



# Native mammal decline on Melville Island – a story of cats and buffalo

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# Tiwi Islands

- Unbroken occupation by Tiwi Traditional Owners

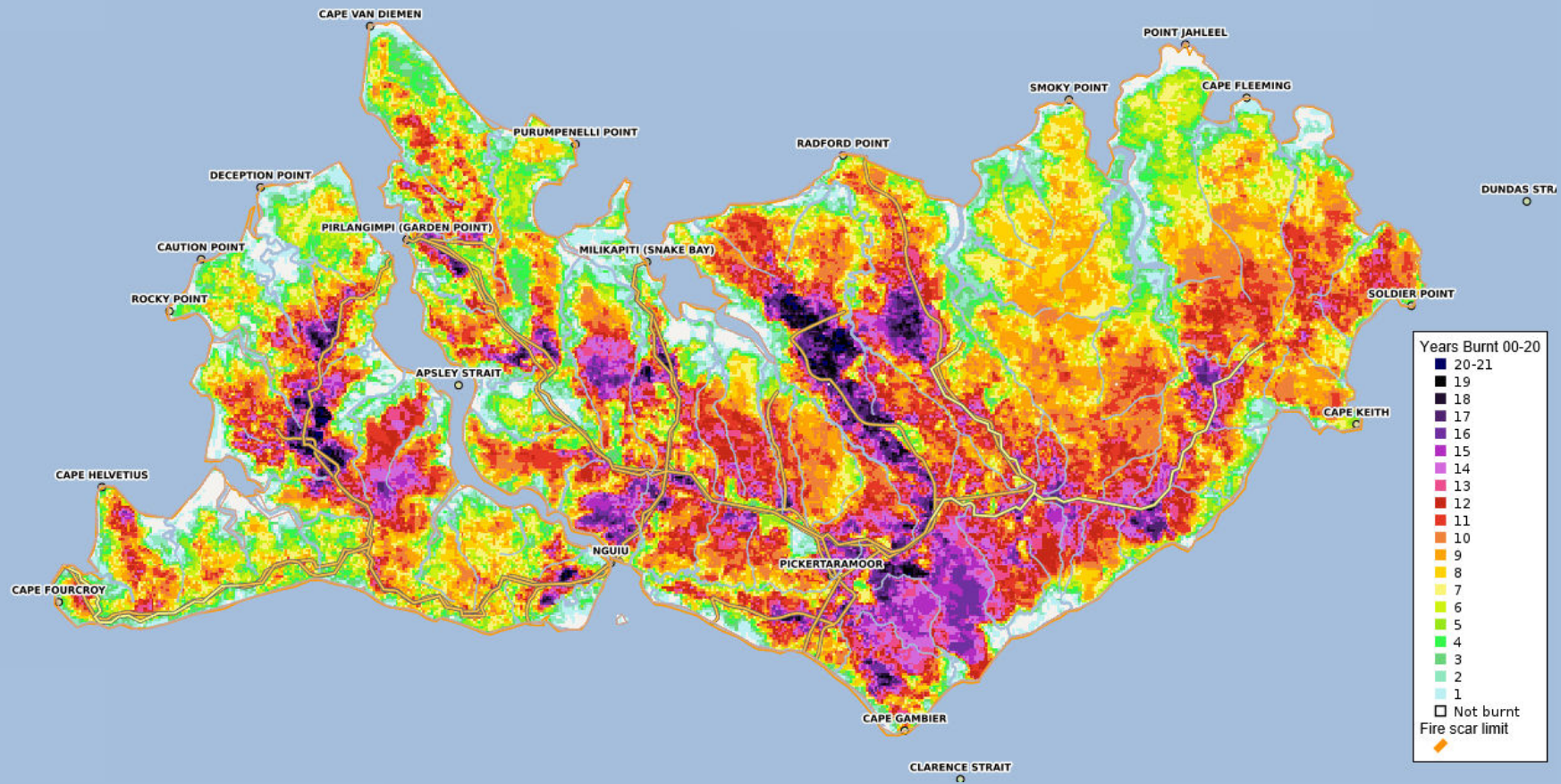


# Tiwi Islands - Environment

- **High rainfall**, but very large rainfall gradient (due to Hector) (1400 – 2000 mm)
- **Flat**, no rocky escarpment country = no rock adapted mammal fauna
- Dominated by open **savanna woodland and forests** and pockets of monsoon rainforest
- Very **high fire frequency**



# Tiwi Islands - Very high fire frequency



Kimirrakinari – ends in July

# Tiwi Islands - Biodiversity haven

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1200 plants

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17 frogs

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81 reptiles



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222 birds

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36 mammals

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200 endemic ant species

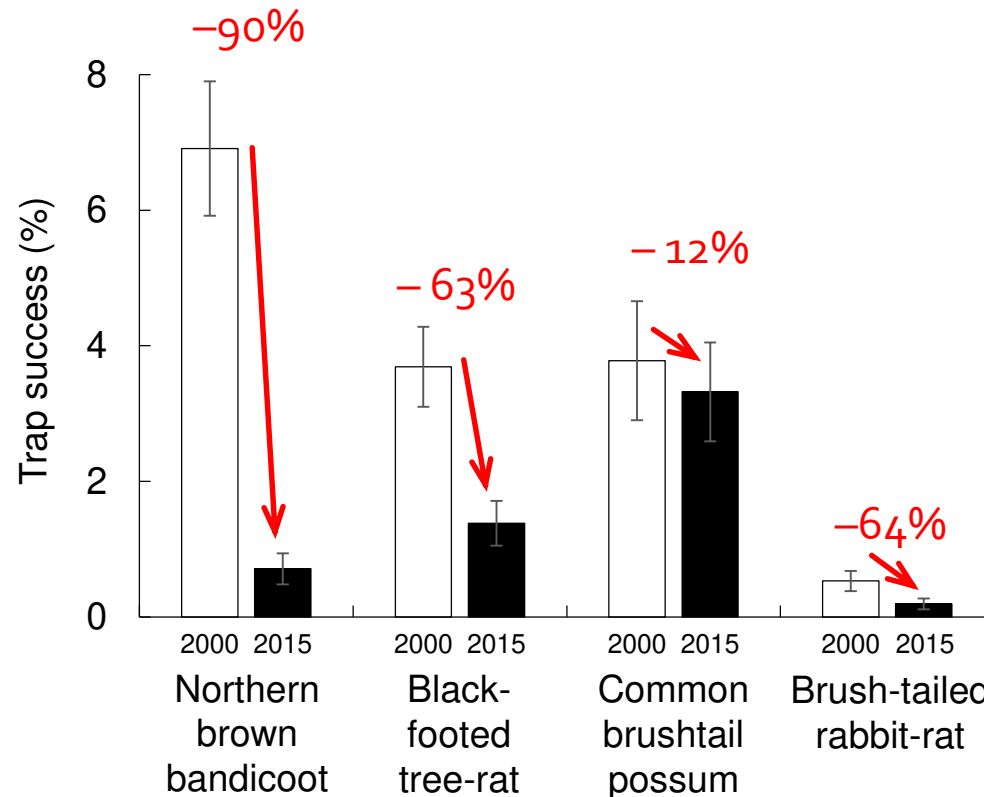


# Tiwi Islands – Threatened mammals

Species		EPBC listing	NT listing
Brush-tailed rabbit-rat	<i>Conilurus penicillatus</i>	Vulnerable	Endangered
Northern brush-tailed phascogale	<i>Phascogale pirata</i>	Vulnerable	Endangered
Butler’s dunnart	<i>Sminthopsis butleri</i>	Vulnerable	Vulnerable
False water-rat	<i>Xeromys myoides</i>	Vulnerable	Data deficient
Black-footed tree-rat (Melville Is.) Yintamunga	<i>Mesembriomys gouldii</i> <i>melvillensis</i>	Vulnerable	Vulnerable
Northern brushtail possum (listed 2021!) Wuninga	<i>Trichosurus vulpecula</i> <i>arnhemensis</i>	Vulnerable	Near threatened



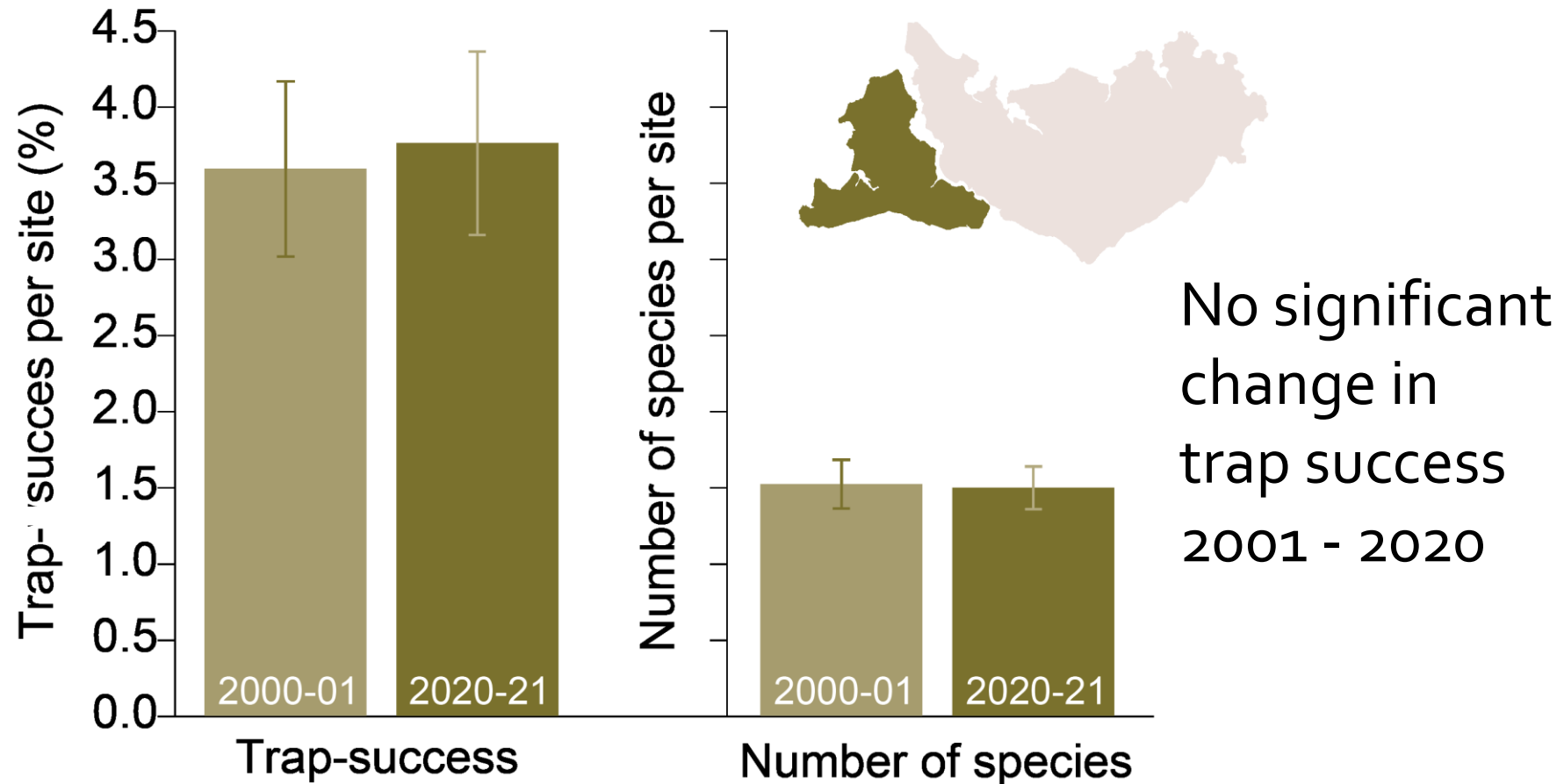
# Mammals are declining on Melville Island



62% reduction  
in trap-success  
2000–2015

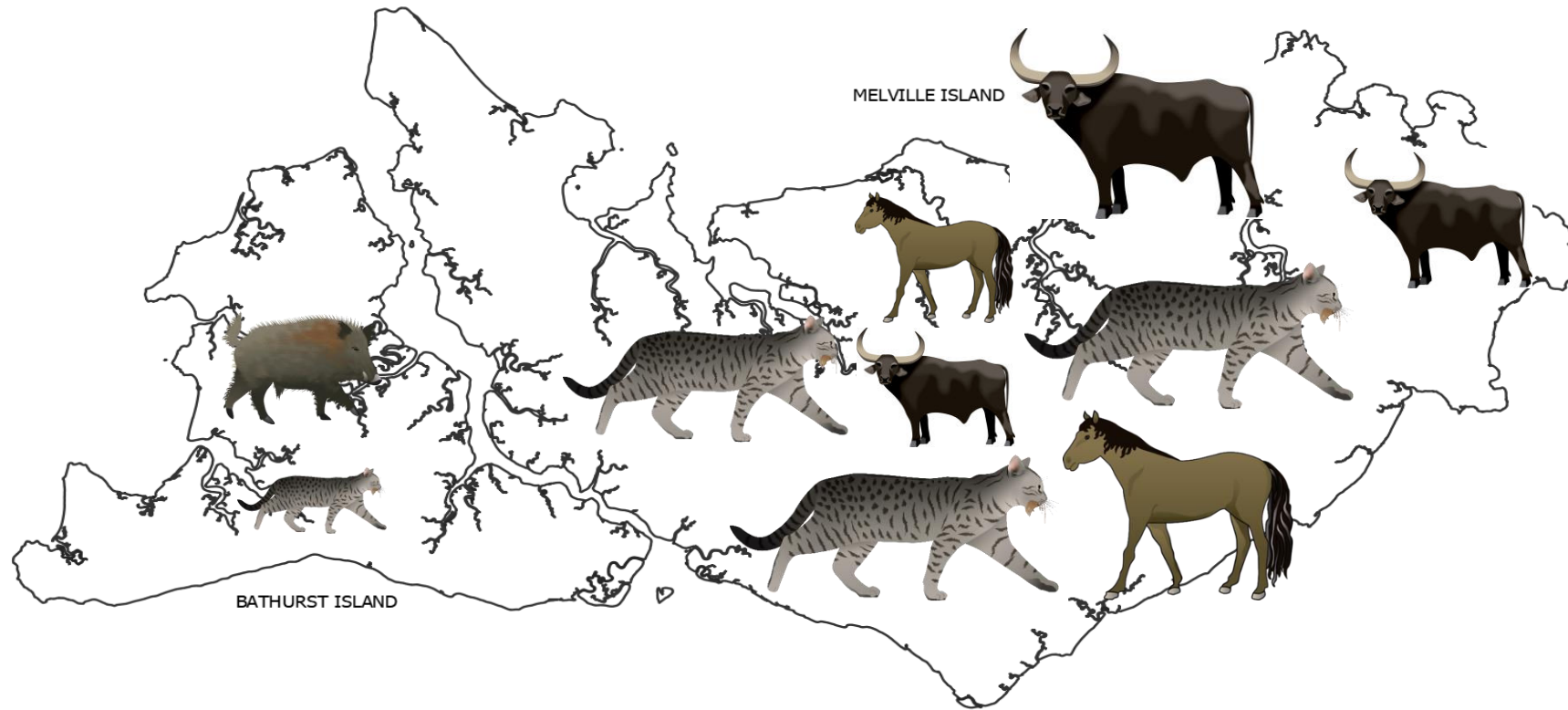


# Mammals appear stable on Bathurst Island

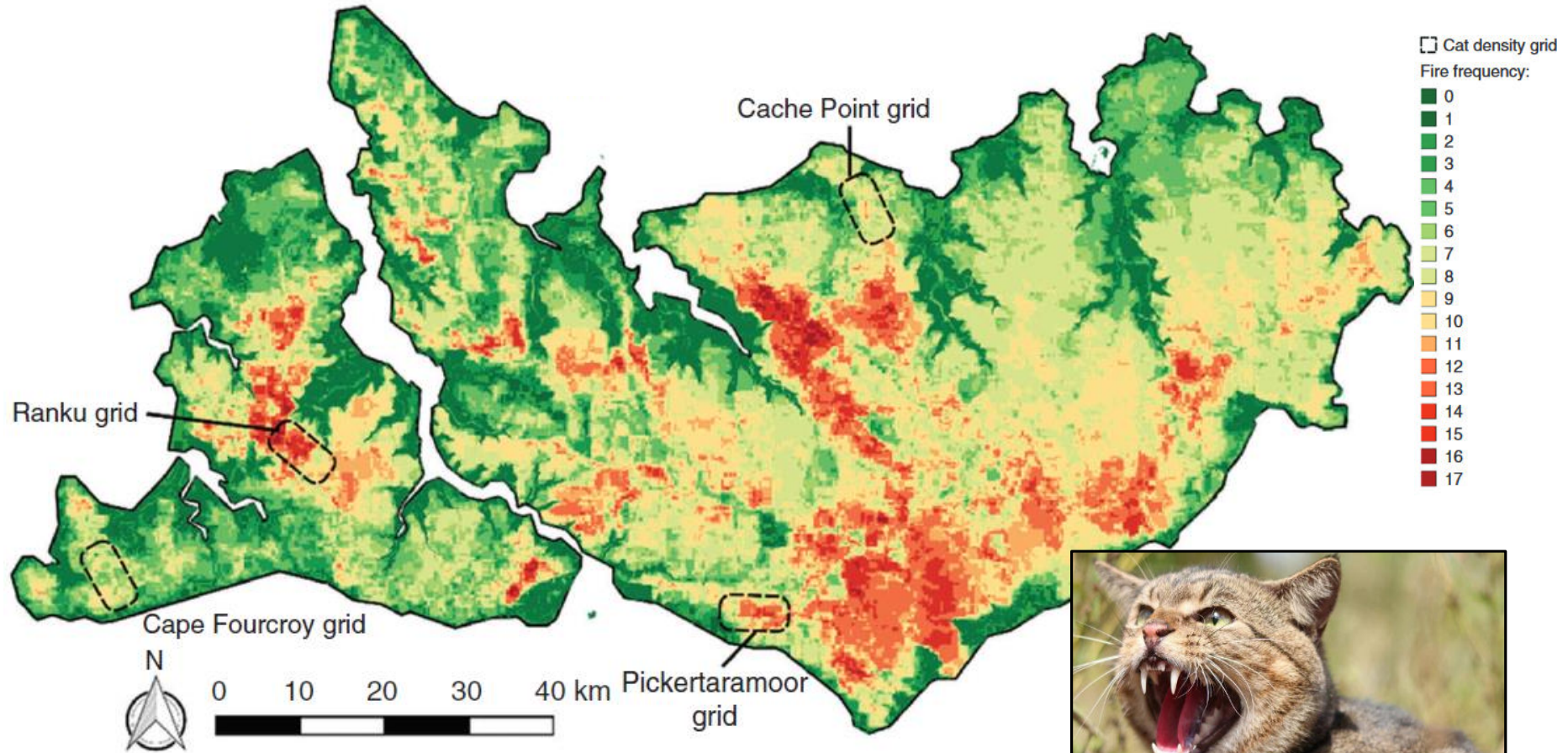
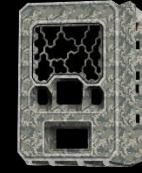




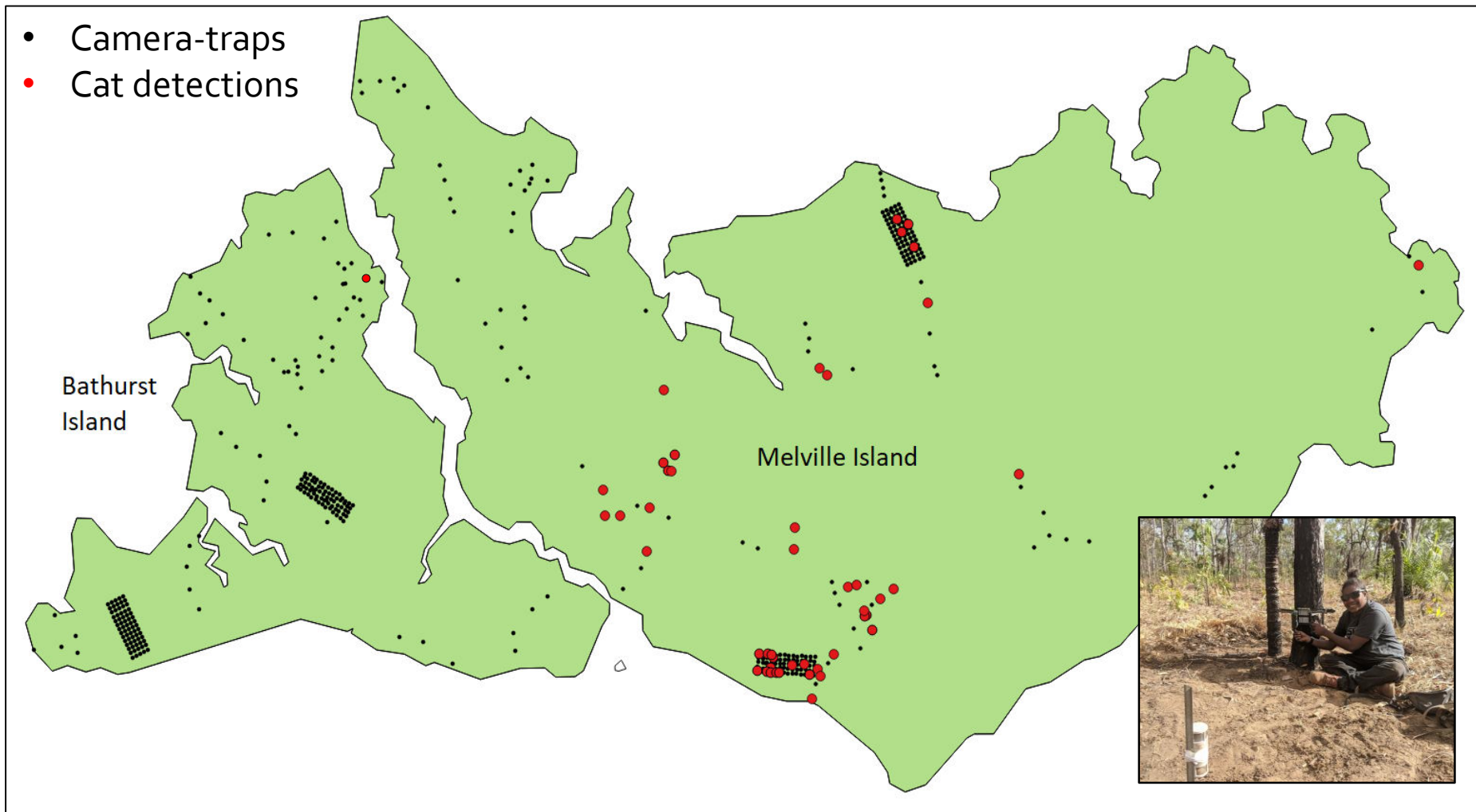
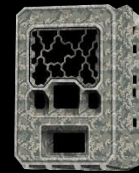
# Neighbouring islands differing levels of disturbance



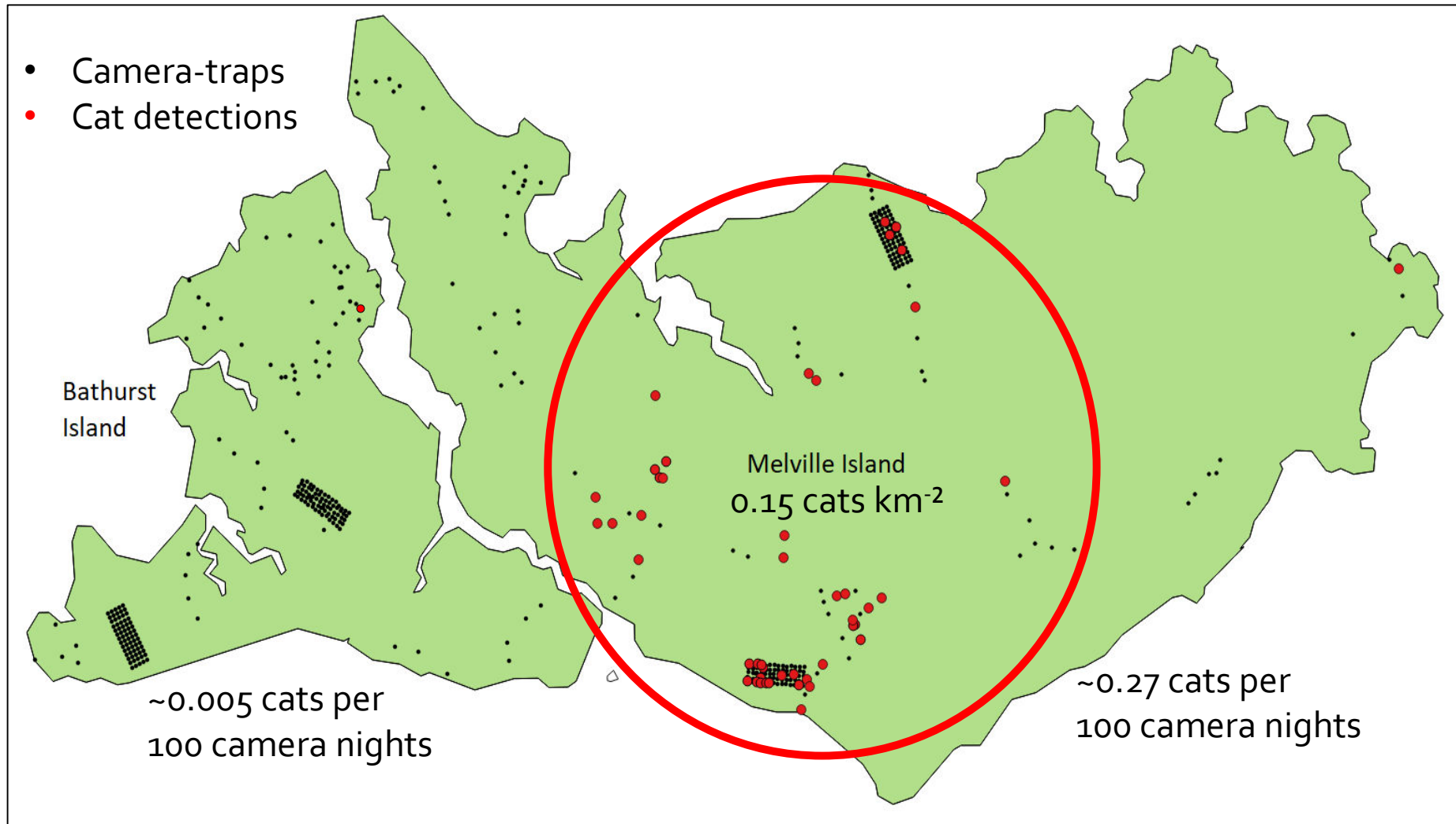
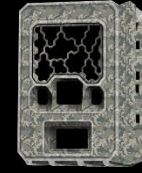
# Feral cat density grids on Tiwi



# Feral cat abundance on Tiwi

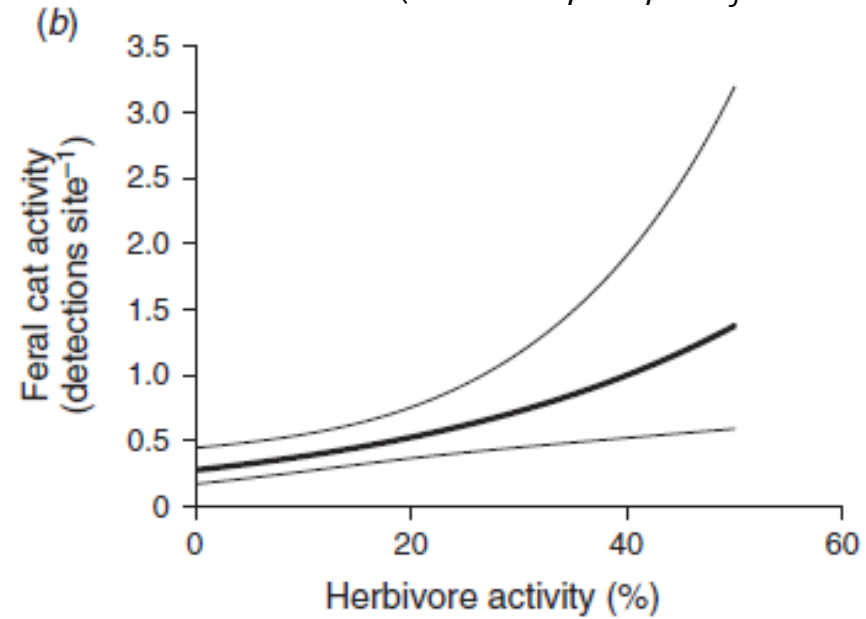
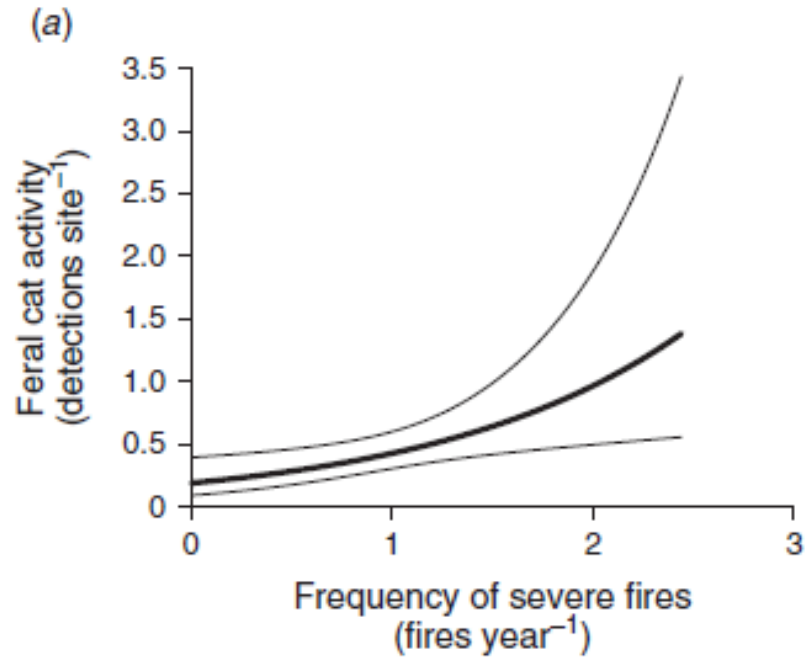


# Feral cat abundance on Tiwi



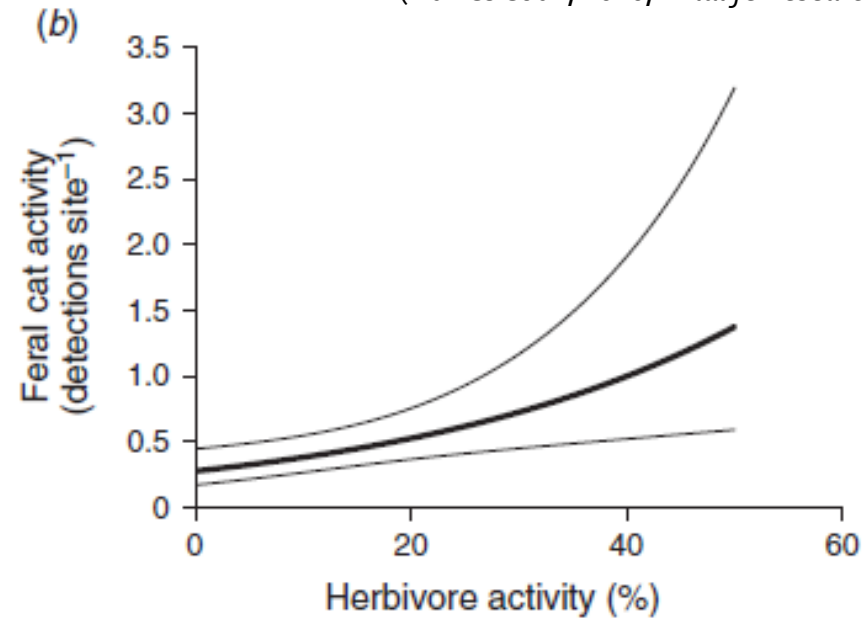
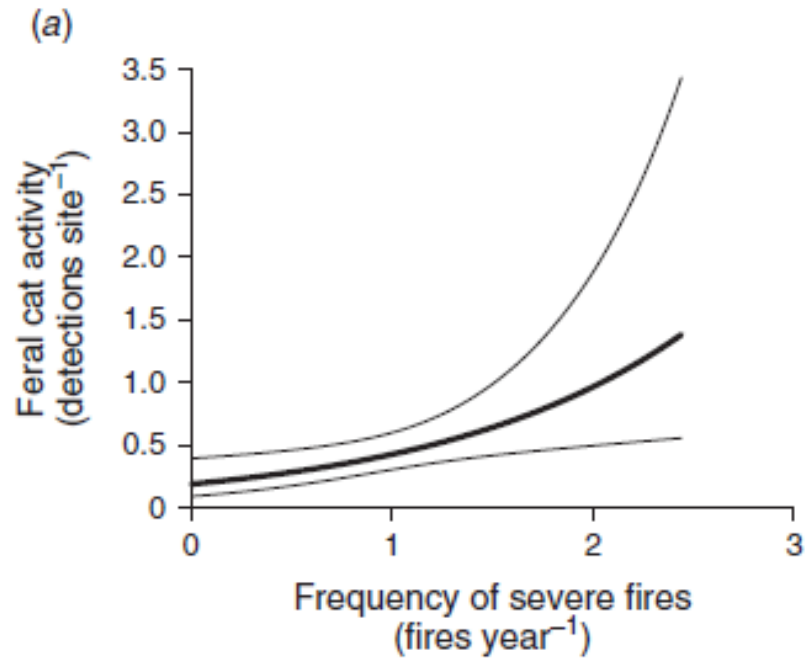
# What areas do feral cats like on Melville Island?

(Davies et al., 2020, *Wildlife Research*)



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Hot fires



Feral herbivores



Feral cats

# Understanding the cat/buffalo relationship

- Do buffalo facilitate feral cat movement?
- Game trails:



# Understanding the cat/buffalo relationship

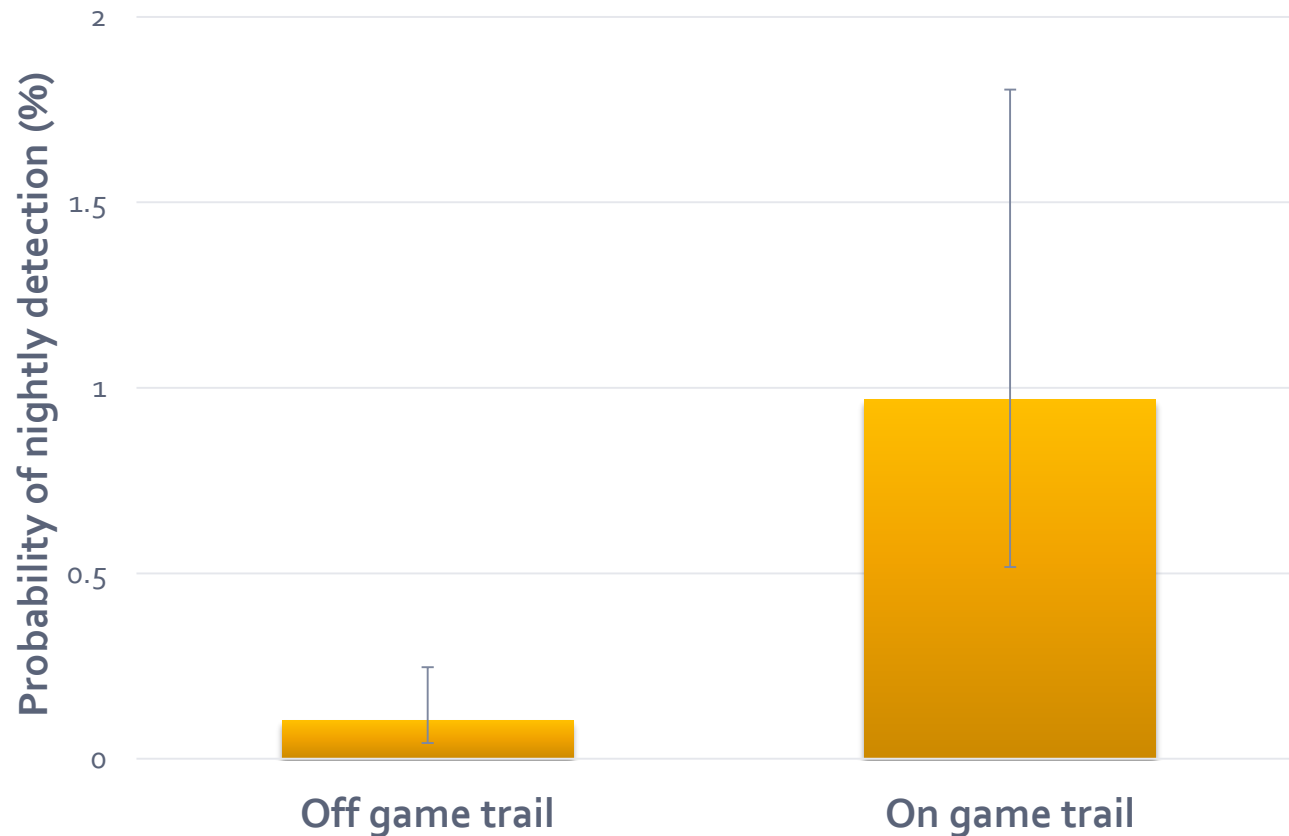
- Do feral cats preferentially use game trails?





# Understanding the cat/buffalo relationship

- Do feral cats preferentially use game trails?



# Conclusions

- Cat abundance higher in areas with lots of buffalo/horse
- Cats preferentially use game trails... why?
  - More effective hunting?
  - Avoiding dingoes?
  - Access prey refuge areas?
  - Cover large distances with less energy expenditure



# Implications

- Removing buffalo might disadvantage feral cats in savannas
- Game trails could be targeted for monitoring and/or management (Felixers)
- Does the absence of buffalo/horse on Bathurst Island explain why:
  - Cat abundance is low?
  - Mammals are stable?



# Thank you!



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