

A day in the life of.....



Arid Recovery



UNSW
A U S T R A L I A

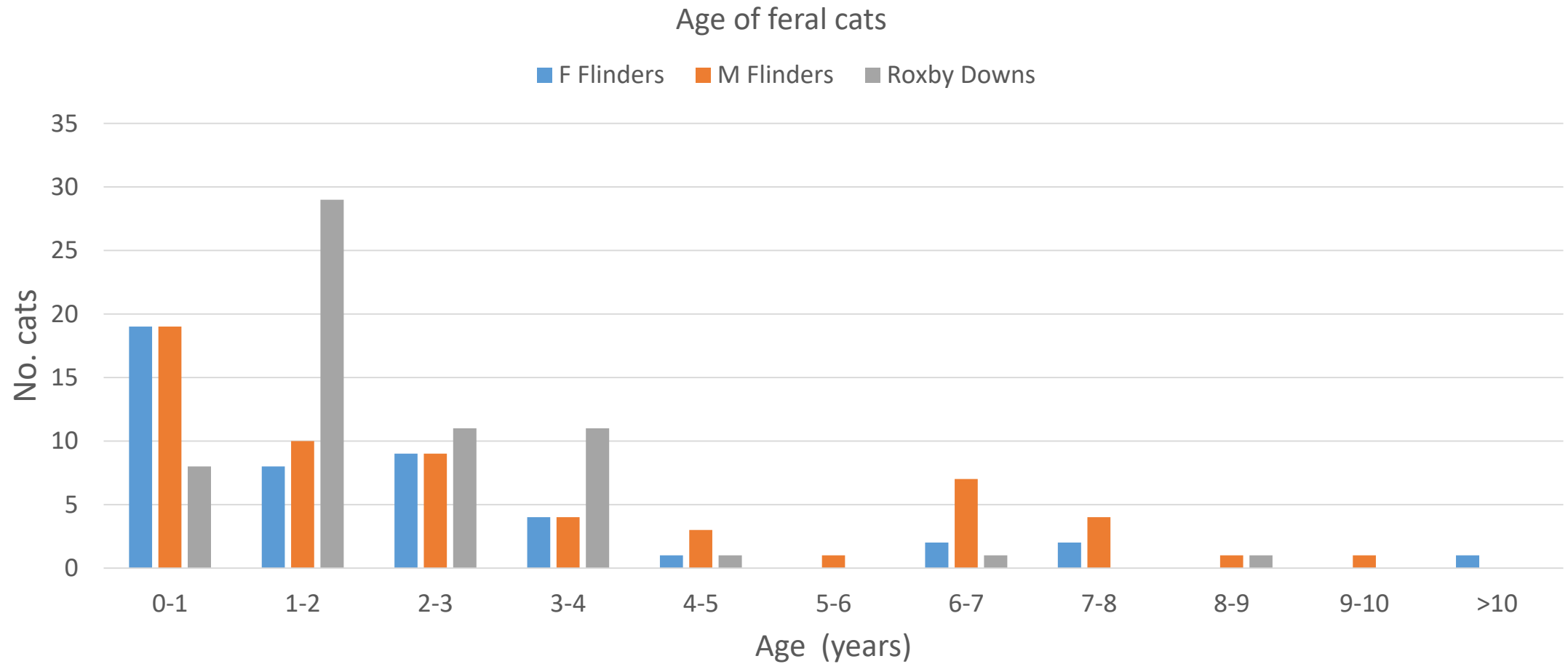
Katherine Moseby

Acknowledgments: Hugh McGregor, John Read, Ned Ryan-Schofield, Mel Jensen, Pat Hodgins, Tali Moyle, Dave Peacock, Anton Blencoe, Kyle Brewer, Todd McWhorter, Jack Tatler, Cat Lynch, Hannah Bannister.

Arid and Semi-arid areas



Life is tough for feral cats in arid Australia

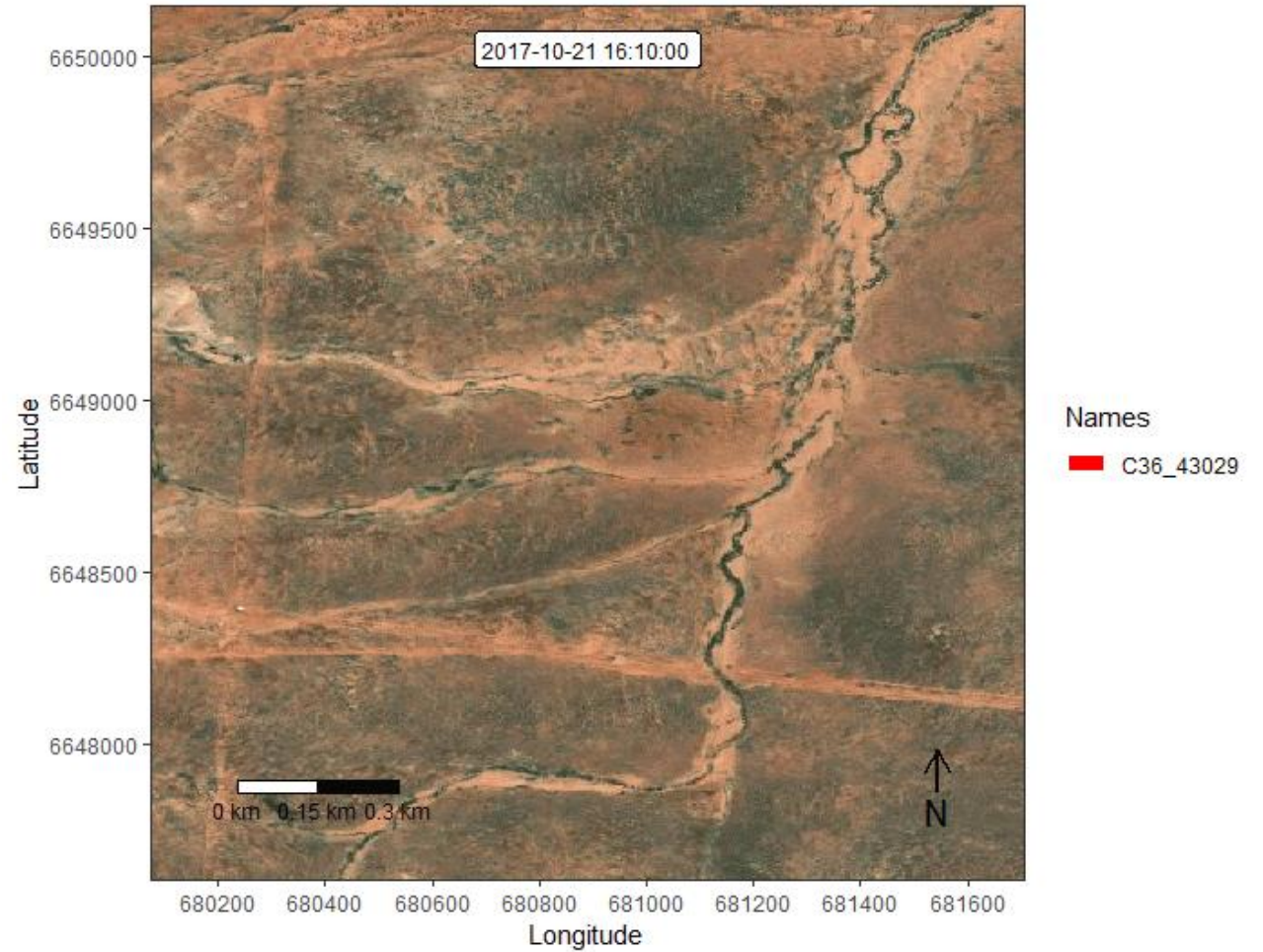


GPS collars with 5 minute fixes Video collars



Moseby KE; McGregor HM, 2022, 'Feral cats use fine scale prey cues and microhabitat patches of dense vegetation when hunting prey in arid Australia', *Global Ecology and Conservation*, vol. 35, <http://dx.doi.org/10.1016/j.gecco.2022.e02093>

Moved 7 km per night
Active 23% of the night



Most stops were less than 60 minutes

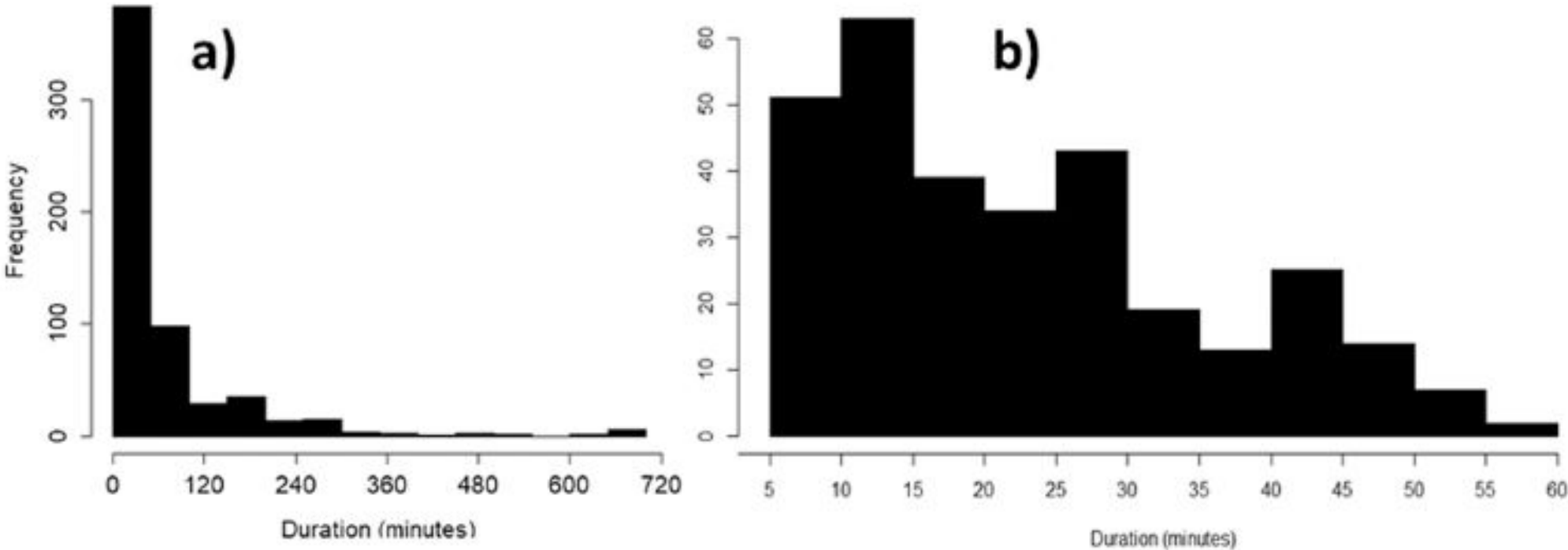
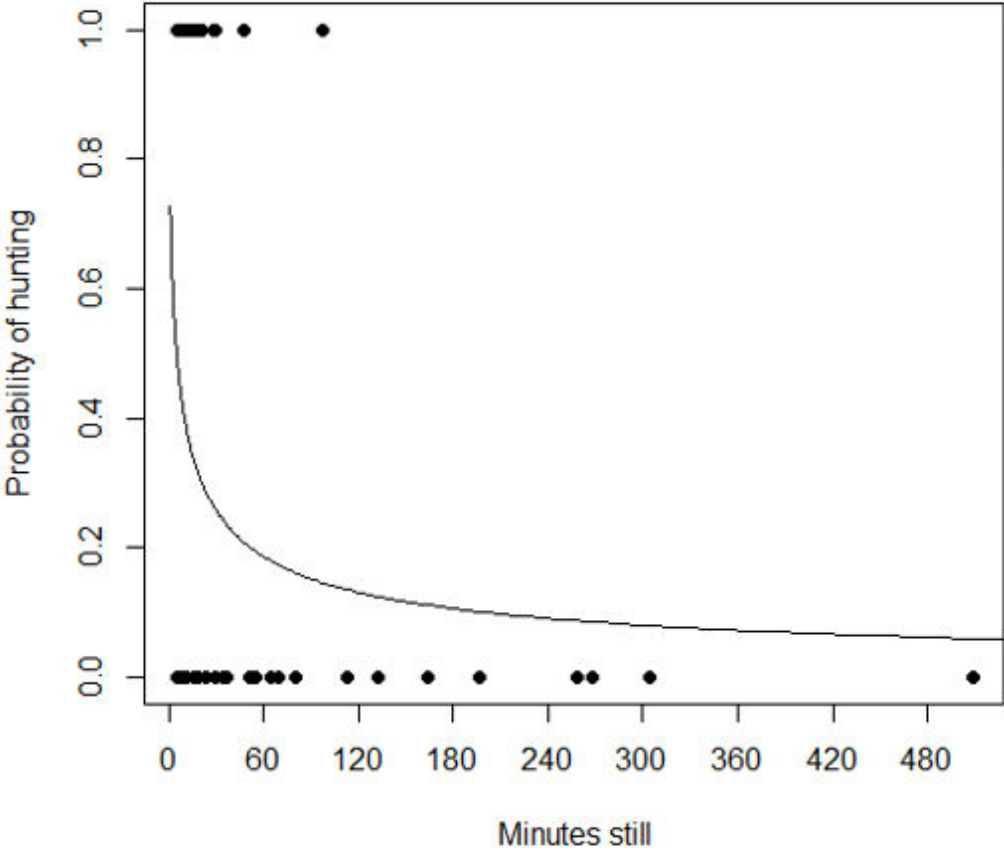
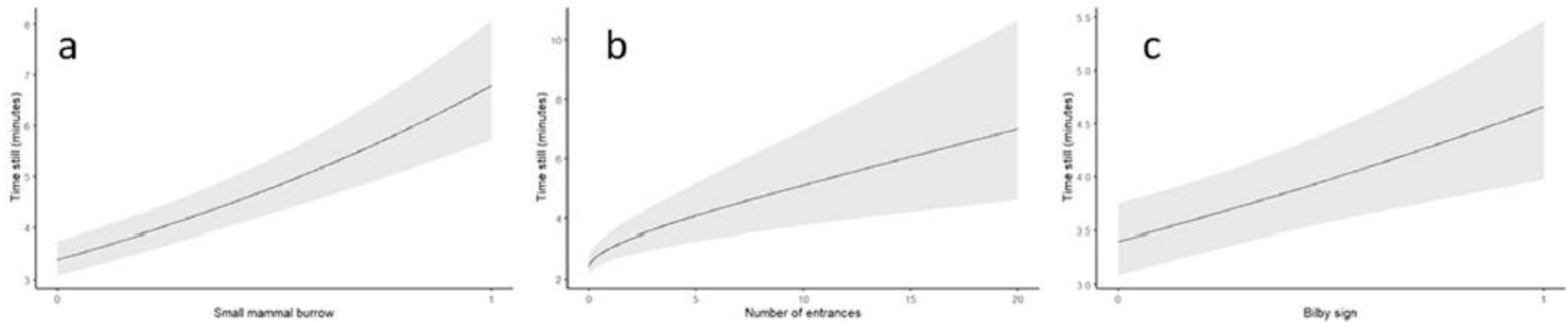


Fig. 2. Histogram of the duration of clusters (recorded stops from GPS collars) where feral cats were stationary for more than 5 min (a) and for stops of less than 60 min only (b).

Most hunting bouts were less than 60 minutes
Only 39% of hunting bouts were successful







Cats stopped and spent longer at sites where they were burrow, warrens and diggings of mammals (rabbits, bettongs, bilbies, plains mice)

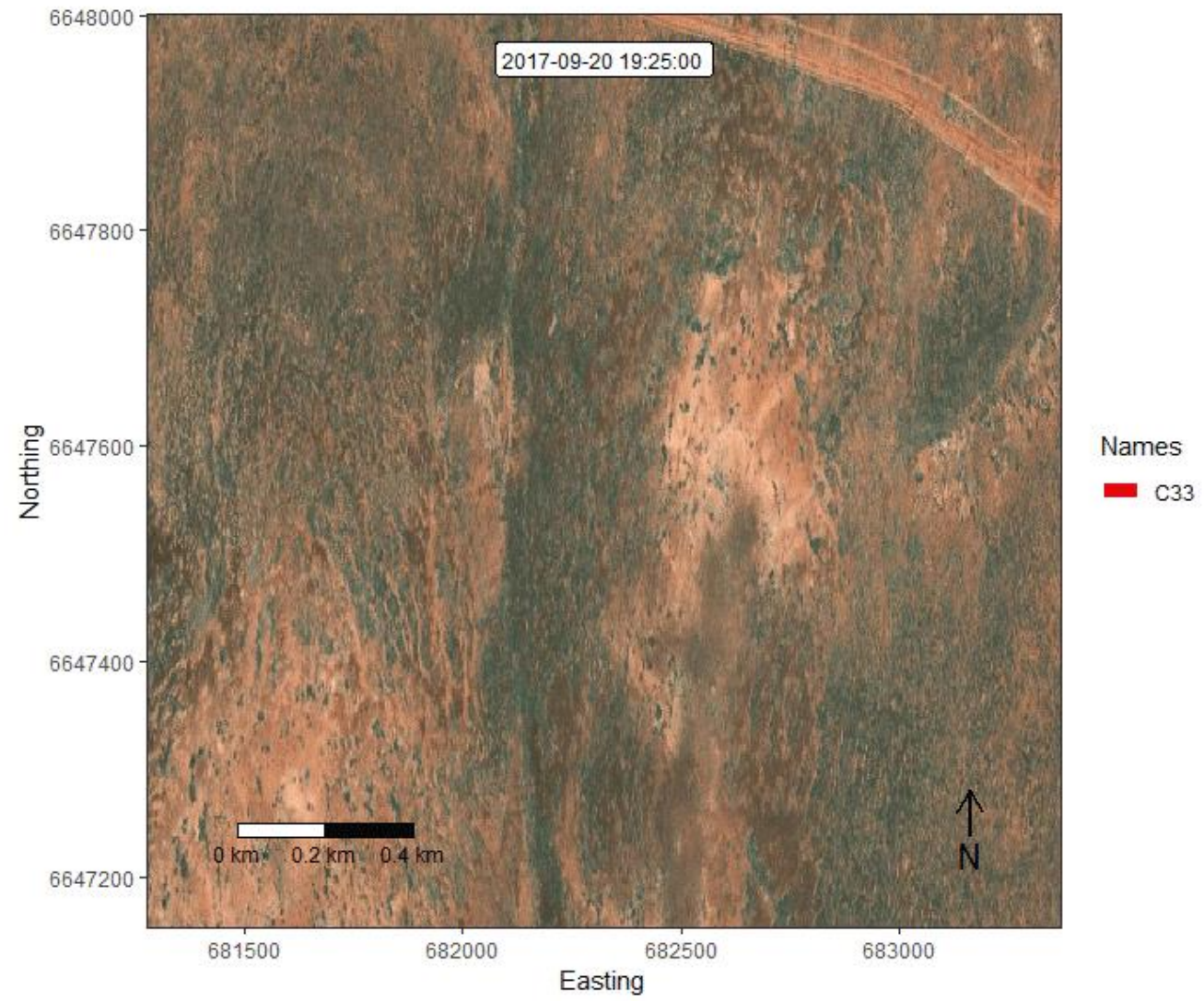














Cats- learn to find and target prey cues



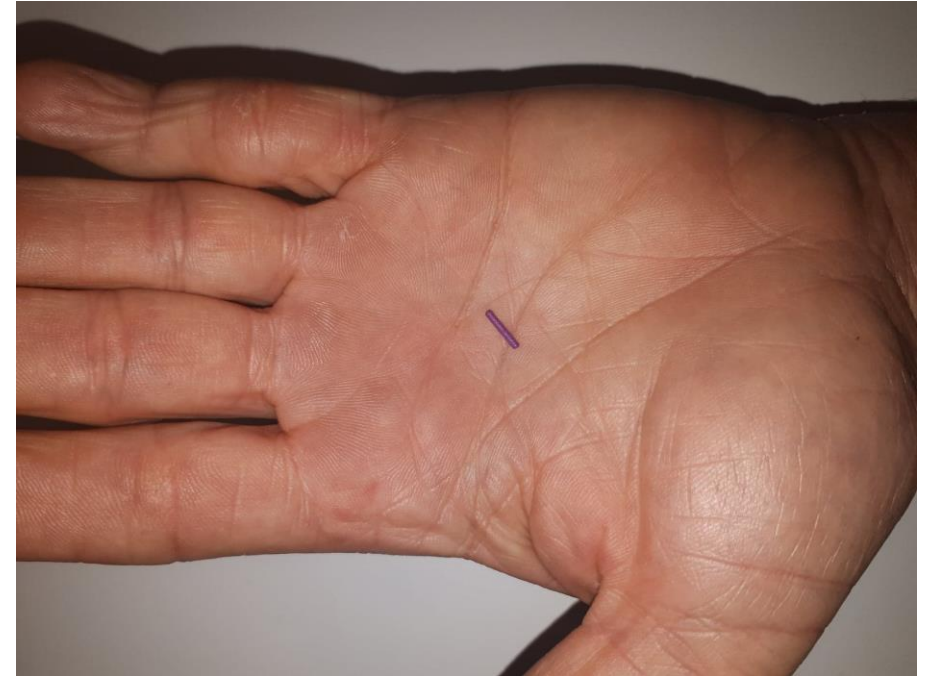
Stops are just as important as Starts



Can we harness this focus on prey cues?

- Free-feed rodents
- Rip rabbit warrens everywhere except one area
- Ethically use live bait attractants (e.g. rabbits in hutch)
- Use Population Protecting Implants in prey hotspots

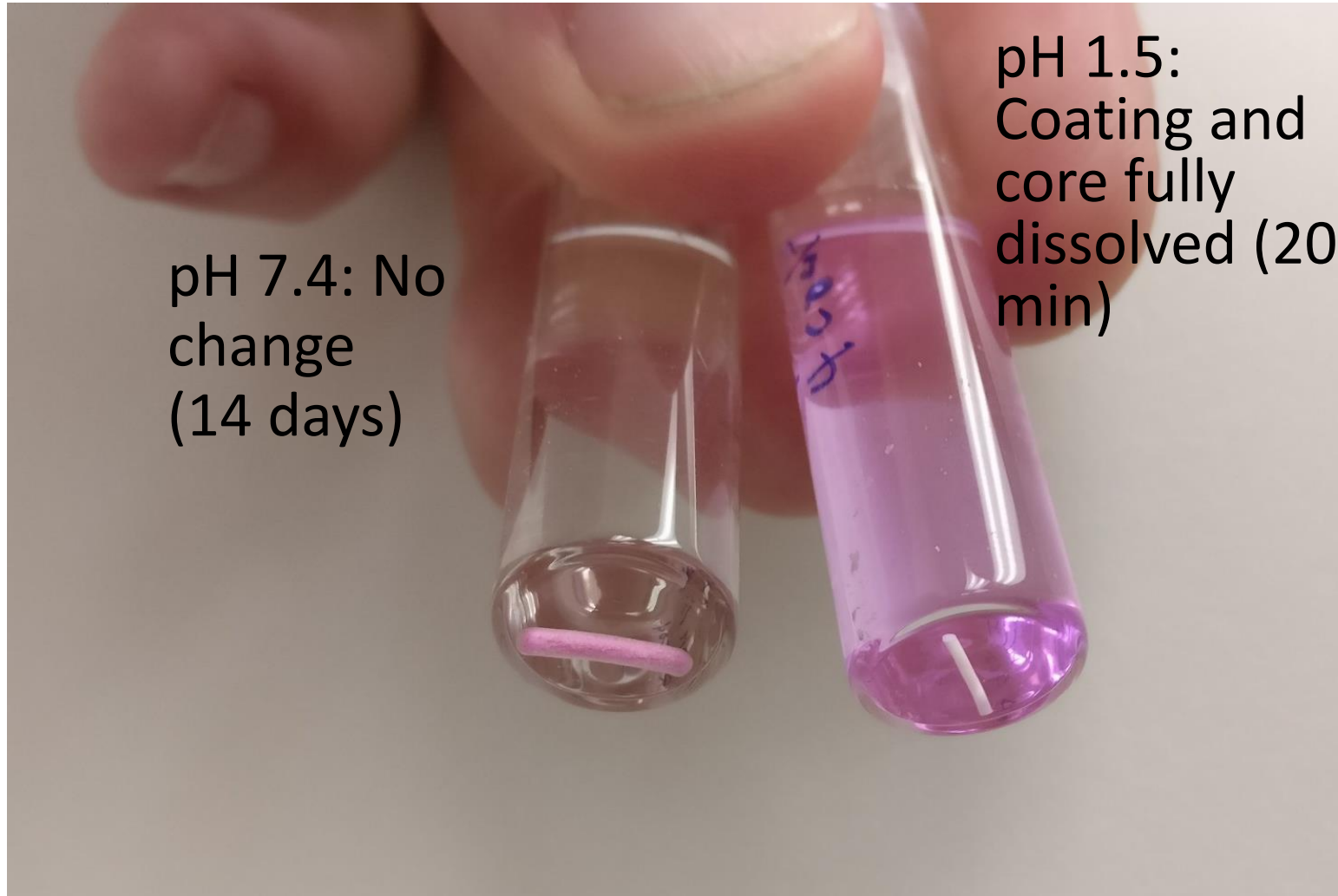
Population Protecting Implants (PPIs)



Read JL; Peacock D; Wayne AF; Moseby KE, 2015, 'Toxic Trojans: Can feral cat predation be mitigated by making their prey poisonous?', *Wildlife Research*, vol. 42, pp. 689 - 696, <http://dx.doi.org/10.1071/WR15125>

Supported by
FAME

PPI stability (submerged)



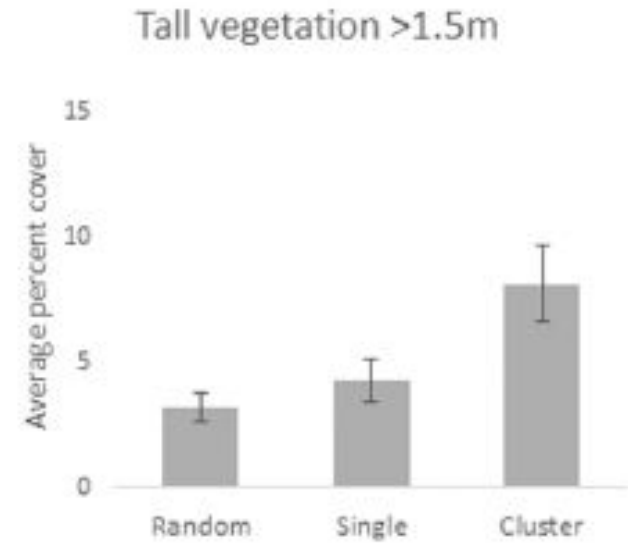
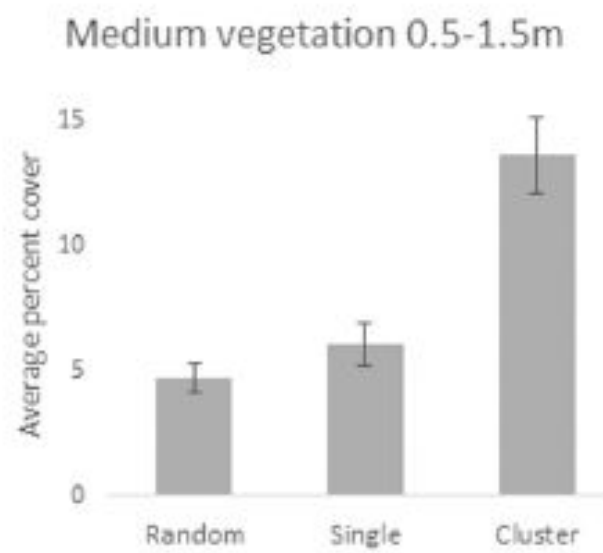
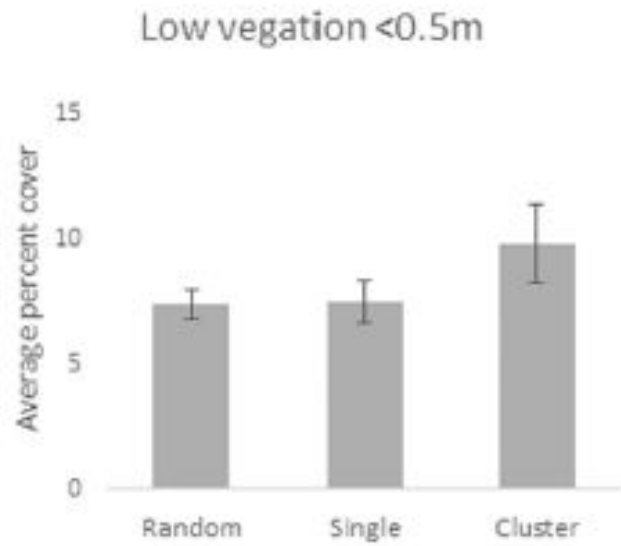
Pen and Field Trials- demonstrated proof of concept

- Cat ingested carcasses with PPIs and died
- Bilby with PPIs gained weight, bred and survived



Limited longevity at present

- In vivo trials in lab rats – stability 39-260 days
- Rupture of implants caused by a solid filament core and thin polymer coating
- New implants using a fluid core and thicker coating are showing greater stability
- More lab and field trials needed



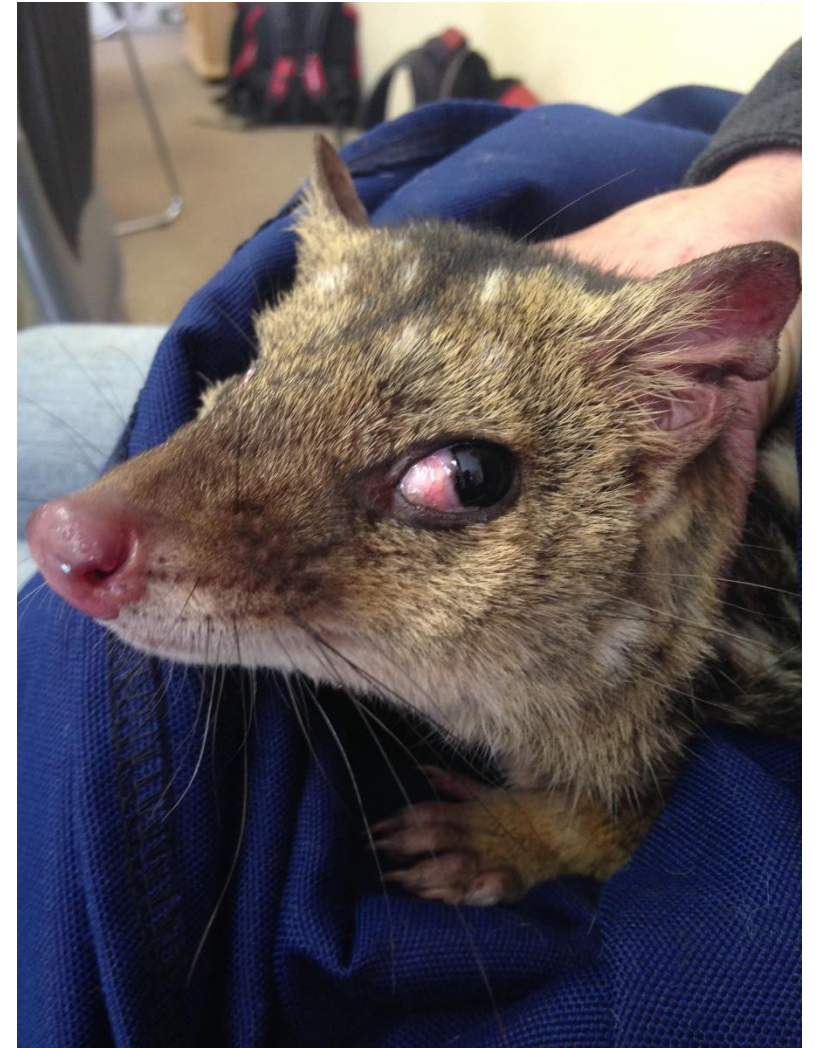
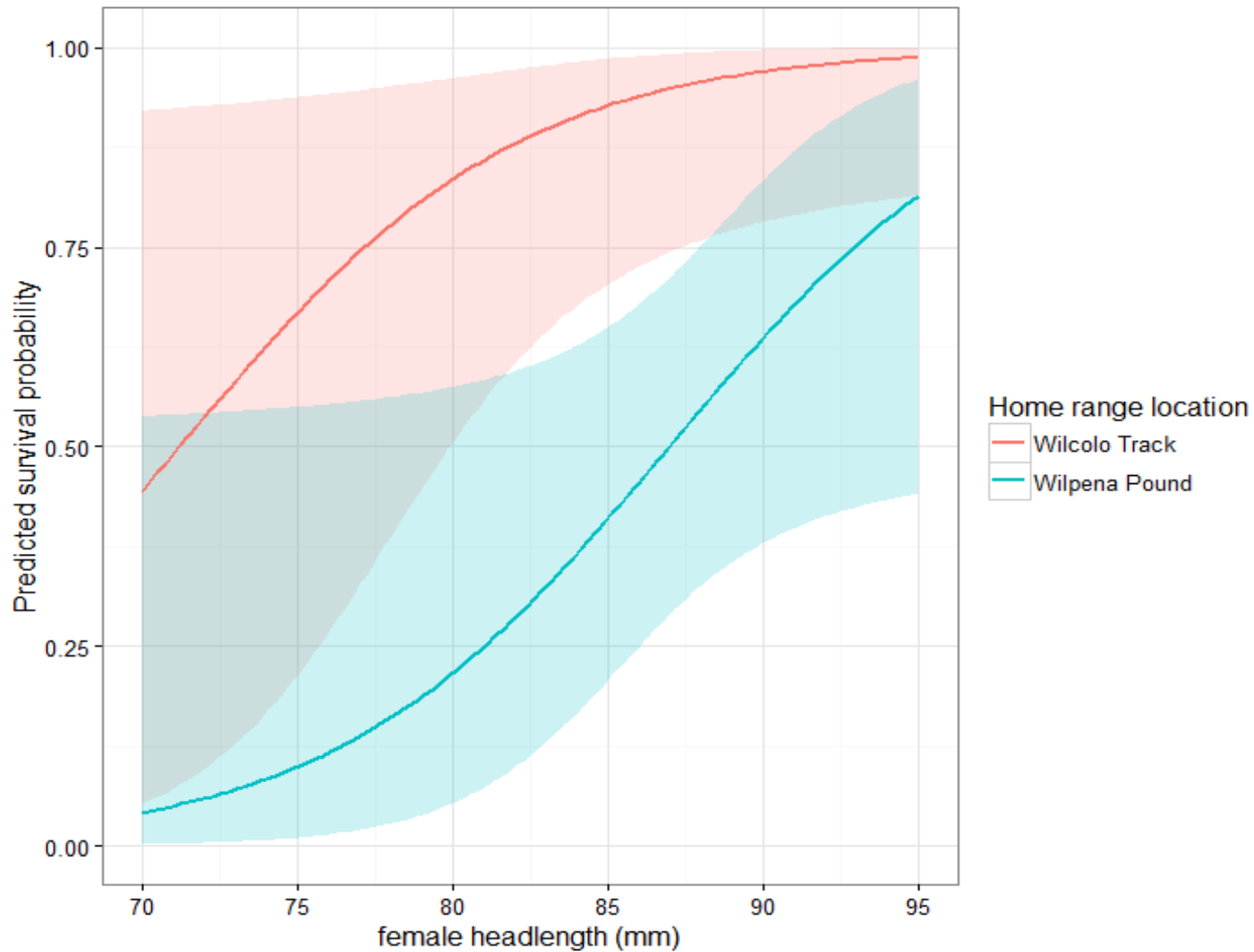
Can we target small patches of dense vegetation for control ?

- Trap and bait placement
- Augment habitat to create artificial patches
- Reintroduce animals in homogenous areas? (lots of cover or very little cover)



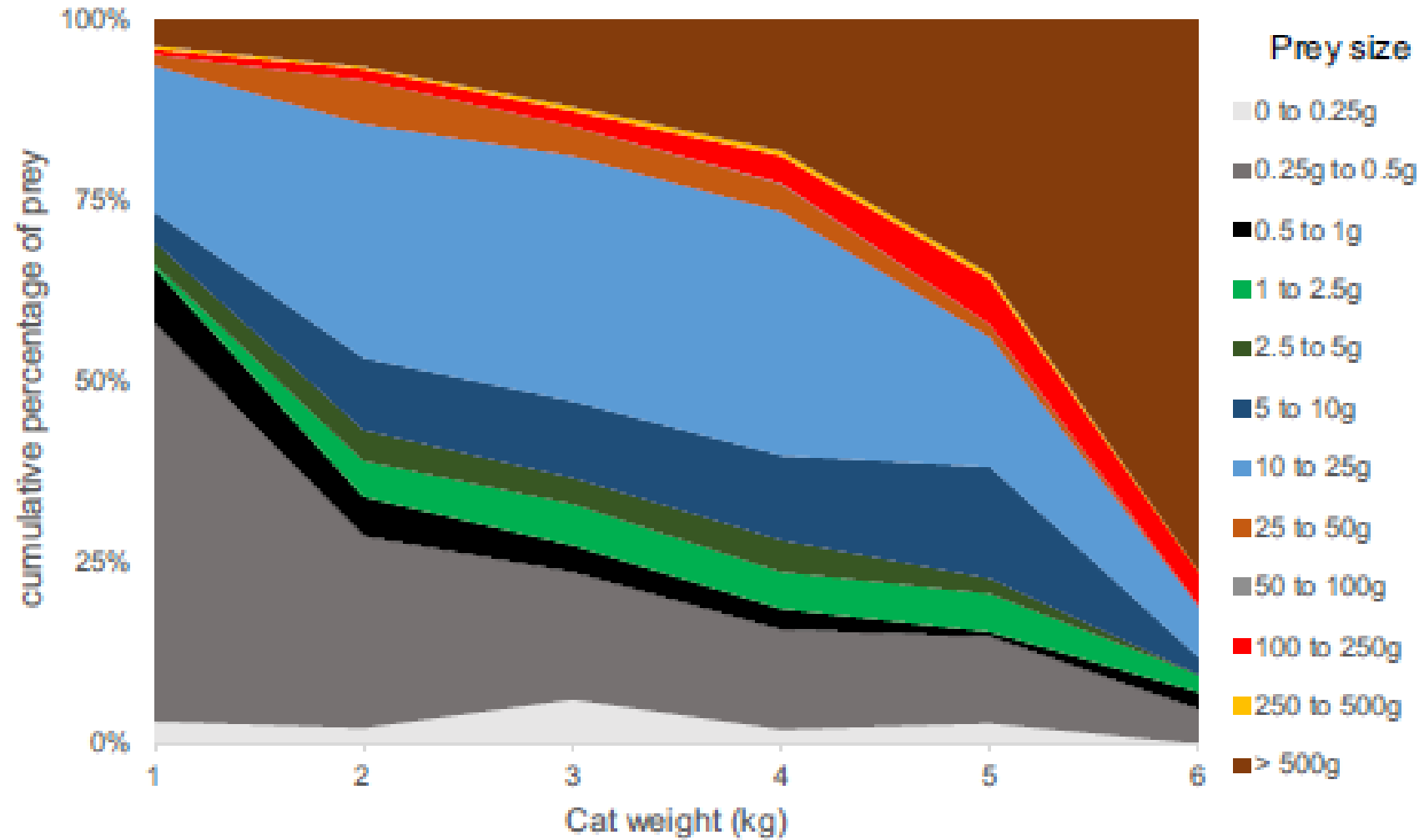


Higher survival in areas that are less patchy



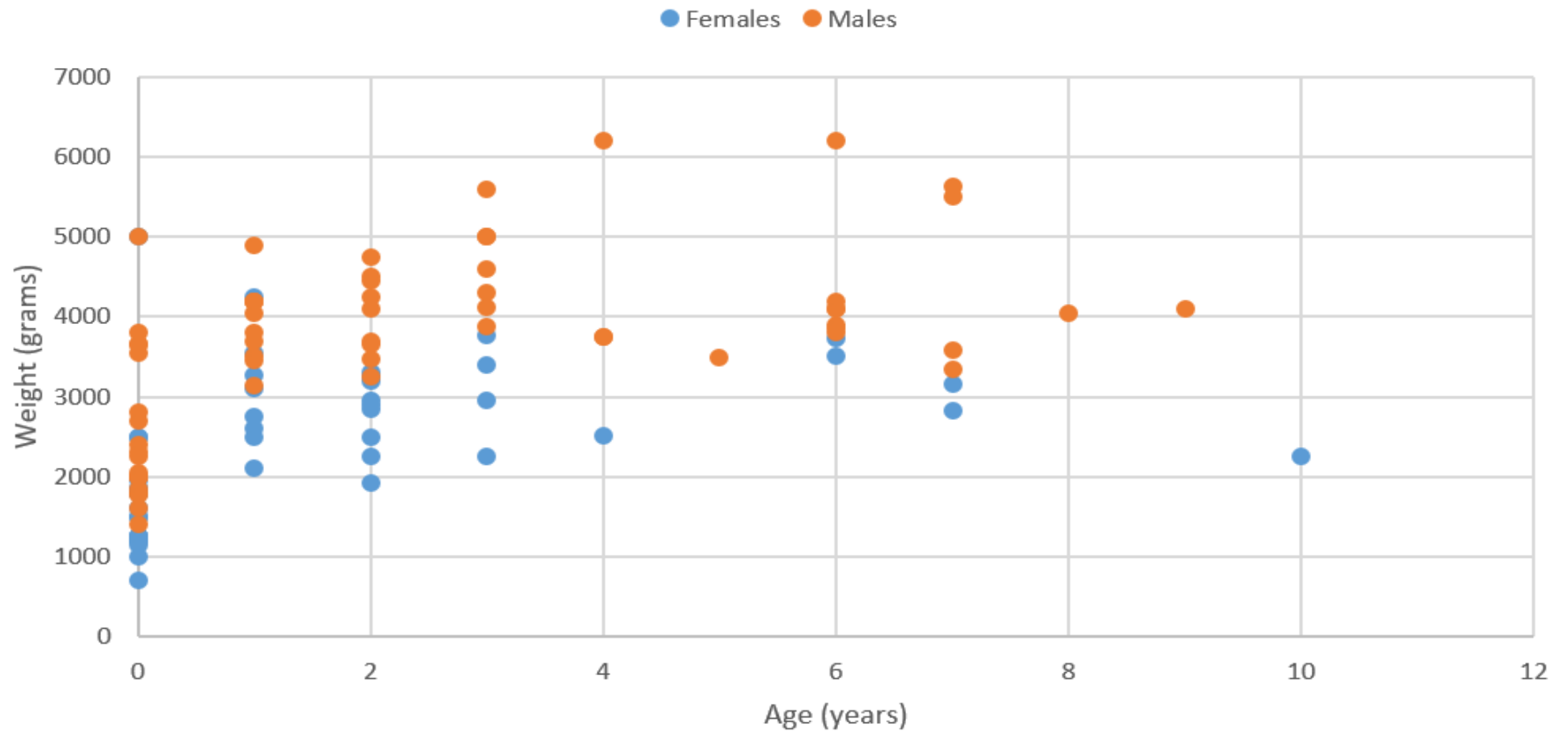
Moseby KE; Hodgens P; Peacock D; Mooney P; Brandle R; Lynch C; West R; Young CM; Bannister H; Copley P; Jensen MA, 2021, 'Intensive monitoring, the key to identifying cat predation as a major threat to native carnivore (*Dasyurus geoffroii*) reintroduction', *Biodiversity and Conservation*, vol. 30, pp. 1547 - 1571, <http://dx.doi.org/10.1007/s10531-021-02157-z>

What can diet tell us about cat behaviour?

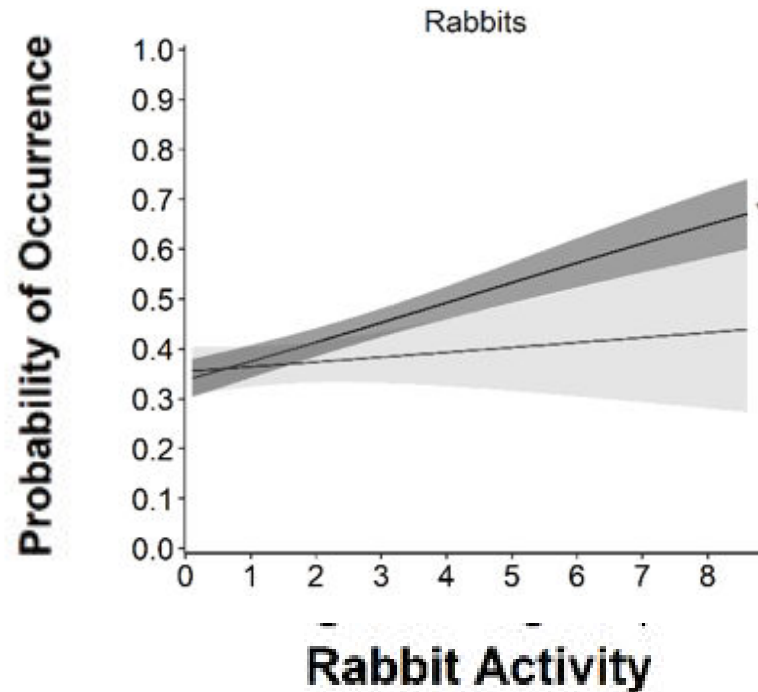


Moseby KE; McGregor H; Read JL, 2021, 'The lethal 23%: predator demography influences predation risk for threatened prey', *Animal Conservation*, vol. 24, pp. 217 - 229, <http://dx.doi.org/10.1111/acv.12623>

weight vs age

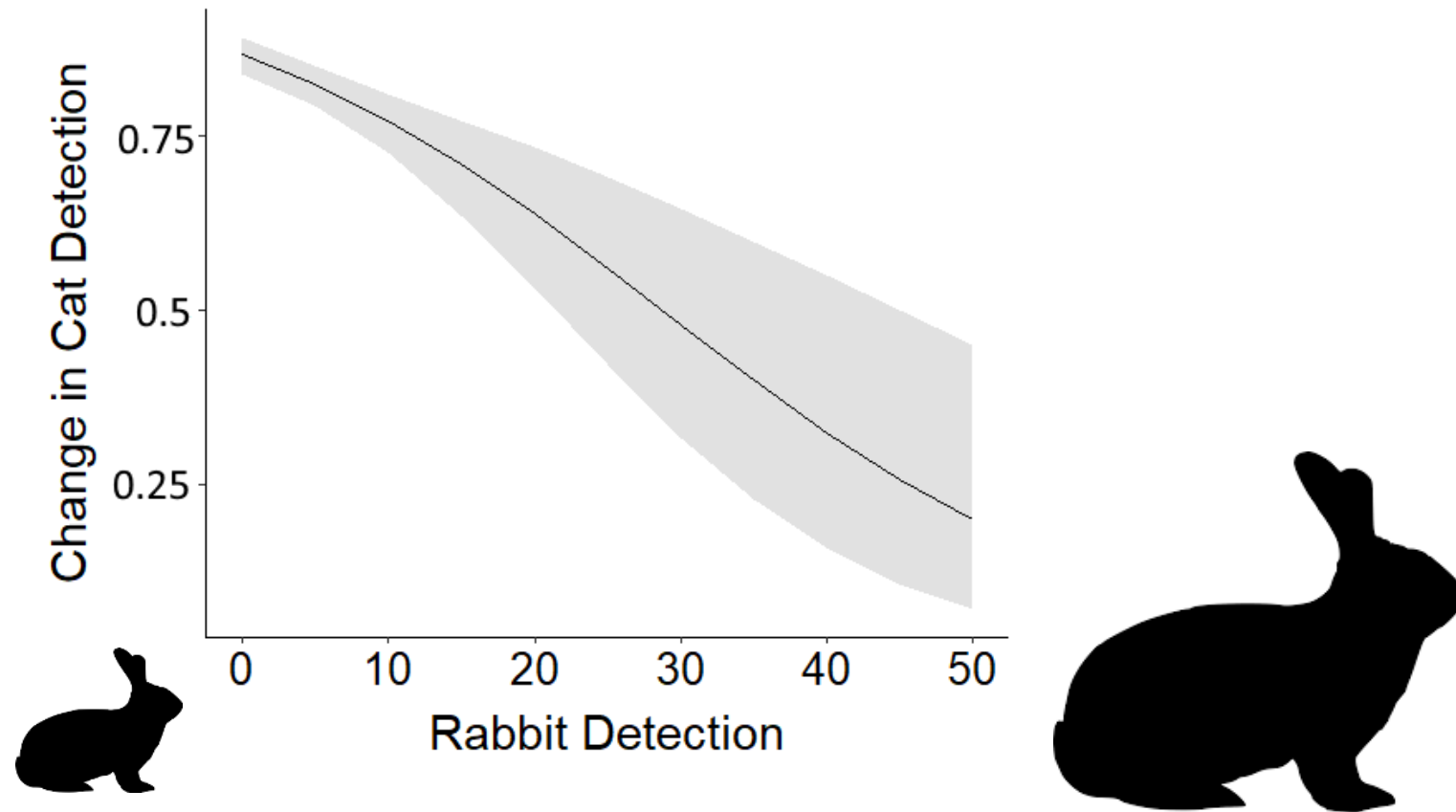


Cats more dependent on rabbit prey



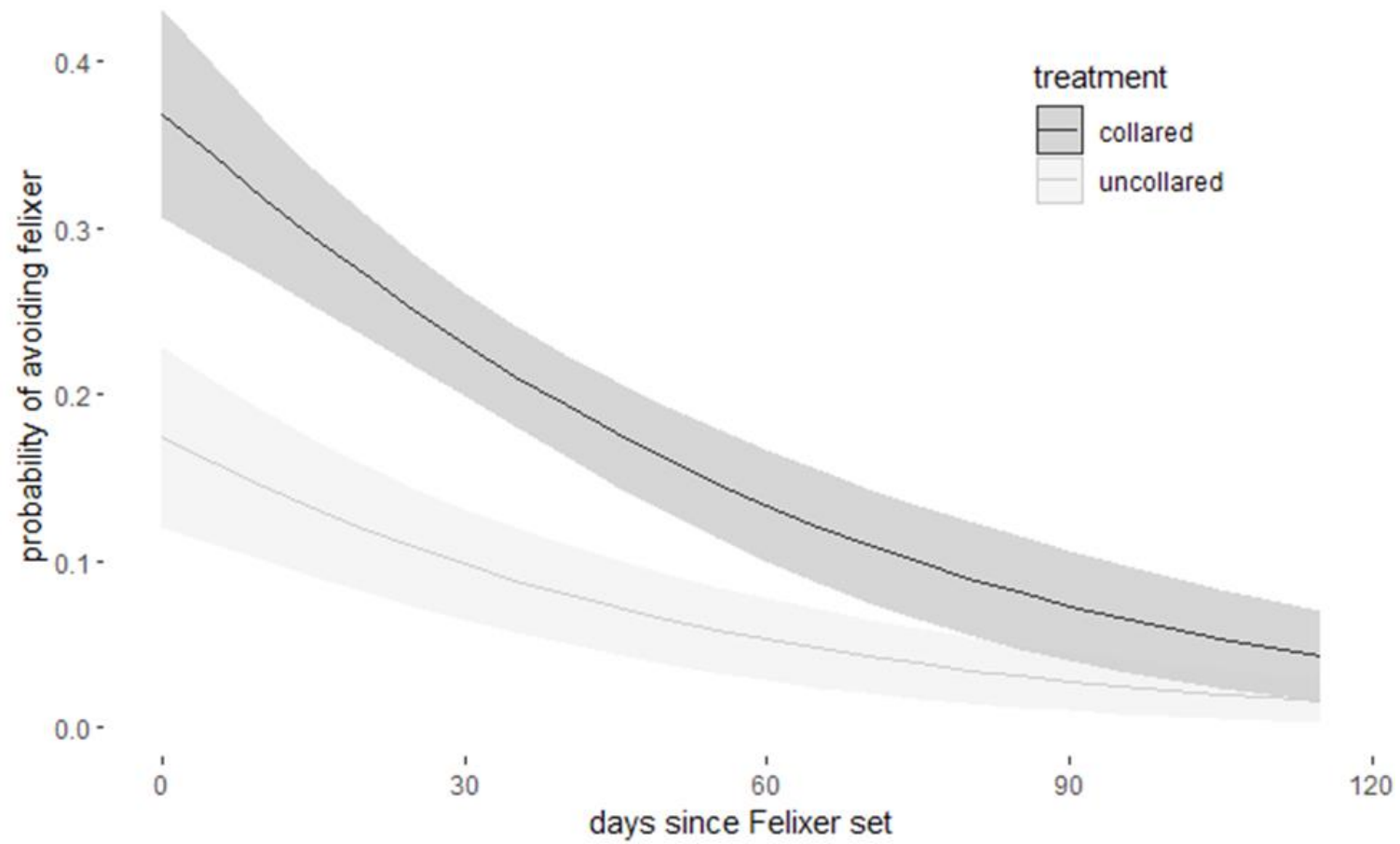
Moseby KE; Jensen MA; Tatler J, 2021, 'Dietary flexibility and high predator efficacy facilitate coexistence in a novel predator interaction', *JOURNAL OF MAMMALOGY*, vol. 103, pp. 124 - 135, <http://dx.doi.org/10.1093/jmammal/gyab120>

Aerial baiting for cats most effective where rabbits in low abundance



Moseby K; Hodgens P; Bannister H; Mooney P; Brandle R; Lynch C; Young C; Jansen J; Jensen M, 2021, 'The ecological costs and benefits of a feral cat poison-baiting programme for protection of reintroduced populations of the western quoll and brushtail possum', *Austral Ecology*, vol. 46, pp. 1366 - 1382, <http://dx.doi.org/10.1111/aec.13091>

Neophobia



Ned Ryan-Schofield et al (in prep)

Summary- understanding cat behaviour is important

- Harness attraction to prey cues
- Harness the strong association between cats and rabbits
- Harness the strong association between cats and habitat features
- Handling cats increases their neophobia
- Large cats biggest issue for bandicoots/bilbies/bettongs

Thank you

