jeremy Russell-Smith

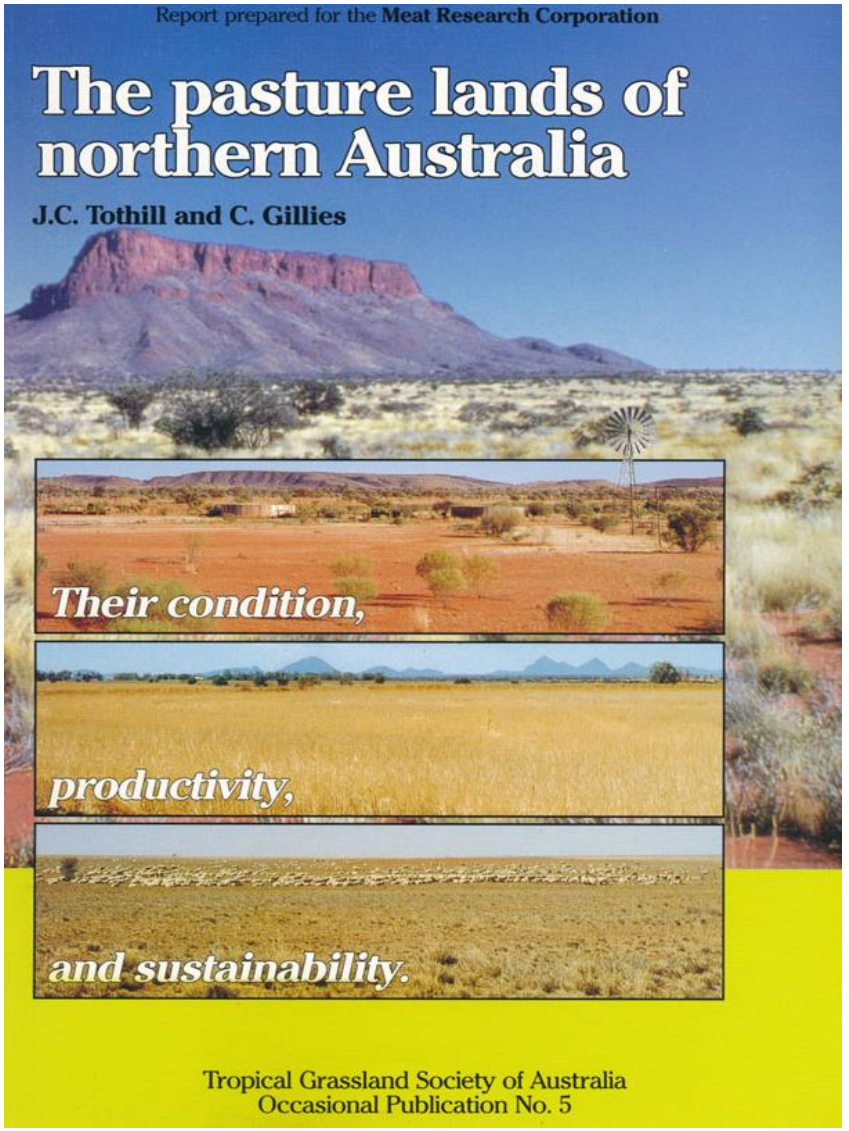
Darwin Centre for Bushfire Research, Charles Darwin University, Darwin, NT

Structure

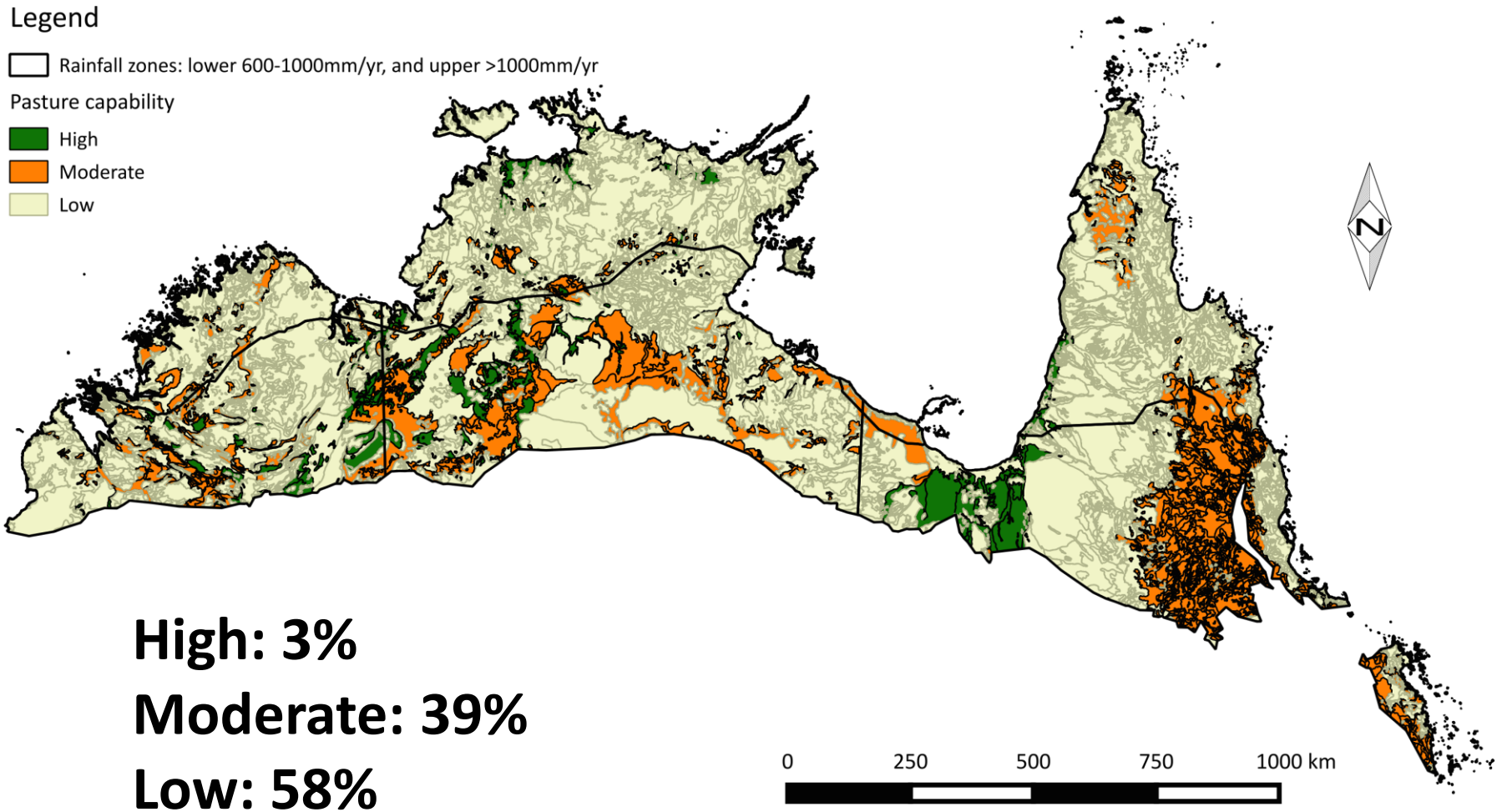
- **Background of pastoral land use in northern Australia**
- **Ecological economic analyses of typical pasture systems**
- **New opportunities — Ecosystem Services based economies**

Data sources for pasture analyses

- Pasture capability and carrying capacity analyses



Pasture capability using expert advice



High: 3%

Moderate: 39%

Low: 58%

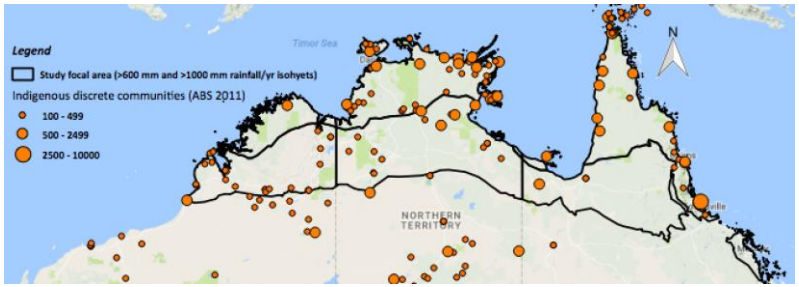
Source: Tothill and Gillies (1992), with minor modifications (for categorising Ribbongrass and Black Spear grass - M, applying expert opinion)

MLA Financial assessments: Key points (McLean et al. 2014)

- "Northern Australia is over grazed and environmental capital is used up…"
- "Only 20% businesses are sustainable, and this percentage is falling over time"
- "Abysmal herd productivity"

Video: https://www.youtube.com/watch?v=zI5lE6T6shk

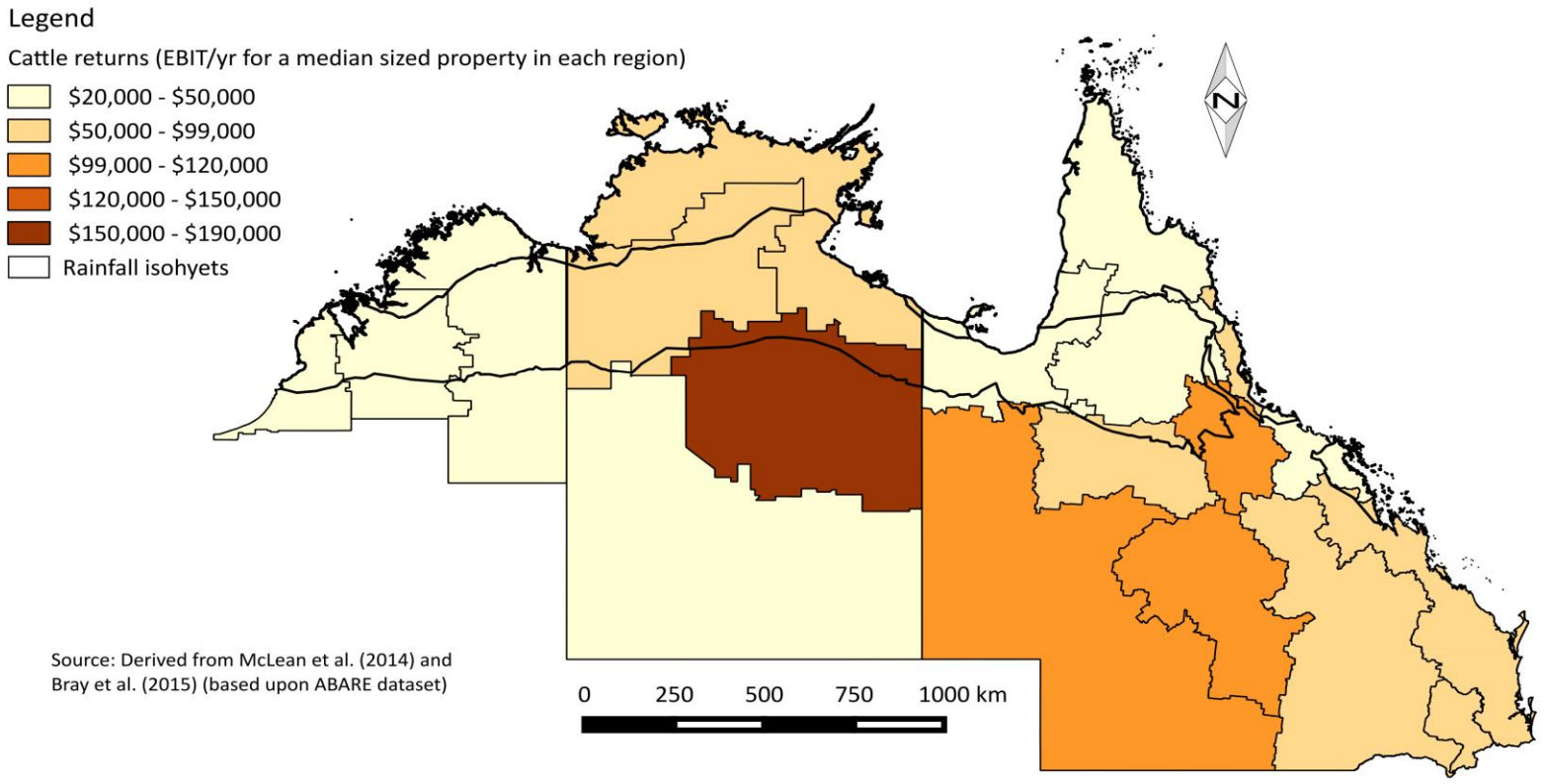
Our analyses for focal area >600mm rainfall in northern Australia:



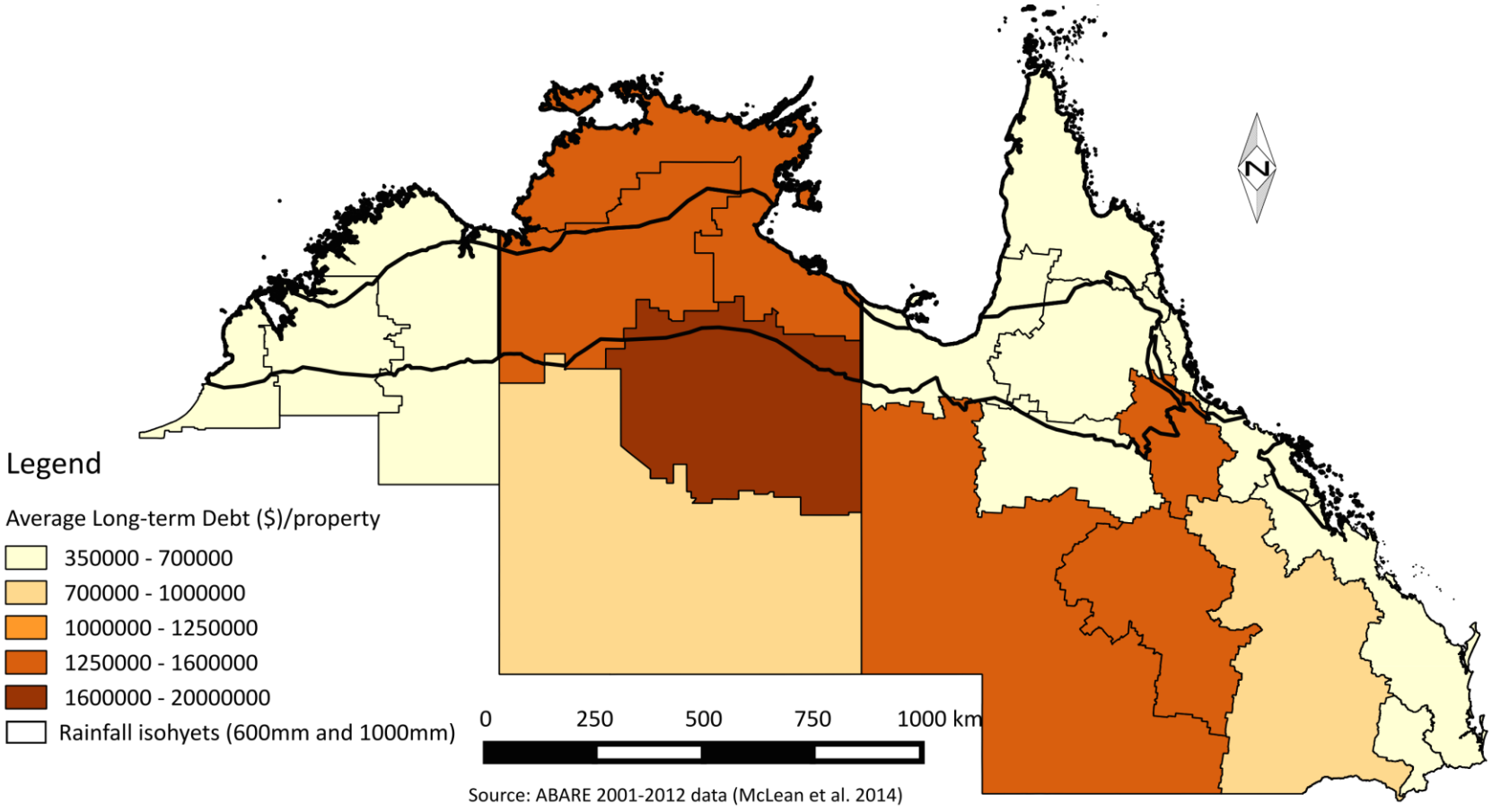
- Earnings Before Interest and Tax (EBIT) = gross profit- total business expenses
- EBIT reflects the business profit, independent of its financing
- Averages for a median-sized businesses (~70%)
- Long term ABARES data 2001-2012

Earnings Before Interest and Tax ($/yr)

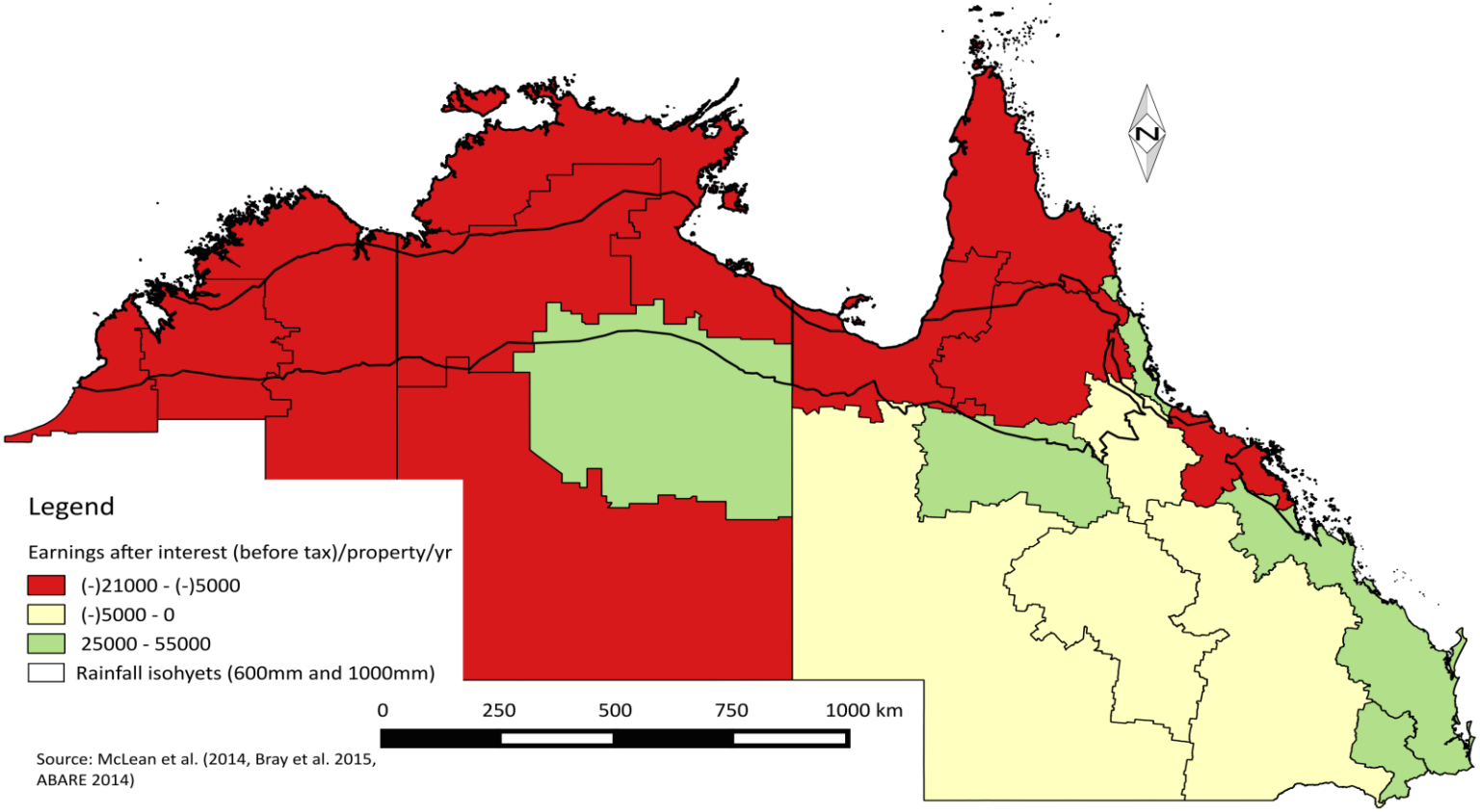
(for a median-sized pastoral business, 2001-2012)



Long-term debt (2001-2012)



Earning After Interest Before Tax (EAIBT) (2001-2012, a median sized pastoral business)



Very significant environmental costs!

Long-term ecological impacts:

- Soil loss and land degradation (loss in production)
- Water resources
- Biodiversity
- GHG emissions etc.

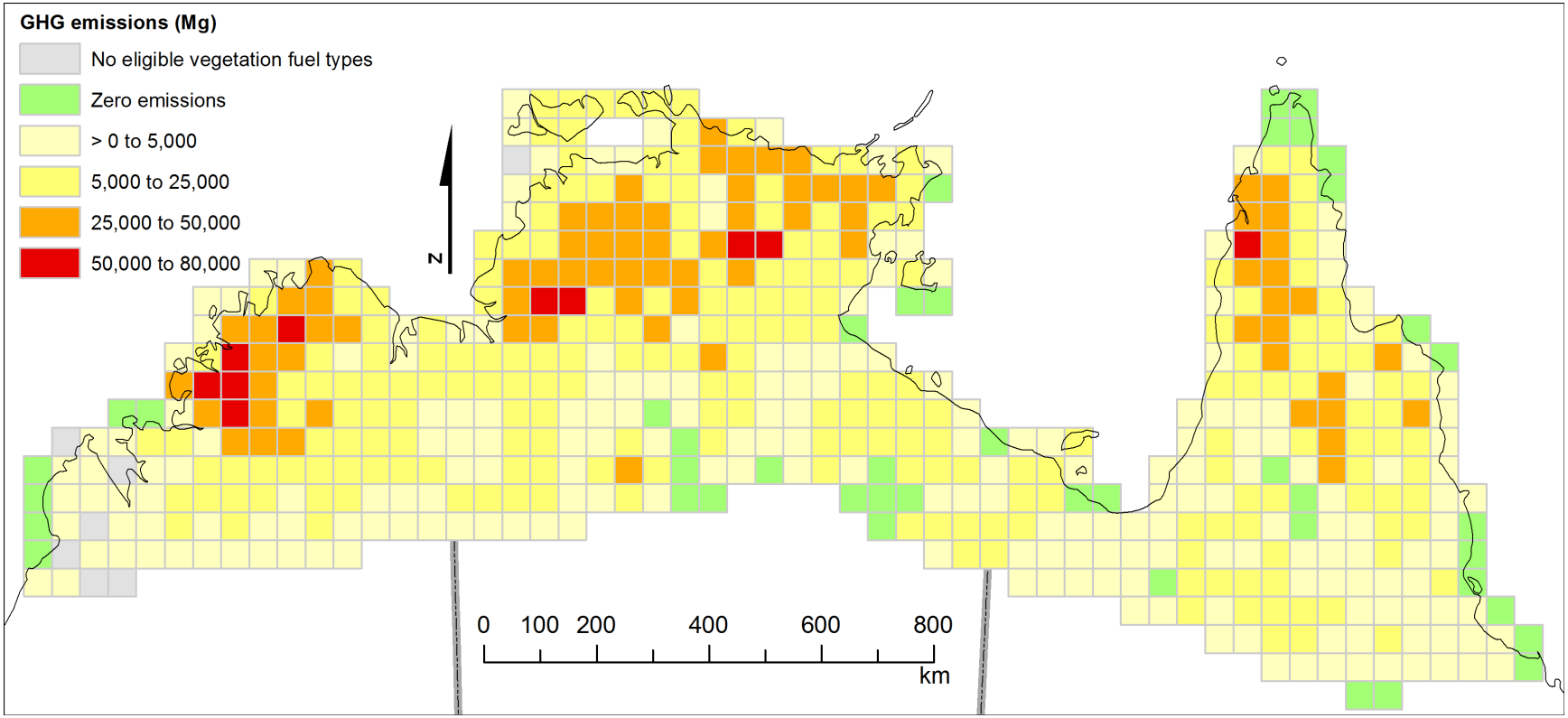
"…the extend to which **environmental capital** is substituting for financial capital is also unknown." (McLean et al. 2014, pg 11)

Need for solutions and diversified land sector economy

- Ecosystem services-based economies
  - carbon economy
  - payments for environmental/land management services
  - the nature-based tourism (potential value $3B/yr, while gross profit in pastoral enterprises ~$600m/yr in North Australia)

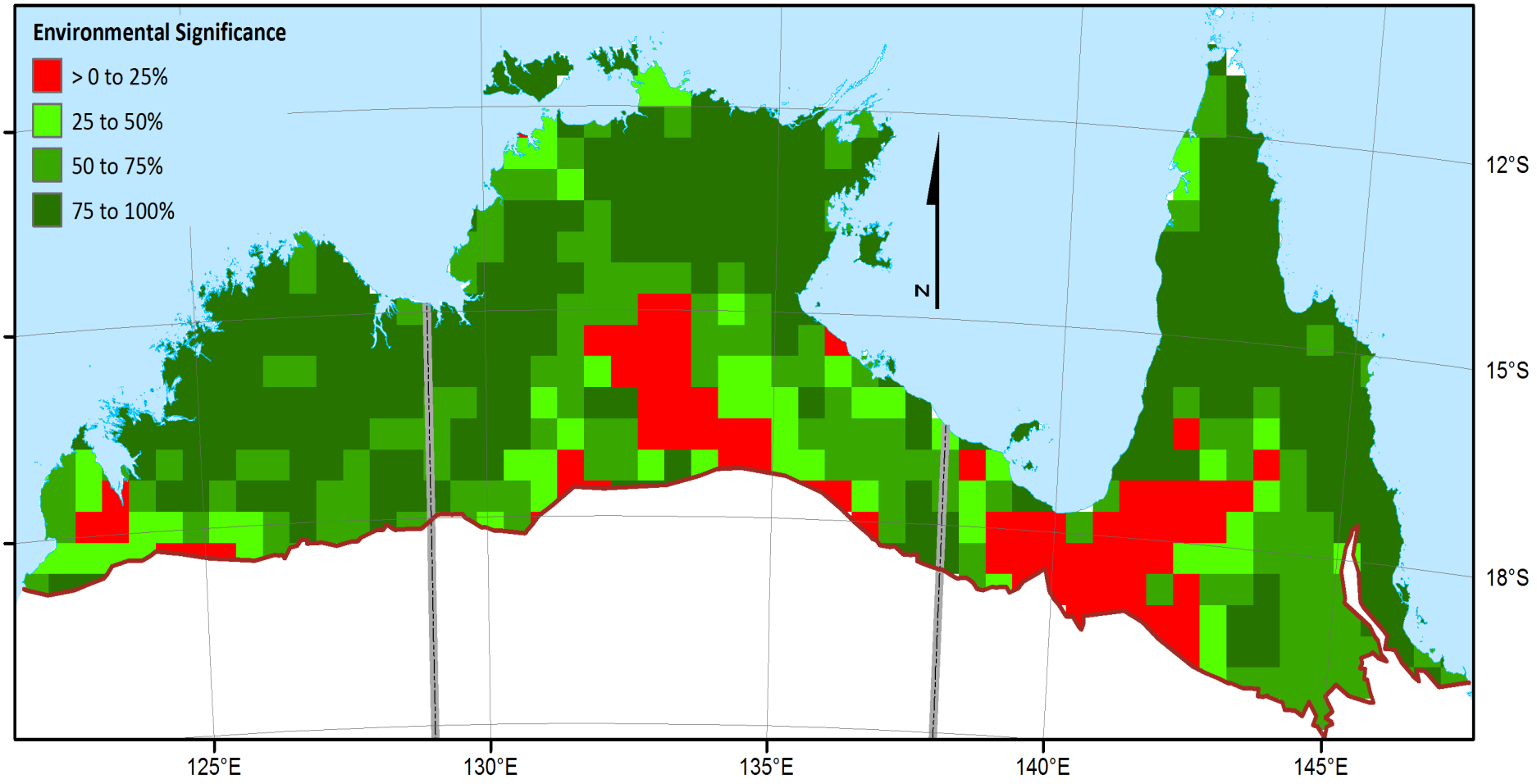
Greenhouse gas emissions

(2000-2009)



Conservation estate

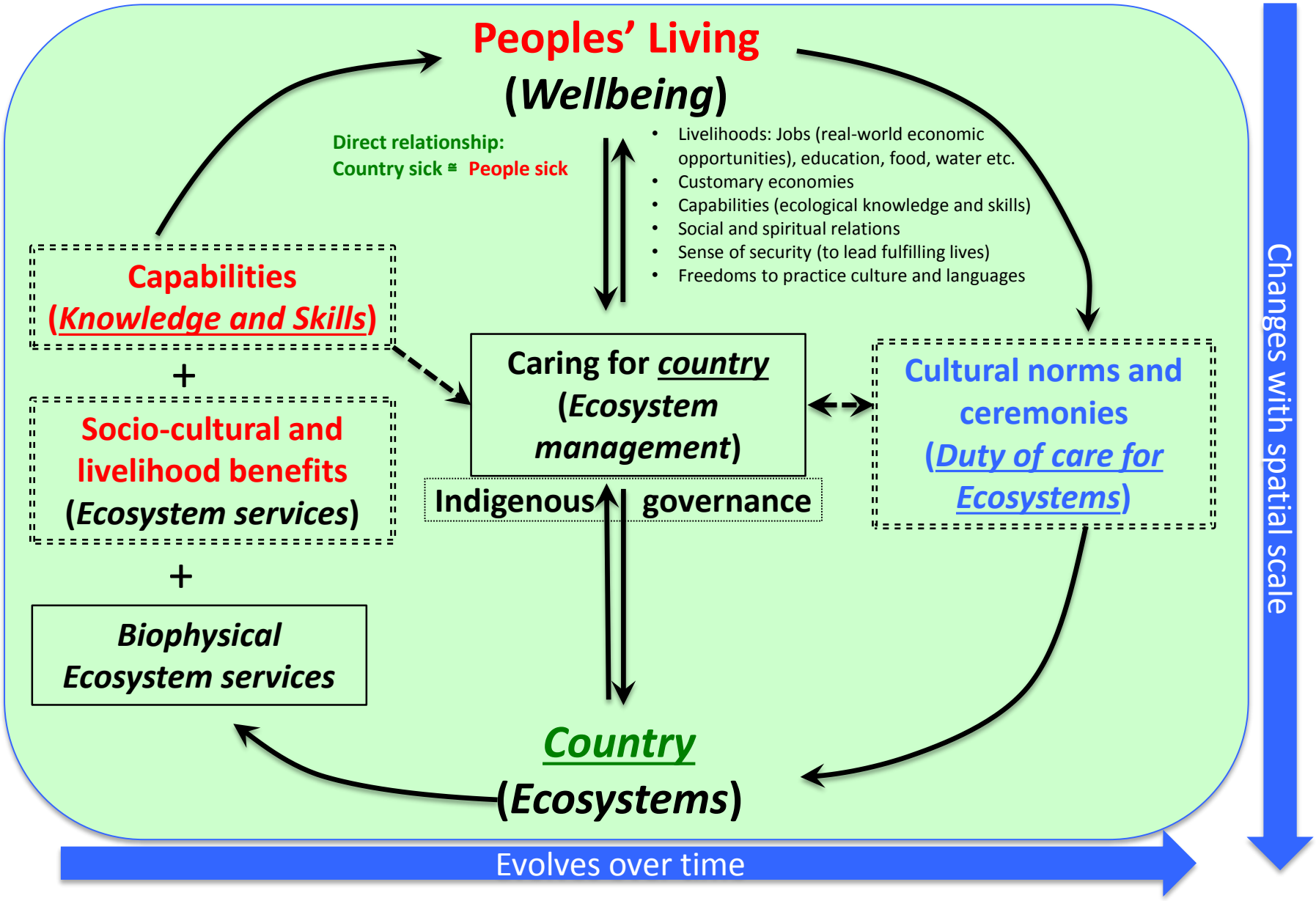
0.5^0 Grid cell for IPAs, Nature reserve, Wetlands, Areas of high erosion potential, Australian Wildlife Conservancy, Imp. Bird areas, etc.)



Diversification opportunities: Land-sector based Ecosystem Services/carbon economies

- Area of conservation estate (high values) >500,000km^2
- Costs of managing are roughly ~$300m/yr
- <u>Carbon</u>
  - GHG emissions ~7.5 M t $CO_{2\text{-}e}$ /yr
  - Abatement potential ~2.5 M t $CO_{2\text{-}e}$ /yr
  - **$20 – 30m/yr**

Interconnected land (eco)systems and peoples' well-being framework



Key message

- Accounting for marketable and non-marketable benefits and costs has enabled us to
  - Assess the **net benefits** of pastoral land use, conservation and savanna burning projects
  - Focus on enhancing cultural, social and environmental benefits to people, critical for future development objectives
  - **<u>Enhance People's well-being</u> (Development *vs*. Economic Growth)**


Questions?