Research Institute for the Environment and Livelihoods RIEL

Realising ecosystem values through carbon markets

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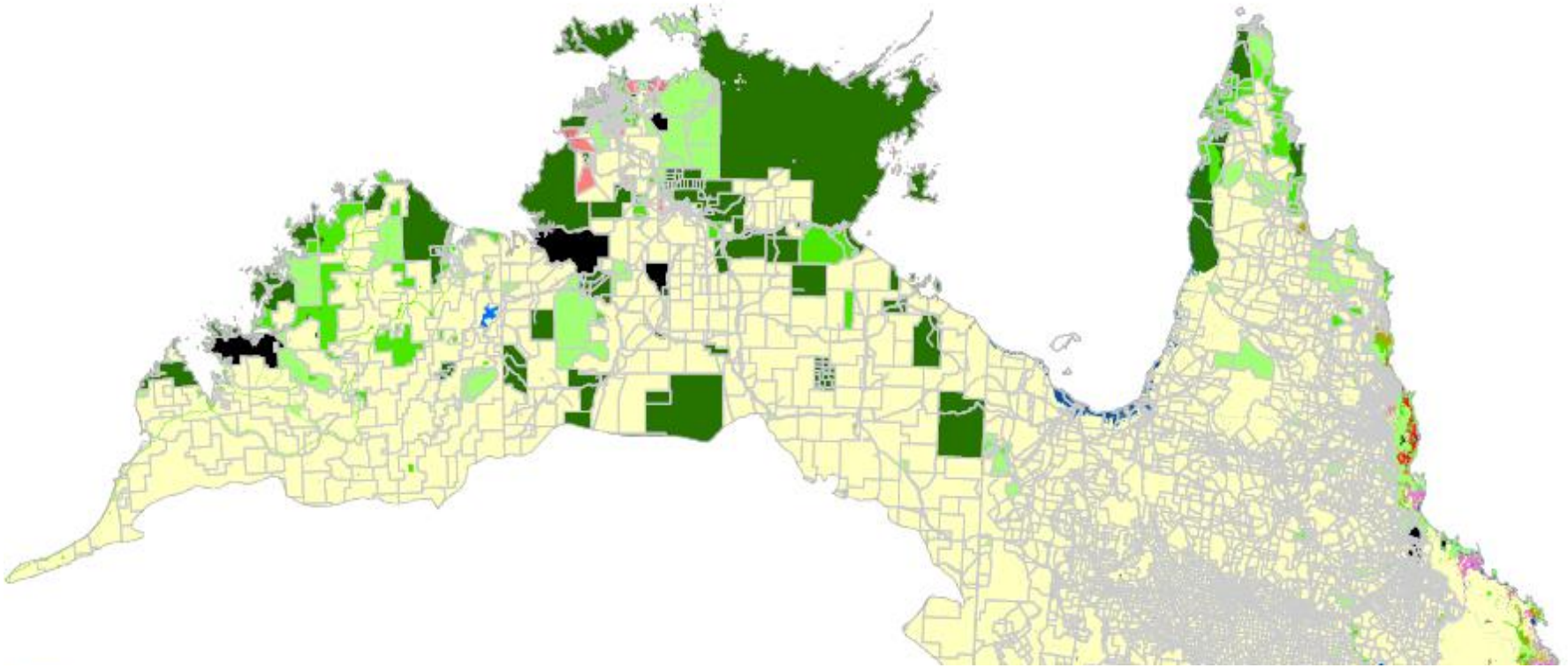
Ecosystem services: the benefits that people obtain from ecosystems (MA 2005)

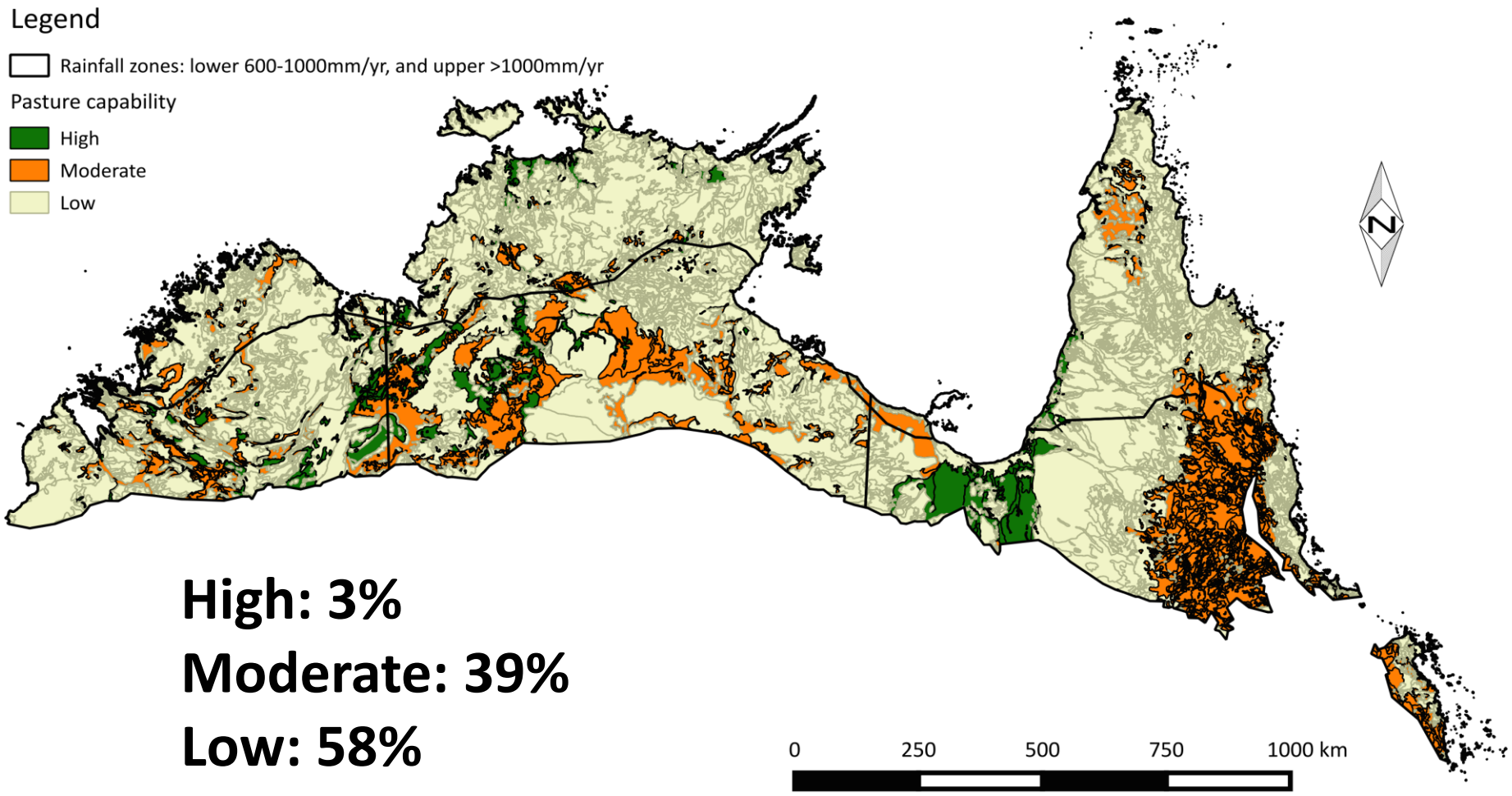
Northern Development Agenda

- Green and White papers released by the Australian Government
- Strong focus on improving pasture production in the region…

Land use—~90% used for beef cattle pastoralism



Pasture capability



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)

Meat & Livestock Australia

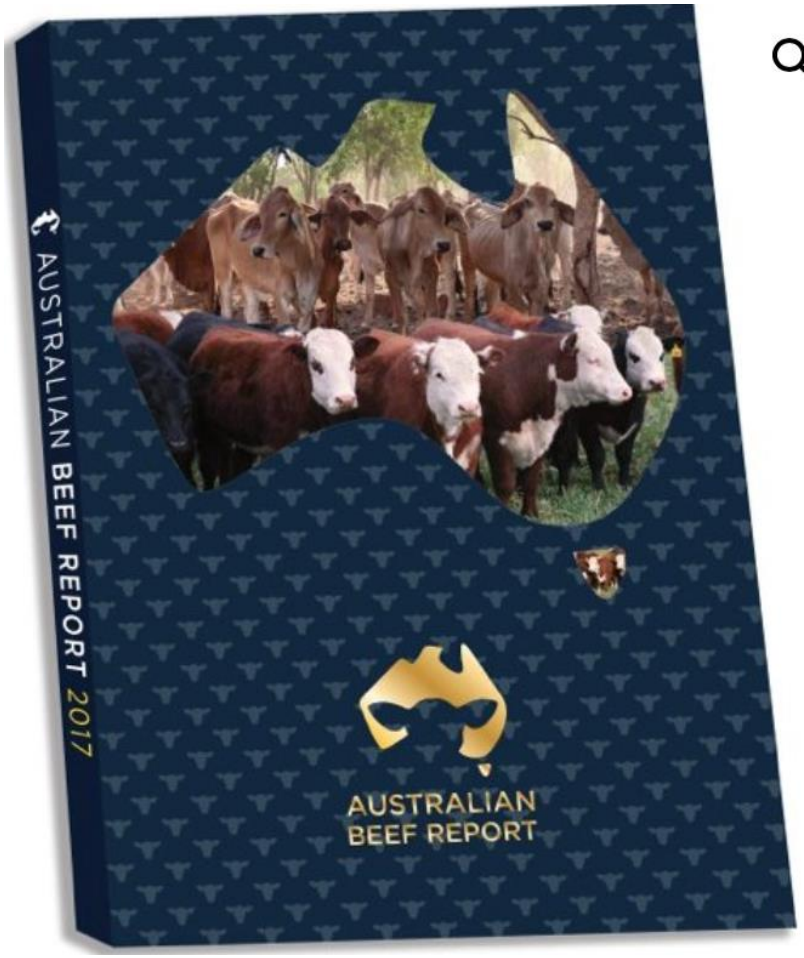
Financial assessments – Key points (McLean et al. 2014)

- "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

Australian Beef Report 2017

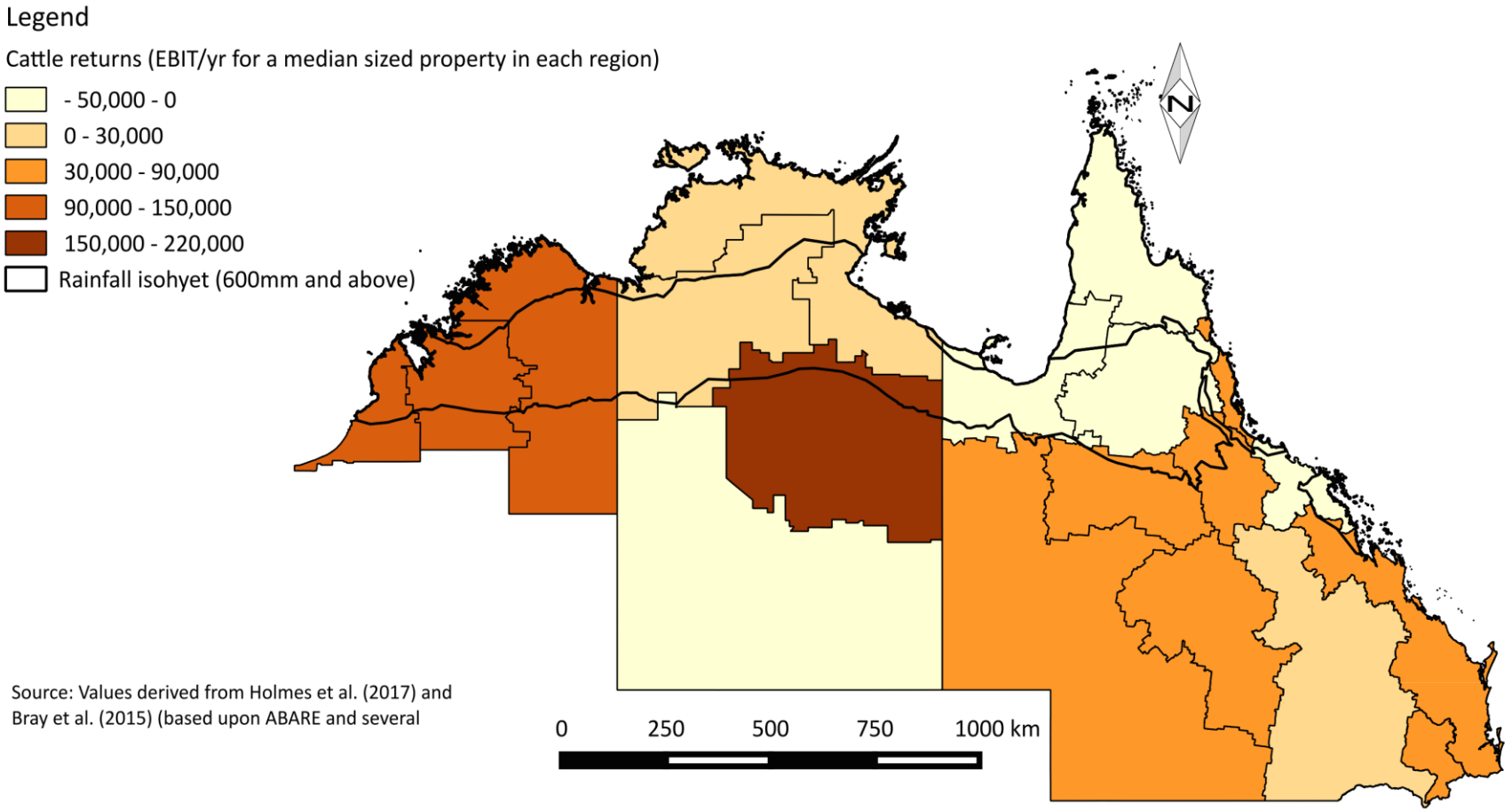
The most comprehensive, independent, landmark report of the Australian Beef Industry to date by the industry experts, Dec 2017



"The financial performance of the beef industry in Australia is alarming." (pg. 52)

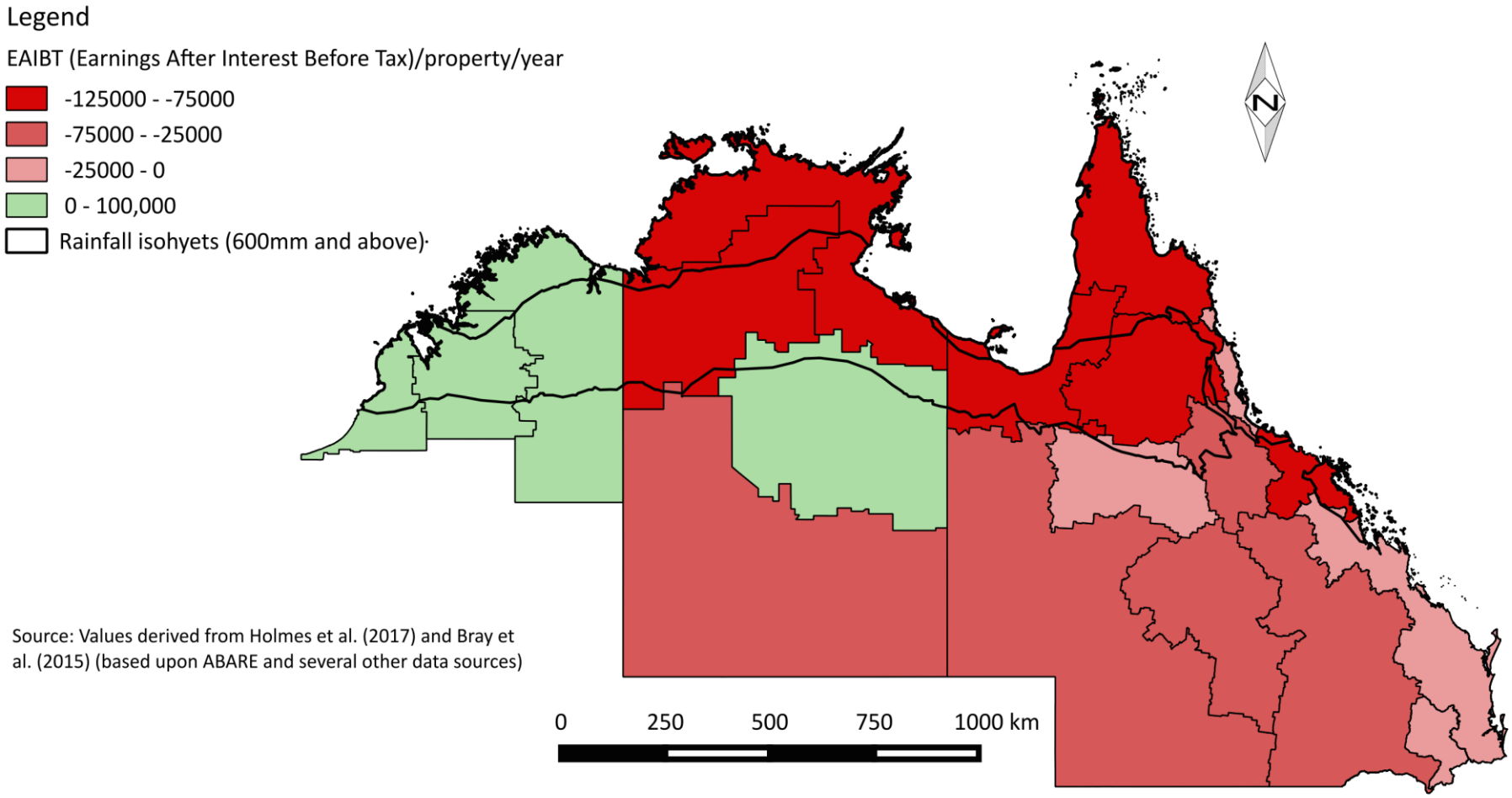
Extensive pastoral land use for beef production but offering little financial returns

Earnings Before Interest and Tax ($/yr) for an average sized pastoral business, 2004-05 – 2015-16)



Source: Values derived from Holmes et al. (2017) and Bray et al. (2015) (based upon ABARE and several

Annual long-term Earnings After Interest but Before Tax (EAIBT)



Source: Values derived from Holmes et al. (2017) and Bray et al. (2015) (based upon ABARE and several other data sources)

Long-term ecological impacts:

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

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

And benefits, in well managed situations:

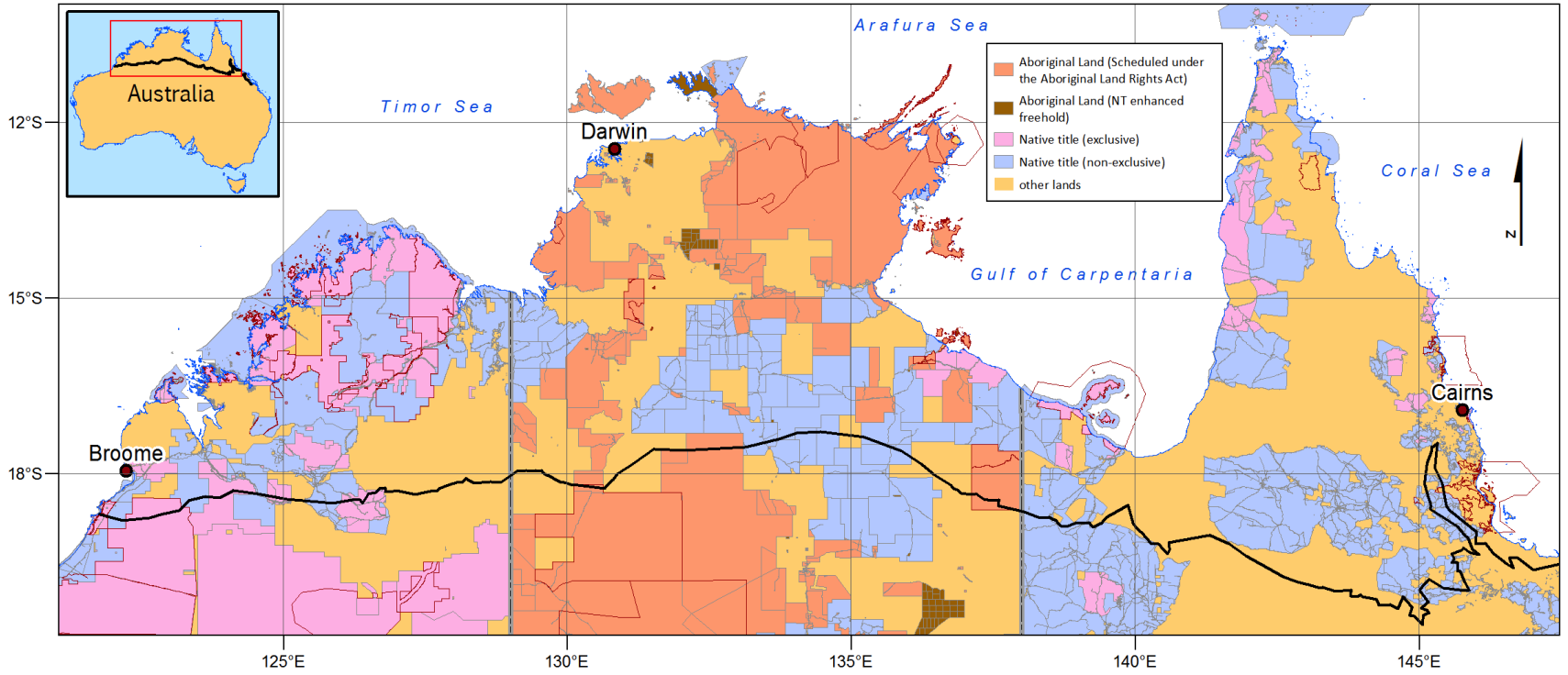
- Management of weeds, feral animals, fire
- stewardship / looking after country



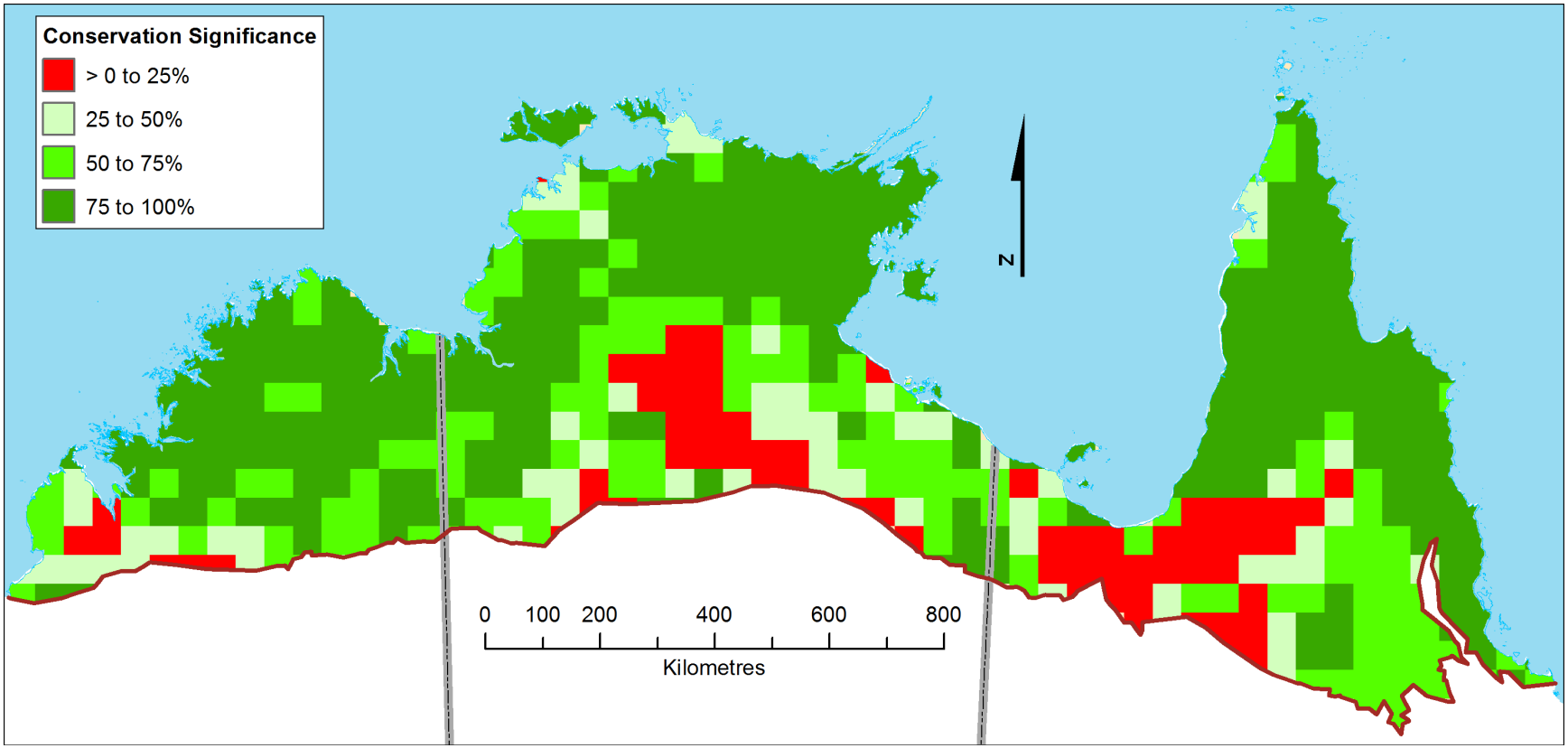
Need for solutions and diversified land sector economy

- Ecosystem services-based economies
  - carbon economy
  - payments for environmental/land management services
  - nature-based savanna tourism industry ~$2.8B/yr
  - gross income for pastoral enterprises ~$414m/yr across North Australia—(based on data from Holmes et al. 2017)

Indigenous title to land, 2017
(56% of 1.2 M km^2)

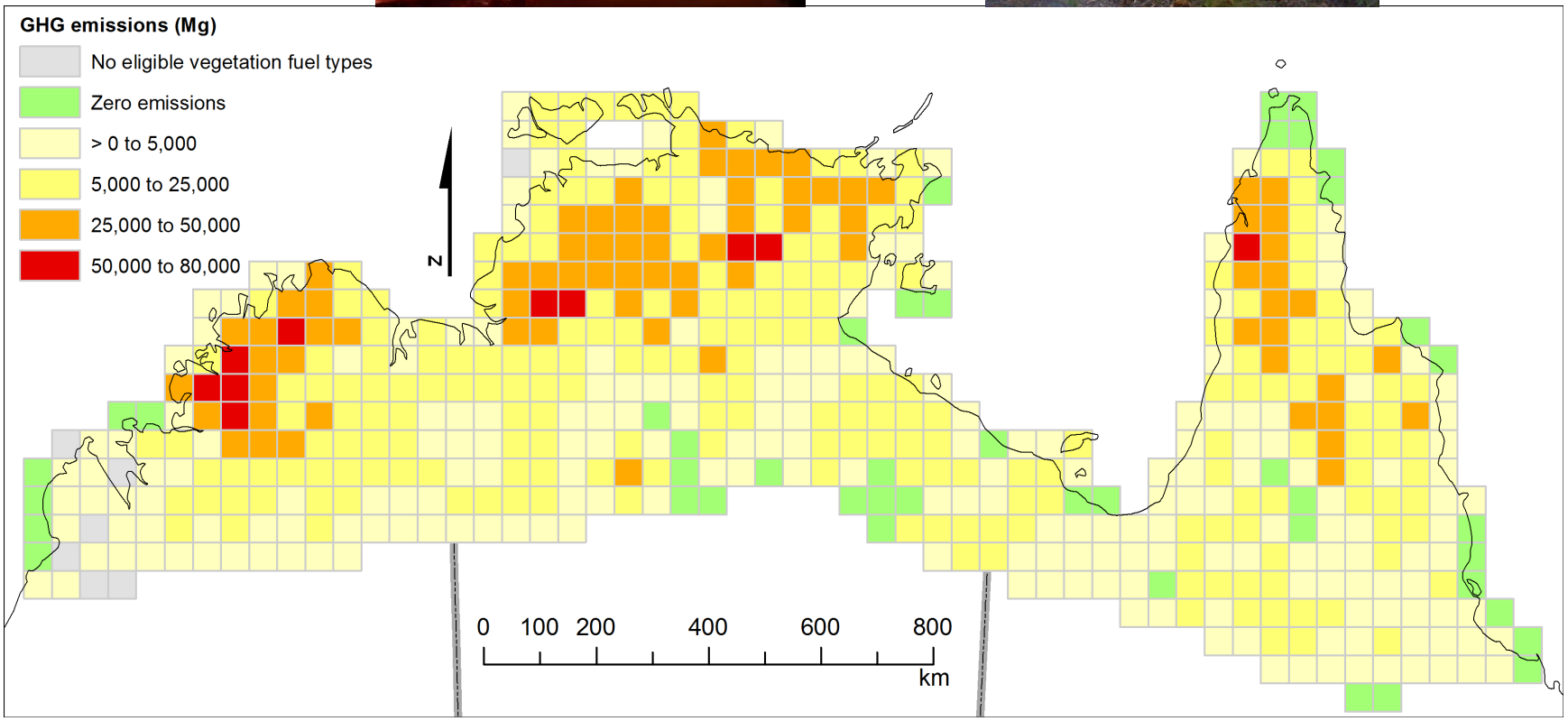


ES opportunities including community benefits from ~595,000km^2 high value conservation area — supporting Eco-tourism in northern Australia



Bushfires and Greenhouse gas emissions

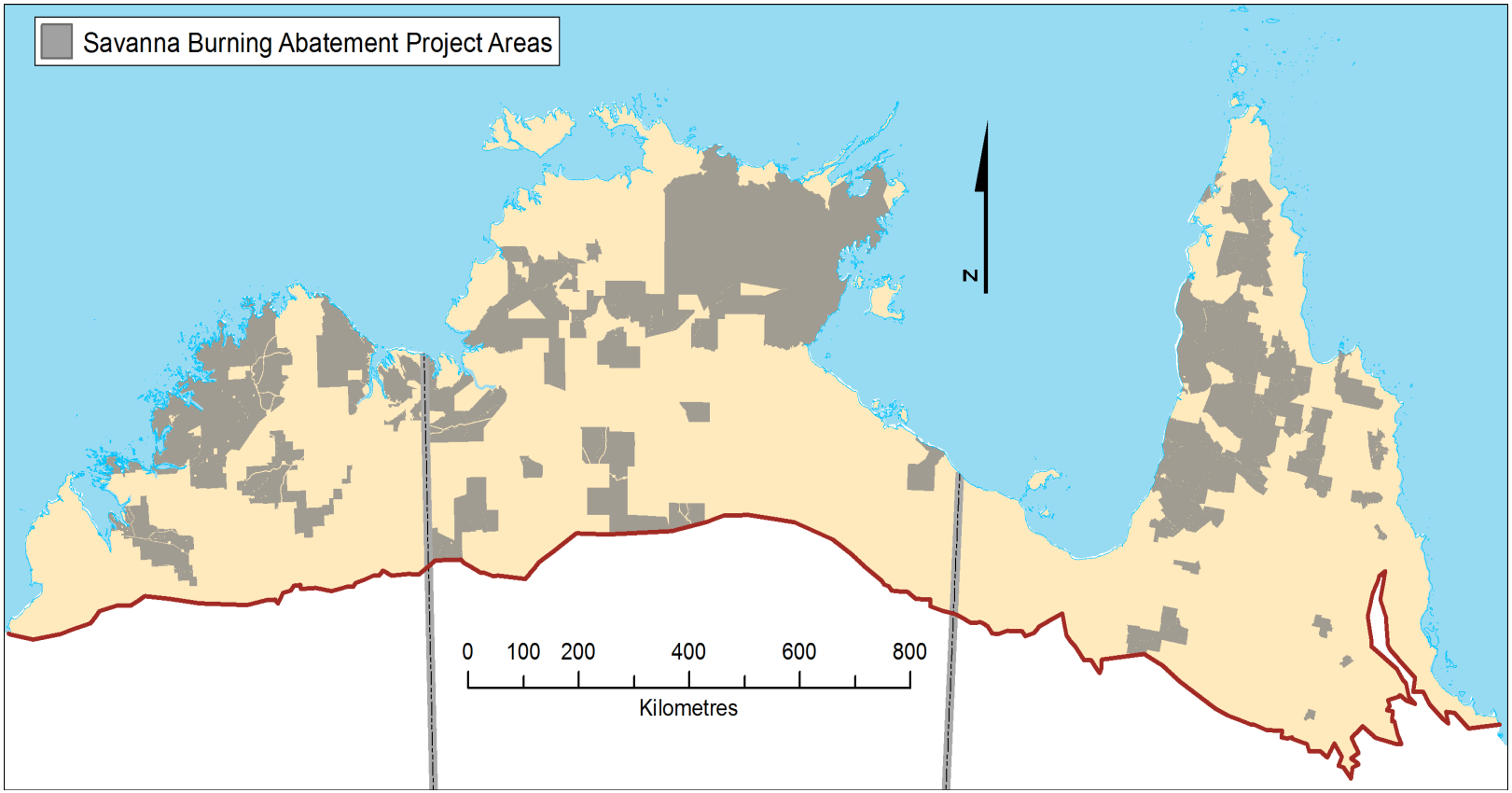
(2000-2009)



Carbon and ecosystem services economies

80 savanna burning GHG emissions abatement projects (as on 12 March, 2018), generating ~$40m

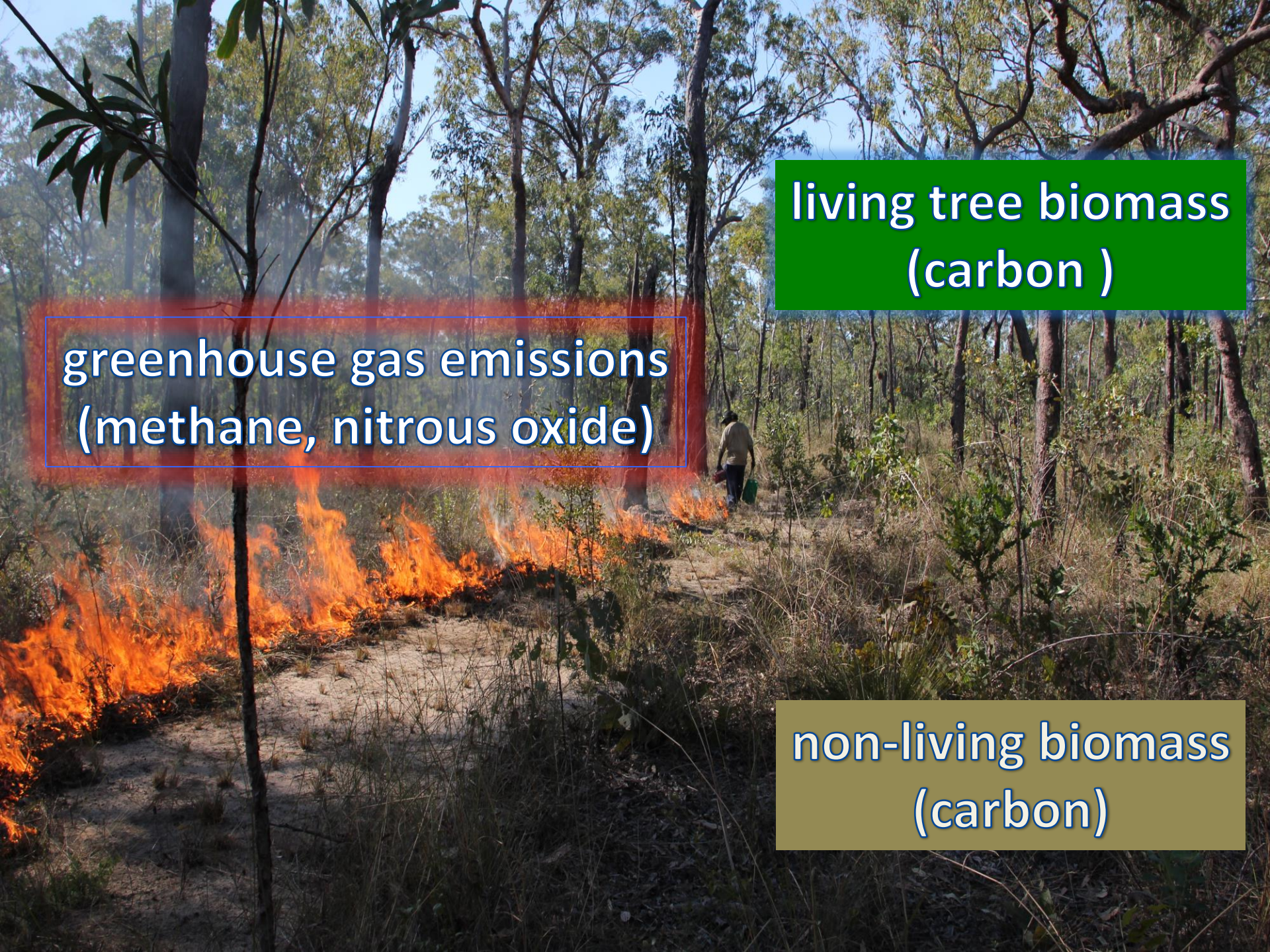
26 projects alone in the NT, abating >2m t GHG emissions (>$20m)



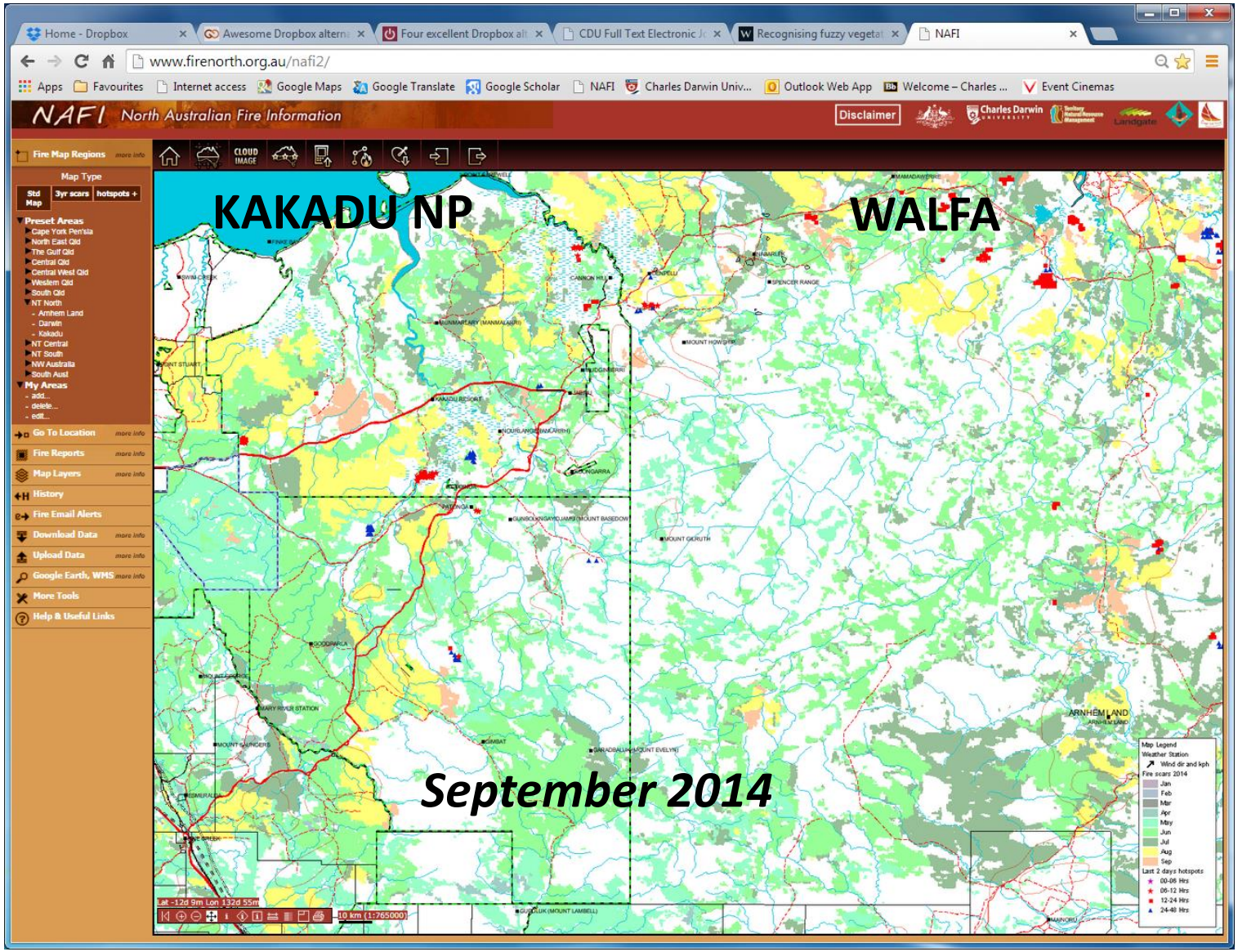
Diversification opportunities: Land-sector based Ecosystem Services/carbon economies

- Area of conservation estate 392,000km^2
- Public management costs ~$300m/yr
- <u>Carbon (emissions abatement)</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**

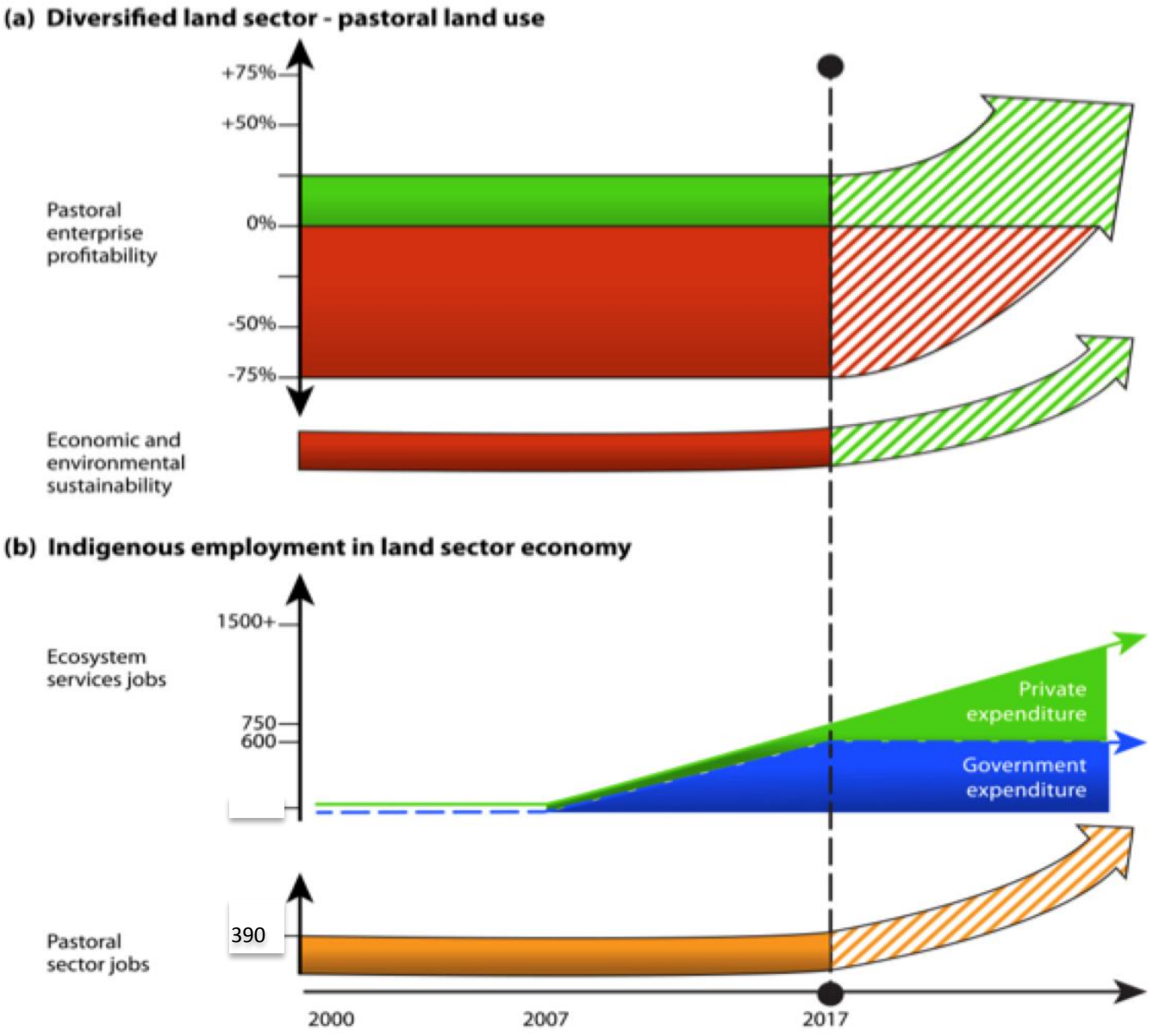
→ **+ <u>Ecosystem Services Economies</u>**


living tree biomass
(carbon)
greenhouse gas emissions
(methane, nitrous oxide)
non-living biomass
(carbon)

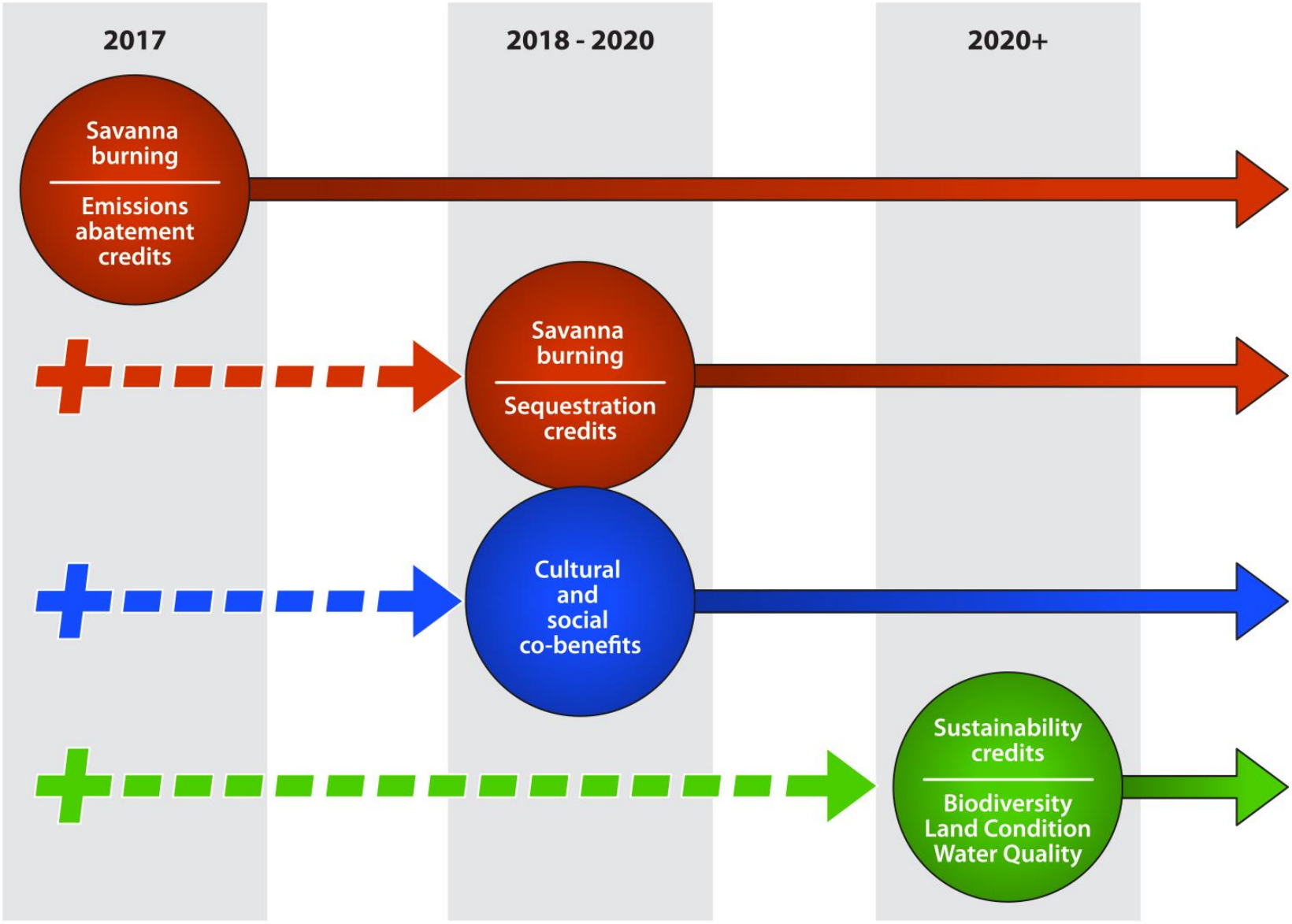
North Australia Fire Information website:
www.firenorth.org.au



Projected benefits of C and ES economies across northern Australia



Diversification of North Australia land sector - Marketable Credits



Potential C economy in the NT—
Below the 600 mm isohyet

“managing fire in spinifex and mulga landscapes”