Efficacy of targeted cat control at Yampi Sound Training Area

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Australian Wildlife Conservancy

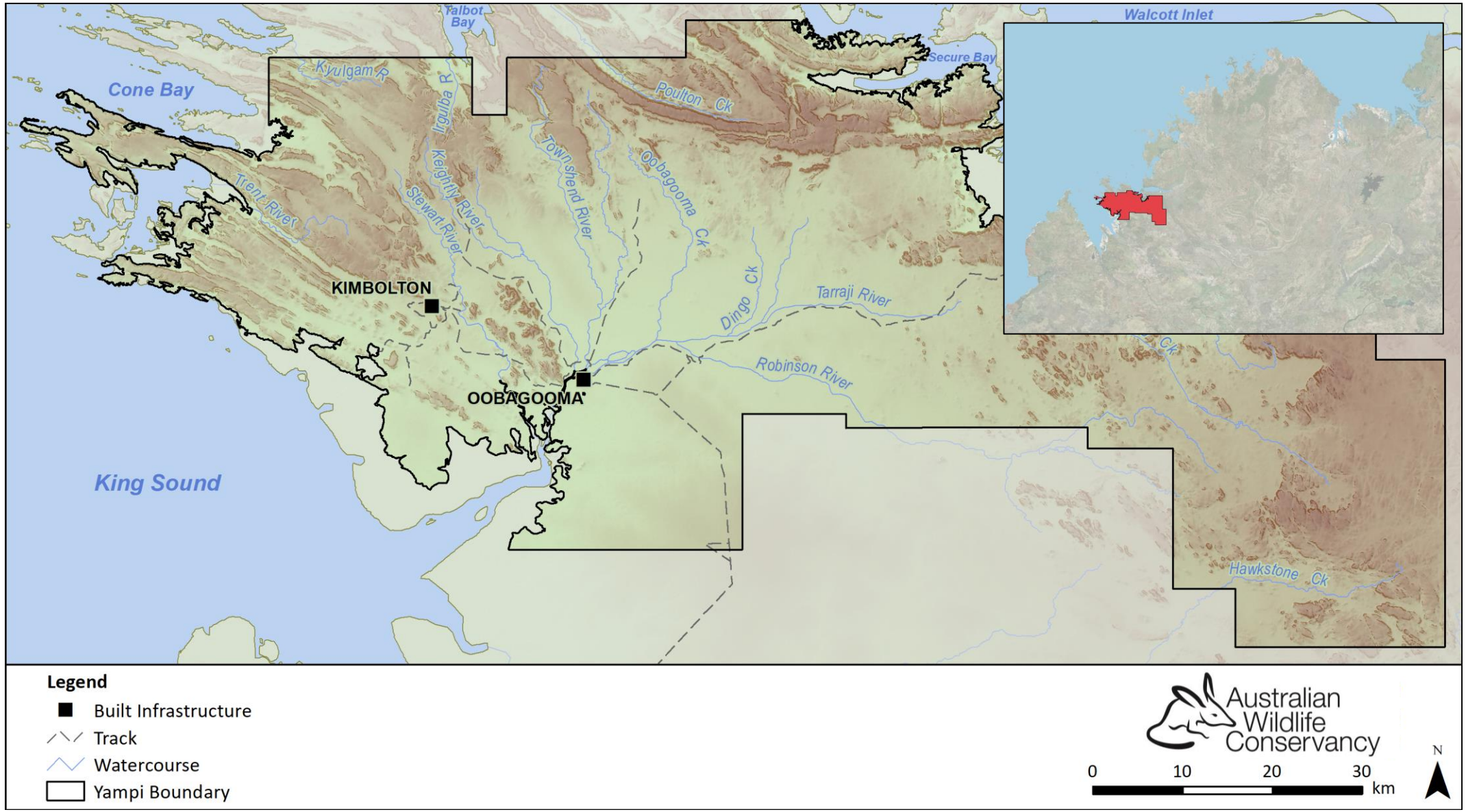
dambimangari

Aboriginal Corporation

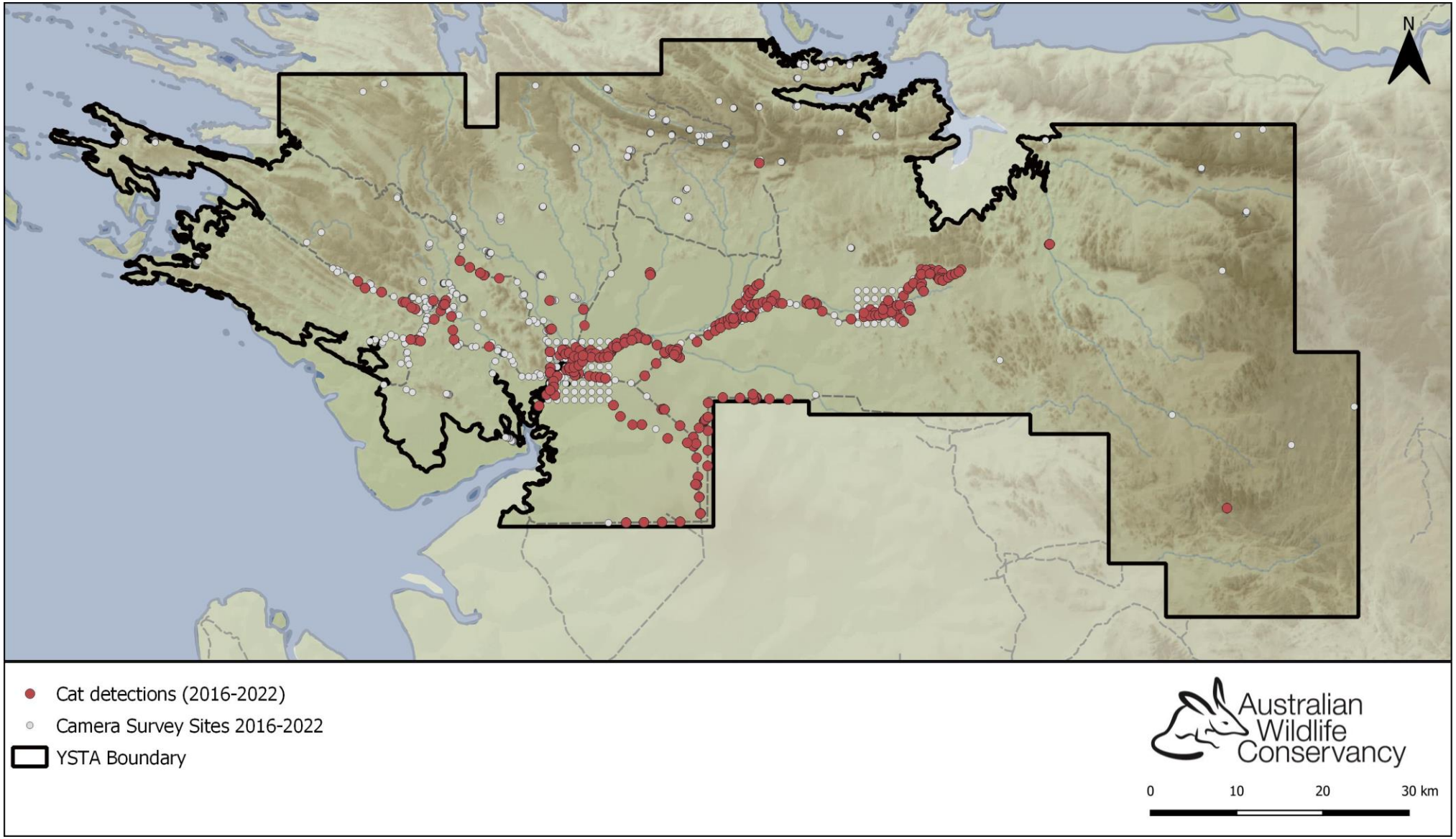
Australian Government

Department of Defence

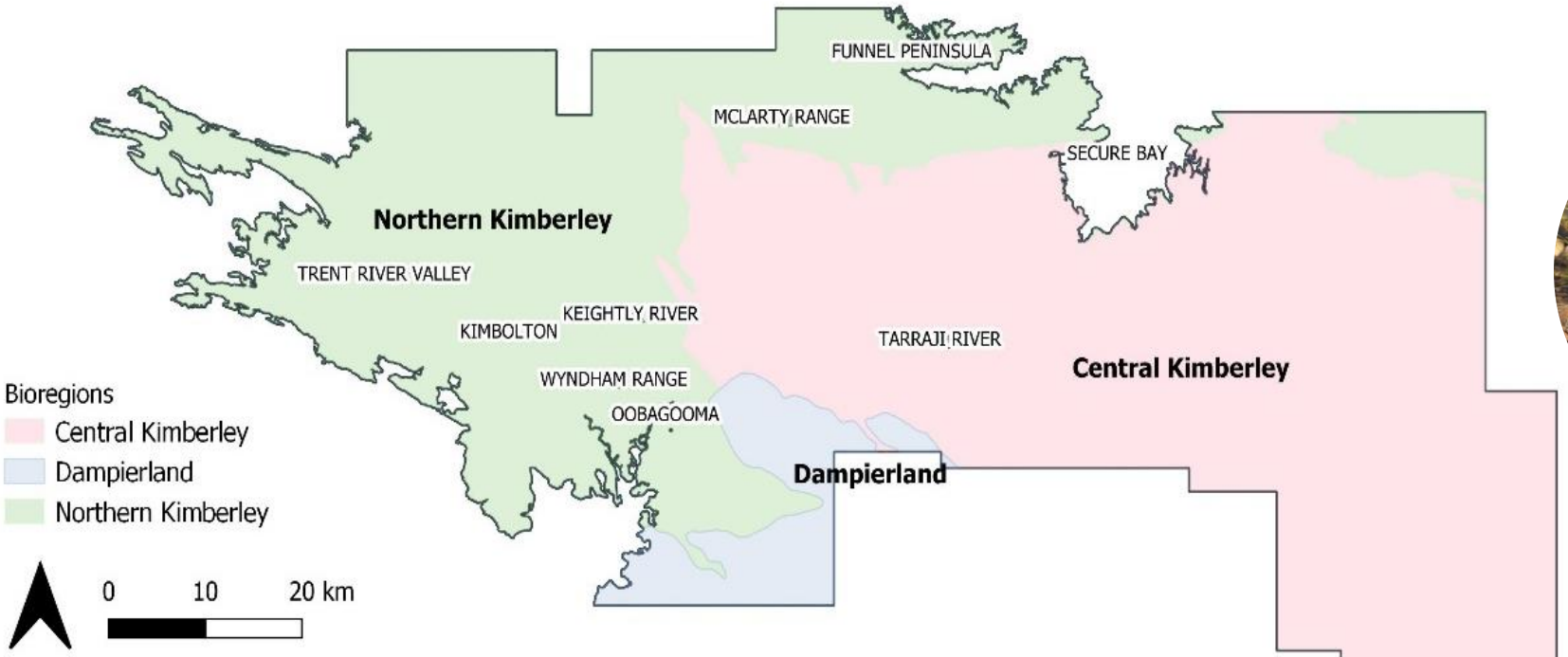
Yampi Sound Training Area – Location and Geology



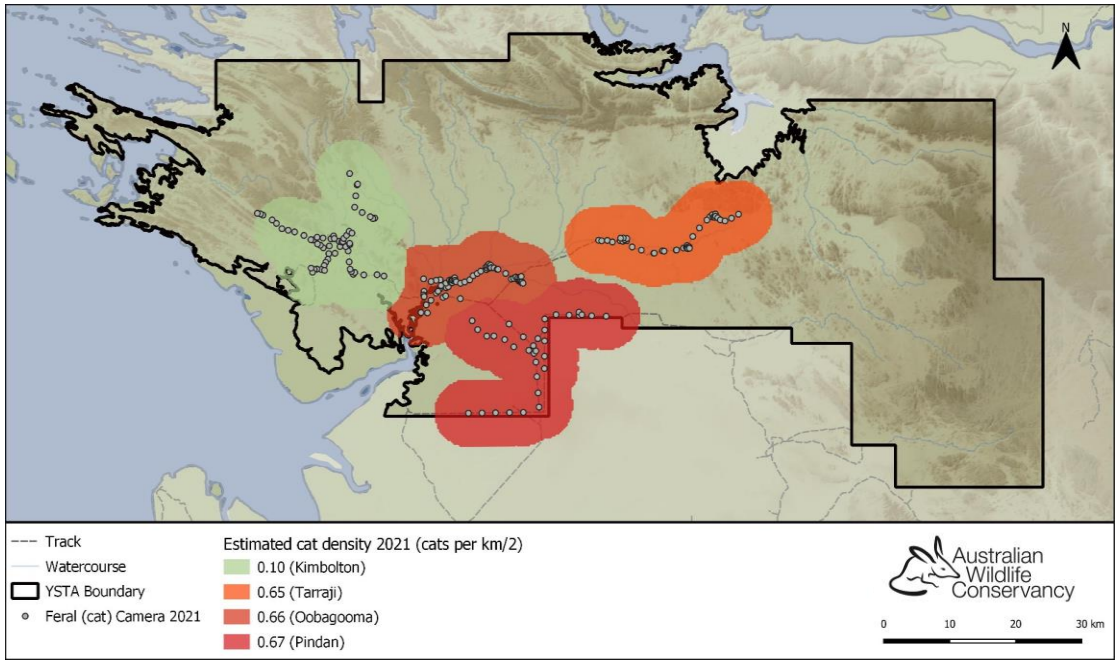
Yampi Sound Training Area – Location and Geology

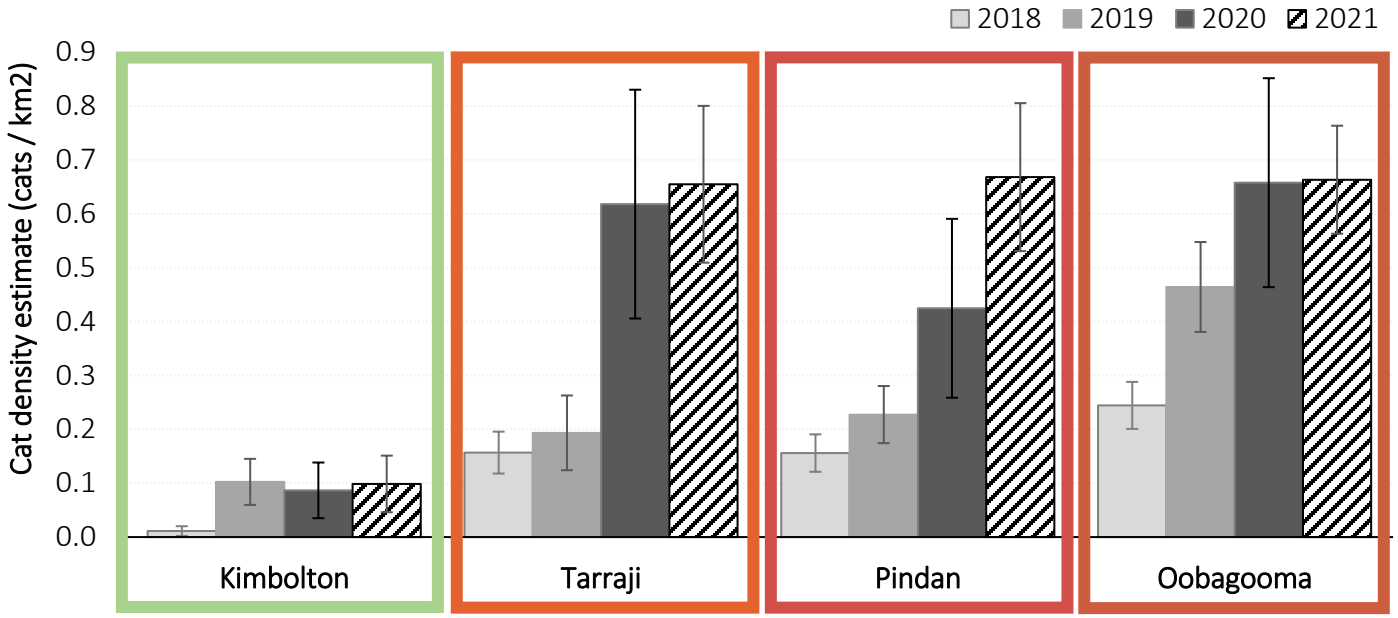


An area of exceptional biodiversity



Background – 2018 to present





Developing a targeted direct management approach

- Approach to date = **Indirect**
  - Persistence through **favourable fire regimes**
  - Reduced **feral herbivore density**

Adaptive management + DoD =
development of direct approach

Direct Management Approach – Aims

- Initial trial of direct cat management (shooting)

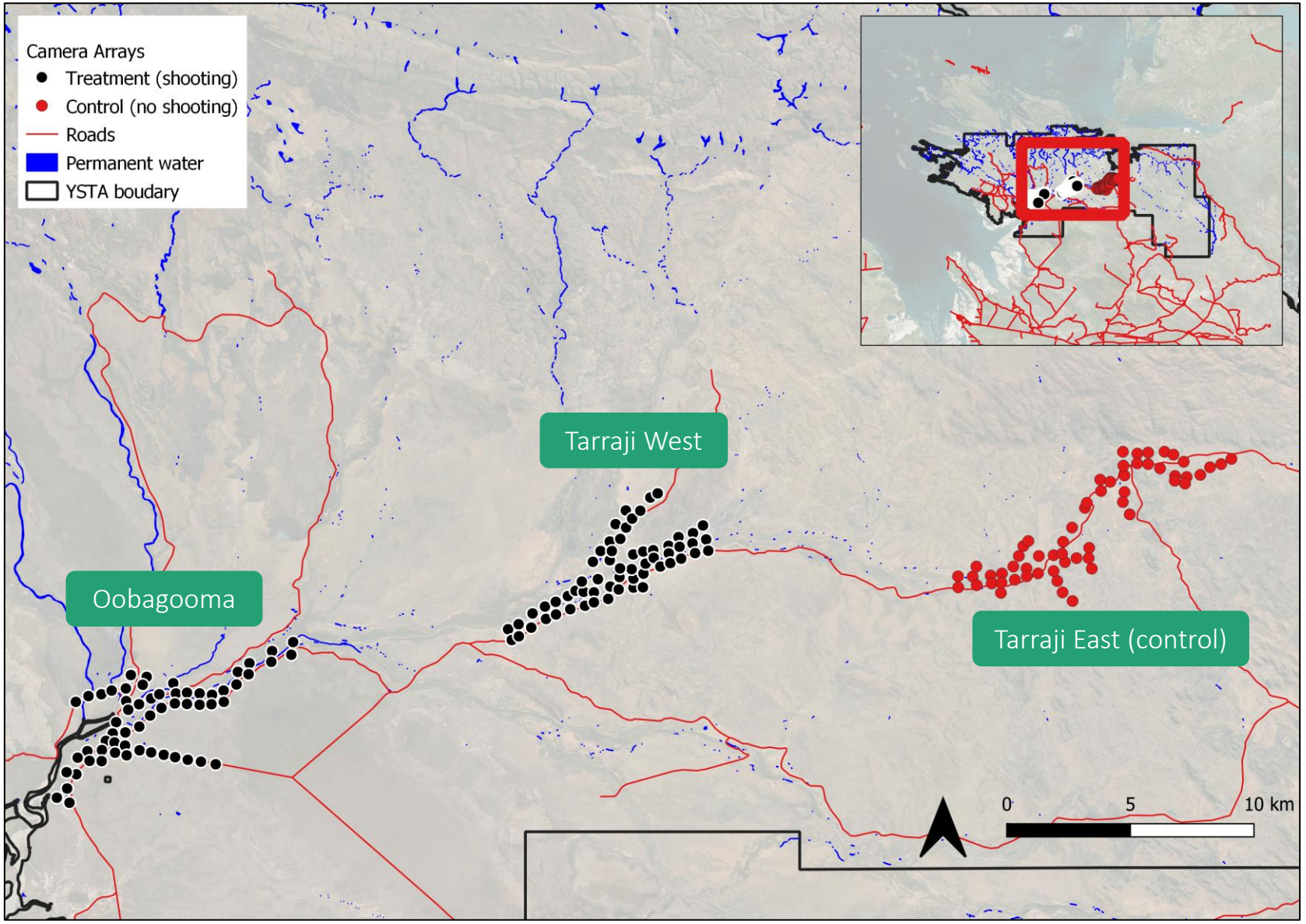
- Primary aim to determine:

  a) Cat **activity** before and after management

  b) Cat **density** before and after management

Survey Design

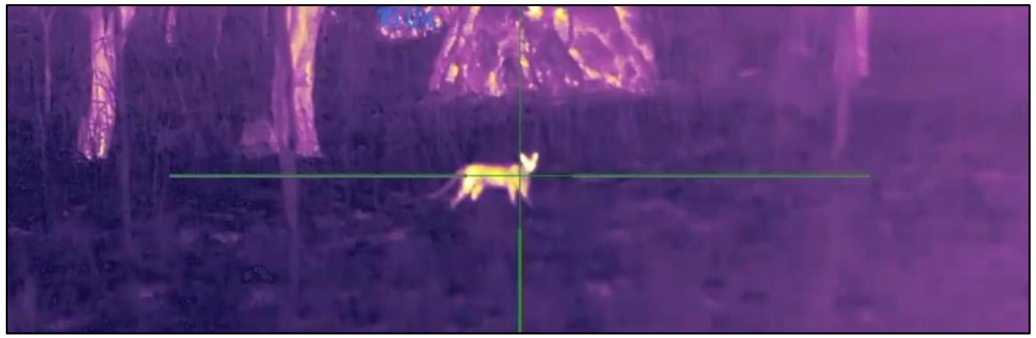
- 3 discreet camera arrays
  - 60 cameras per array
  - 10 km apart
  - Deployed for 12 nights pre and post shooting
- 11 nights of shooting
- Analyses
  - Cat ID – pattern recognition
  - GLMM for activity
  - SECR for density

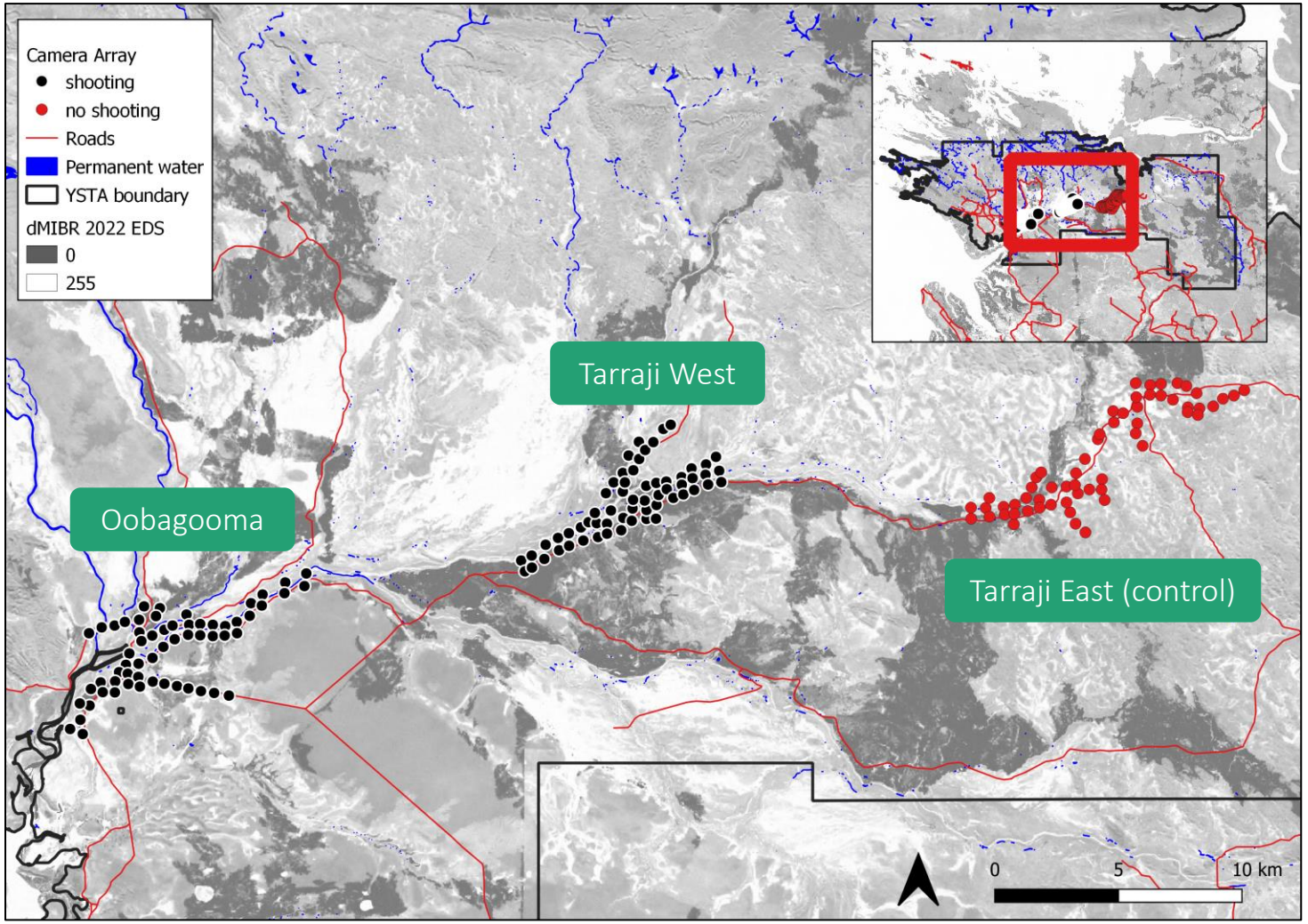


Operational Approach

- **Shooting** most appropriate

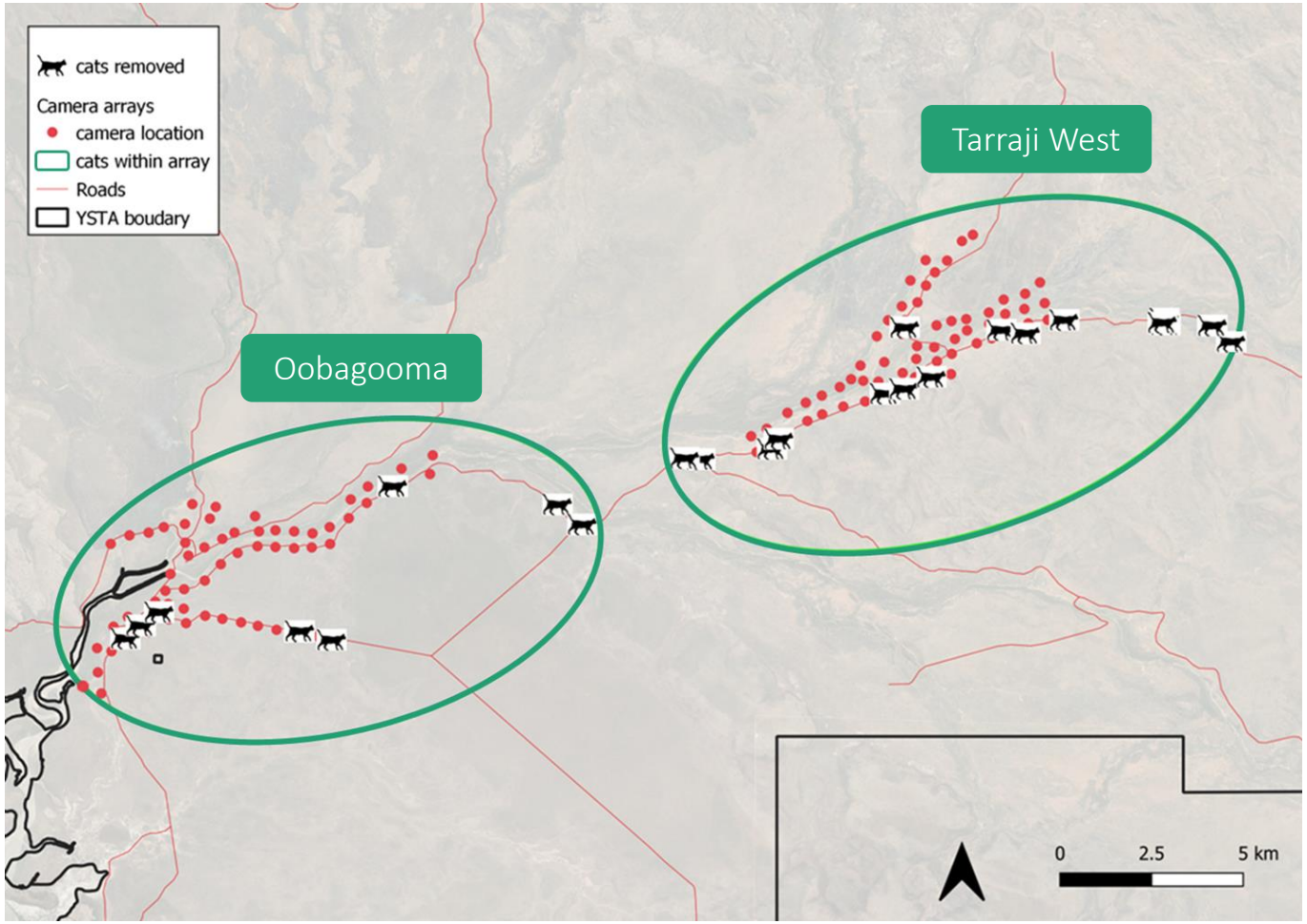
- Maximised **targeting:**
  - Fire scars
  - Lunar conditions
  - Water availability
  - Thermal technology
  - Linear features





Operational Approach – Outcomes

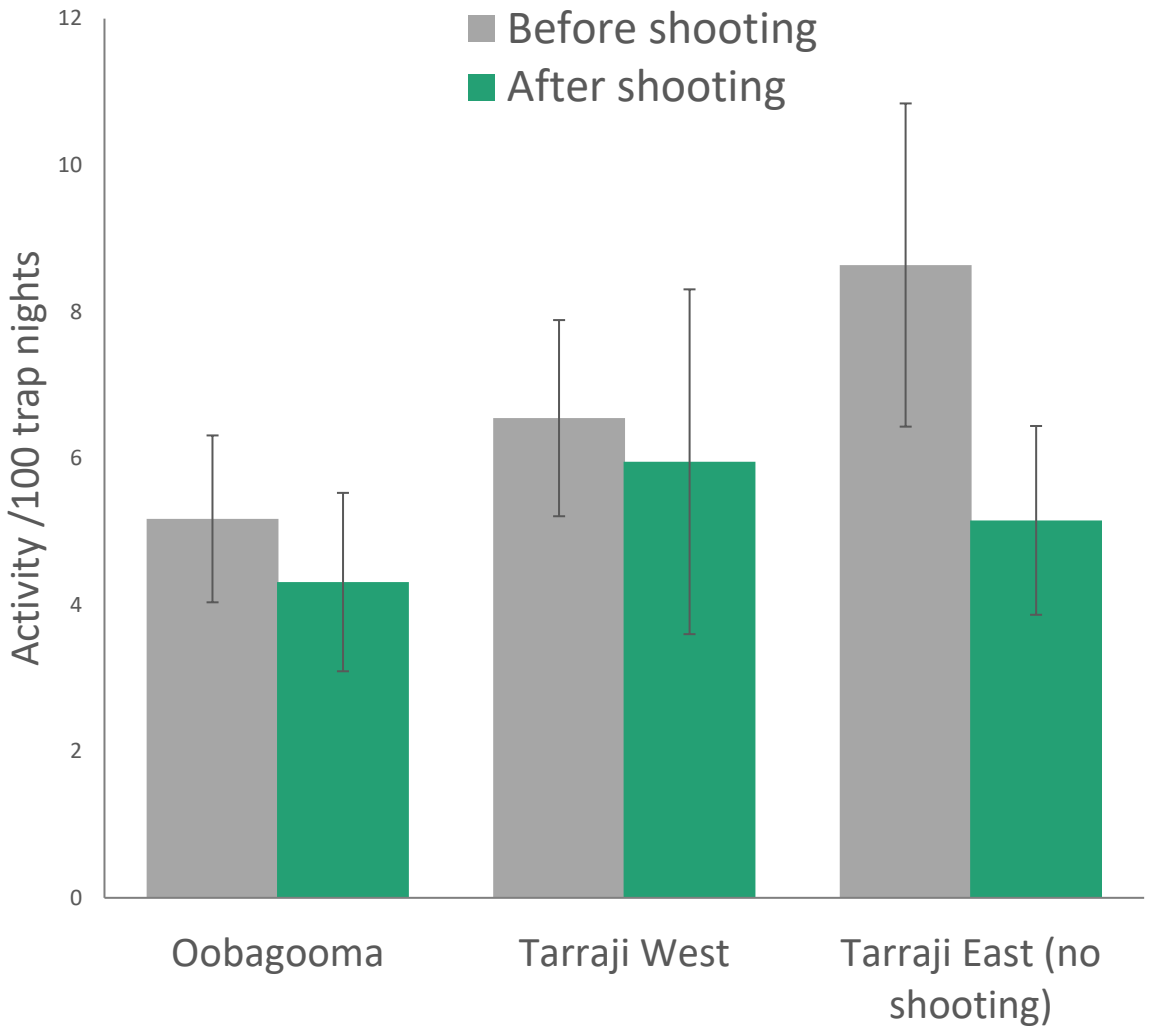
Effort (nights)	11
Effort (km)	1485
Total cats detected	27
Total cats removed	25
Cats removed (Oobagooma)	9
Cats removed (Tarraji West)	16



Results – Cat Activity

- Total cats detected across arrays = **79**
- **No significant effect of shooting** on activity (*P*=0.497)
- **Significant effect of time** on activity
- (*P*=0.023)
- **Allen's index:**

	Oobagooma	Tarraji West	Tarraji East
Before	0.05	0.07	0.09
After	0.04	0.06	0.05



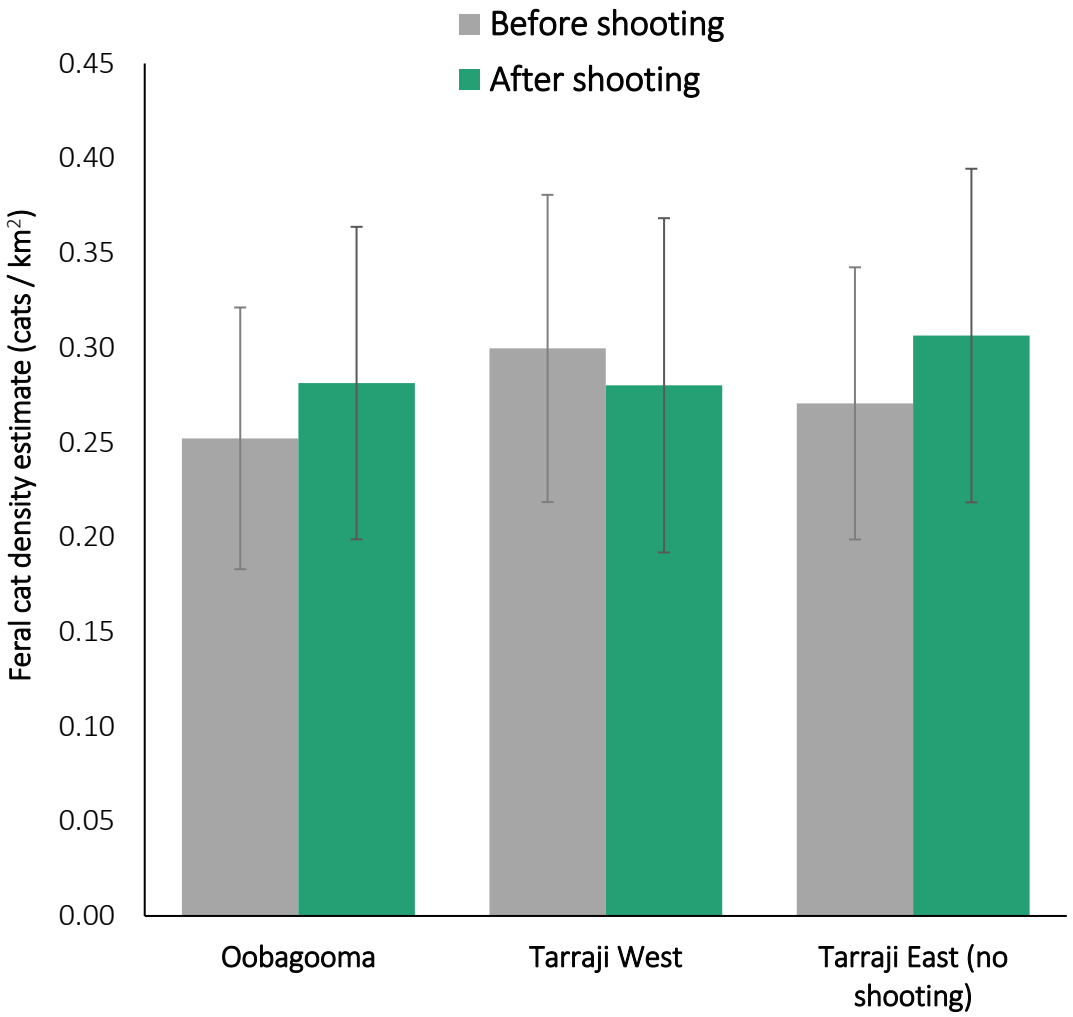
Model:

Activity ~ Treatment + Array + Treatment*Array + (random = Camera location)

Results – Cat Density

- **No reduction** in estimated density
- **Consistent** density across arrays

	Number of cats		Density (cats/km^2) ± SE	
Array (site)	Before shoot	After shoot	Before shoot	After shoot
Oobagooma	17	14	0.25 ± 0.07	0.28 ± 0.08
Tarraji West	18	12	0.30 ± 0.08	0.28 ± 0.09
Tarraji East	19	15	0.27 ± 0.07	0.31 ± 0.09
Total	54	41		



Results – Cat Density

- Cats **moving less** after shooting

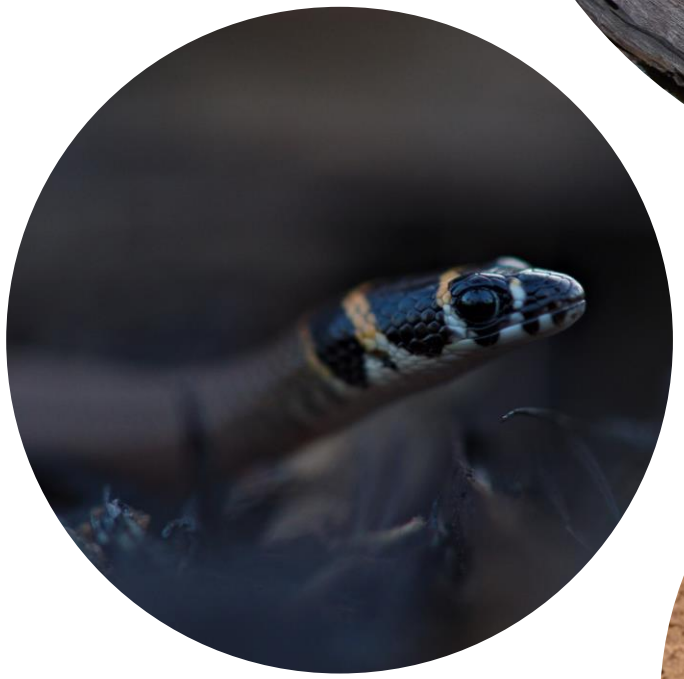
	Before Shooting	After Shooting
No. Individuals with re-detections	24	18
Average observed range length (m)	665	587
Mean distance between consecutive captures (m)	1050	740
Home range size (sigma)	1090	874
Detection probability (g0)	0.018	0.025

Discussion

- Density & activity – not **affected** or not **detected**?
- Limitations to model & data
- Rainfall?
- Limitations to shooting
- High cat numbers & detection difficulty
- Where to from here?

Implications for future management

- Effort
- Integration
- Direction & targeting
- Other benefits



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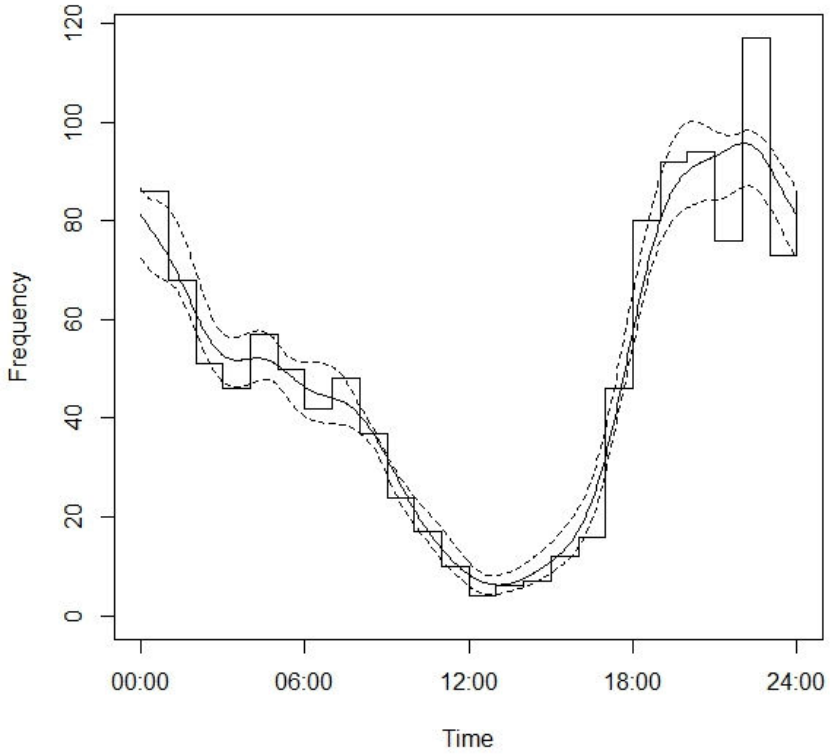
Additional Information

A)



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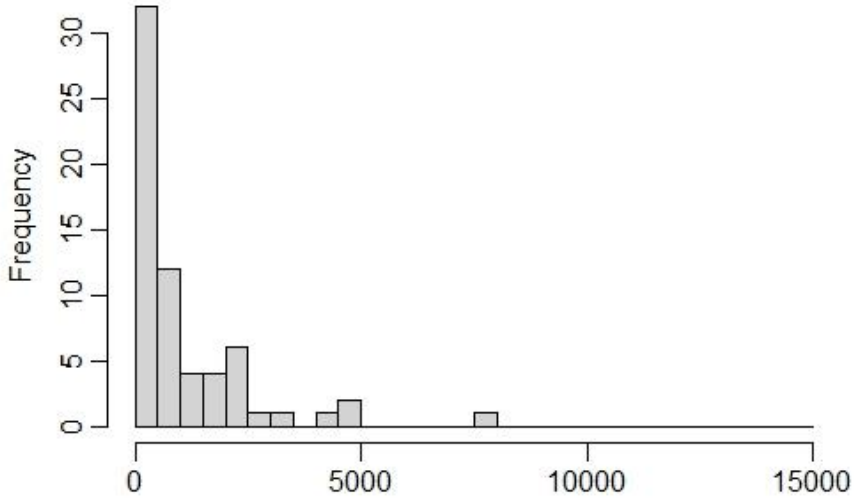

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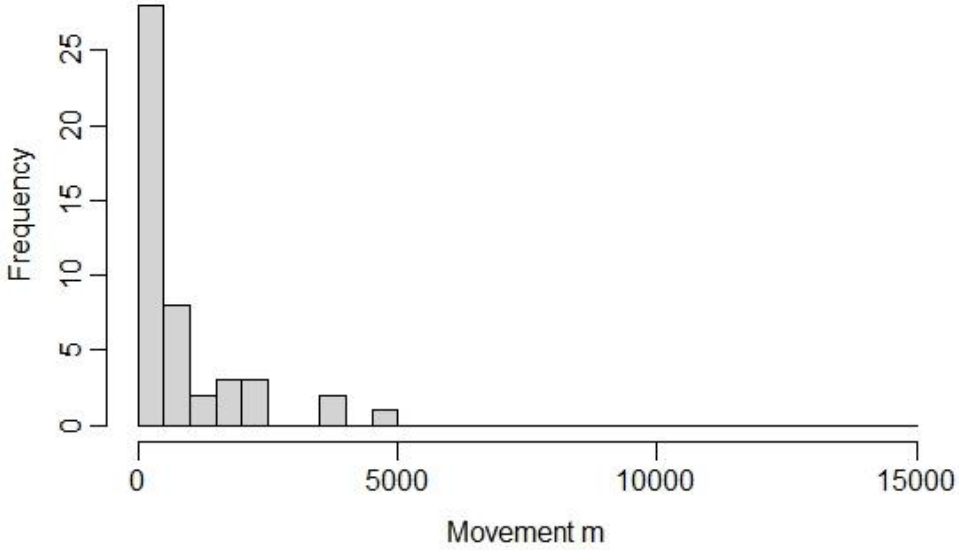
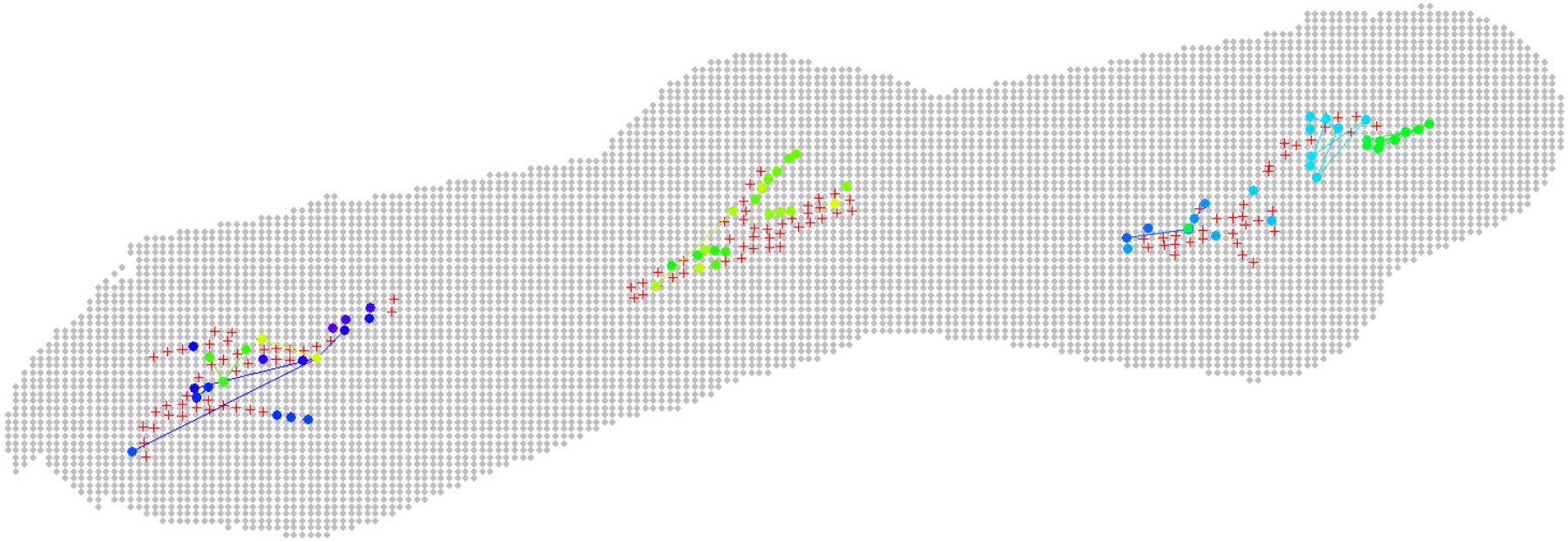


Results – Cat Density

Before shooting



After shooting