INQUIRY INTO THE MANAGEMENT OF CAT POPULATIONS IN NEW SOUTH WALES

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Supplementary questions

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1. On Feral Cat Management

- Based on your research, which feral cat control methods have proven most effective in protecting threatened species?

There are a range options available for controlling cats, and the best option depends on the native species that need to be protected, and the specific circumstances of the site.

For native species that are extremely or highly susceptible to cat predation, such as bettongs or eastern quolls, cats must be absent; these species do not persist in the presence of cats. There is currently no prospect of eradicating feral cats from the Australian or Tasmanian mainlands. However, cats can be completely removed from contained areas such as islands and mainland fenced areas (so-called 'havens', Legge *et al.* 2018), usually by using a combination of poison-baiting, trapping and shooting.

- ISLANDS: Cats are present on about a hundred of Australia's islands. Cat eradications from islands are carried out to create host sites for translocations of threatened mammals, and to protect nesting seabirds (Woinarski *et al.* 2023). As of Feb 2025, cats have been eradicated from 31 islands, ranging in size from 0.05 to 628 km^2 (Dirk Hartog Island) (Algar *et al.* 2020a). Active eradication projects are currently underway on eight islands (none in NSW).
- FENCED AREAS: As of Feb 2025, 41 fenced areas (some with two or more compartments) in Australia exclude cats from 850 km^2 (Legge *et al.* 2018). There are 12 complete or almost complete fenced areas in NSW.

The islands and fenced havens protect populations of 51 native taxa that are highly or extremely susceptible to cats, mostly mammals.

For native species that are moderately susceptible to cat predation, cat impacts can be reduced at priority sites using:

- **Poison-baits formulated to be attractive to cats**, such as Eradicat™ or Curiosity™, which use 1080 (sodium fluoroacetate) and PAPP (para-aminipropiophenone) respectively. Toxic baiting for cats is not legal in NSW, even though 1080 is used in NSW widely in fox and dog baits. Toxic baiting is critical for conserving cat-susceptible species in other places including southwest WA (many mammal species), the Pilbara (northern quolls) (Palmer *et al.* 2021), central Australia (central rock-rats) (McDonald *et al.* 2017), central Queensland (bridled nailtail wallabies) (Augusteyn *et al.* 2022). Baits are also important for cat eradications from

islands (e.g., Dirk Hartog Island) (Algar *et al.* 2020a; Algar *et al.* 2020b). Nevertheless, using toxins has some constraints: there are non-target risks, the community have concerns about humaneness, and the effectiveness of knockdowns is variable (Foo *et al.* 2025).

- Some of the constraints of toxic baiting are overcome by using **Felixer^{TM} grooming traps,** which squirt a dollop of toxin on an animal recognised by the device (eg, using AI recognition software) as a cat (Moseby *et al.* 2020; Pedler *et al.* 2025).
- **Controlling rabbits and introduced rodents,** because high densities of these species support high densities of cats. Rabbit control has probably been the most cost-effective cat control option, lowering cat density in semi-arid and arid areas, leading to recoveries of several native species (Pedler *et al.* 2016). Reducing rodent populations around towns, mainly by removing their access to food waste, should also reduce feral cat (stray cat) densities in these areas.
- **Cat trapping**, using cage traps or soft-jaw leg-hold traps, can be used in small areas, but it is labour-intensive, and trap success tends to be low. Cage trap success rates are typically higher when live prey is scarce, or in situations where cats are more accustomed to human infrastructure (e.g. around farm dwellings or near rubbish dumps). Soft-jaw traps can cause injury, especially to non-target species (McGregor *et al.* 2016a; Surtees 2017). Innovative trap monitoring systems are improving efficiency and welfare for captured animals, because more traps can be set, and captured animals can be released form traps more quickly.
- **Shooting**, usually at night using spotlights and thermal imaging, can also be used to control cats at priority sites (Read *et al.* 2025). Using trained dogs to detect, track, or bail cats improves the effectiveness of shooting (Baker *et al.* 2021; Glen *et al.* 2024; McGregor *et al.* 2016a).
- **Habitat management – especially fire and grazing management –** that maintains a complex ground layer, is effective at reducing the hunting efficiency of cats (Davies *et al.* 2020; McGregor *et al.* 2014; McGregor *et al.* 2016b; Stobo-Wilson *et al.* 2020). Although this option eases predation pressure on many native species, it is insufficient, on its own, to protect the most cat-susceptible species.

What are the primary challenges in implementing large-scale feral cat management programs, and how can they be addressed?

Challenge: Fenced havens and or islands are effective at preventing extinctions, although they protect native species in very small fractions of their previous ranges. However, there is a 'protection gap', with some species protected in several havens, and other species only in one, or none at all.

- This can be addressed by expanding the network of havens strategically, so every highly or extremely cat-susceptible species is protected in several havens, spread across its previous range. The most cost-efficient way to achieve this can be worked out using systematic planning approaches (Ringma *et al.* 2018; Ringma *et al.* 2019).

Challenge: Apart from havens, the other cat control options are all only partly effective; some control options raise welfare concerns for cats, or non-target species; some require considerable training and

regulatory approvals to use; they all need to be carried out intensively, and in perpetuity, as there's no hope of eradicating cats from the mainland in the near future. This can be addressed through:

- Intensive cat control should be prioritised to sites with high biodiversity values affected by cats, and well-designed, ongoing adaptive management, coupled with monitoring, carried out at these sites with long-term funding.
- The use of toxins for feral cats in NSW needs to be considered, with consequent changes to regulation. Note that 1080 is already used widely for canids.
- Landholders and Indigenous ranger groups need easier access to training and resources to help them manage cats.

Challenge: Pet cats provide a continual source for recruitment to the feral population.

- Address through better pet cat management – all pet cats should be desexed at an early age (unless they are kept by breeders with a permit), and pet cat containment should be encourage.

2. On Pet Cat Containment:

- Can you elaborate on the ecological benefits observed in areas where pet cat containment policies have been enforced?

Cat containment is generally too recent to answer this question directly. I'm aware of one direct example:

- Pet cats contributed to the decline of a local population of superb lyrebirds, *Menura novaehollandia*, at Sherbrooke Forest, Victoria; subsequent cat containment was associated with a recovery in lyrebird numbers (Dickman 1996; Pergl 1994).

The question is easier to answer from the other direction: what is the evidence that cats cause declines in peri-urban wildlife populations? Some examples:

- Pet cats and feral cats caused the extirpation of a population of threatened eastern barred bandicoots, *Perameles gunni*, in Victoria (Dufty 1994)
- A study of radio-collared common ring-tailed possums, *Pseudocheirus peregrinus*, in Manly Dam Reserve near Sydney, showed that 37% of the population was killed by cats over three years (Warringah Shire Council 1998, cited in Eyles and Mulvaney 2014).
- Pet cats in Adelaide killed an estimated 80% of the standing crop of adult birds (Paton 1993).
- Attacks by pet cats are one of the most common causes of injury to animals brought to wildlife rescue centres, along with vehicle strike and dog attack. The cat attacks tend to be concentrated on smaller species of mammal, reptile and bird (Heathcote *et al.* 2019; Koenig *et al.* 2002; Shine and Koenig 2001).
- A single pet cat removed a population of legless lizards, *Delma inornata*, in Canberra (W. Osbourne, pers comm., in Eyles and Mulvaney 2014), and another single cat extirpated a population of a skink *Ctenotus fallens*, in Perth (Bamford and Calver 2012).

- A single pet cat, and predation by a stray cat, caused the total breeding failure of a colony of more than 100 pairs of fairy terns, *Sternula nereis nereis*, at Mandurah, Western Australia (Greenwell *et al.* 2019).
- In New Zealand, the infamous extinction of the Stephens Island wren, *Traversia lyalli*, was caused by a single pet cat and its progeny (Galbreath and Brown 2004).

None of these declines would have occurred, if cats were absent.

More broadly, it is irrefutable that feral cats impact native wildlife, and that excluding feral cats (eg from a fenced area) benefits native species. We know that pet cats hunt, and although they hunt less than feral cats, pet cats occur at much higher density than feral cats, so their predation toll is substantial (Legge *et al.* 2020). It is therefore illogical to accept that feral cats have impacts, but pet cats (with a higher predation toll per km^2) do not.

It is worth noting that correlational studies that examine pet cat density and wildlife abundance have produced inconsistent results (Dickman 2009; Grayson *et al.* 2007; Lilith *et al.* 2010; Sims *et al.* 2008) and this is sometimes used to argue that pet cats do not have impacts on wildlife. However, these studies are plagued by confounding factors, such as insufficient variation in pet cat density, gradients in other threats, uneven compliance with cat regulations, contrasts in vegetation and other biotic factors among sites, and whether the focus of the study is on the bird community within the suburb or in adjacent bushland. These confounding factors, with a lack of any controls, make it hard to interpret these studies with any confidence.

o What strategies could be employed to overcome public resistance to mandatory pet cat containment?

It's important to note that many cat owners (about a third, nationwide) already keep their cats contained (Legge *et al.* 2020), and surveys consistently show that the Australian public, even cat-owners themselves, support better cat management (Hall *et al.* 2016). Containment should be part of a mixed strategy, that includes desexing, caps on the number of cats in a household, registration and identification. Other strategies could include:

- Continue to raise awareness about the biodiversity impacts of cats
- Also raise awareness about the health and welfare benefits to cats, from containment.
- Have that information delivered by trusted messengers, such as vets.
- Make containment mandatory only in areas with biodiversity values that can be affected by cats; and non-mandatory elsewhere (but strongly encouraged).
- Consider subsidy schemes to encourage secure containment structures that optimise welfare for pet cats, and reduced desexing fees, when cats are first registered.

Of course, amending the NSW legislation to allow local government to enact containment provisions where this is needed, is a pre-requisite. A recent survey of local governments asked (among other things) about the constraints they faced in improving cat management; respondents noted the unhelpful constraints placed upon them by state Companion Animals Act (Nou *et al.* 2021).

3. On Public Education and Policy:

- ### How effective have public education campaigns been in changing pet owner behaviors regarding cat containment and desexing?

This is outside my discipline, so I cant summarise research on this social science issue. I can say that in our survey of local governments about cat management (Nou *et al.* 2021), many respondents identified a need for education campaigns, including for linguistically and culturally diverse communities. I can also relay some experience from near where I live in the northern rivers: the staff at Tweed Shire Council implemented a very comprehensive education campaign in the shire to encourage responsible cat ownership. They have said that they feel that education is important but that a sizeable portion of the cat-owning public are not moved by education campaigns, and that local government staff need the ability to enforce compliance, as an important part of the package of measures needed to create change. This case study is written up in the Report by Nou et al. (2021).

- ### What policy measures would you recommend to local councils to enhance compliance with responsible pet ownership standards?

I think every local government area is different, so a standard policy may be less effective in some areas compared to others. In general, I suggest it is usually wise to first engage with the local community to understand their views on pet cats, which elements of responsible pet management seem most challenging for owners, and why. Changing regulations can be done slowly, to give people time to adjust, as has occurred in the ACT (moving to cat containment), and Christmas Island (moving to no cats). A mixture of educational programs targeting many different sectors of the community, with messaging that is most effective for each sector, seems sensible. However rules also need to be clear and enforced to bring about behaviour change.

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