



Australian Academy of Science

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Committee Secretary
House of Representatives Standing Committee on the Environment and Energy
PO Box 6021
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Canberra ACT 2600

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By email: Environment.Reps@aph.gov.au

Dear Secretary,

Australian Academy of Science Submission to the Inquiry into the problem of feral and domestic cats in Australia

The Australian Academy of Science welcomes the opportunity to provide a submission to the House of Representatives Standing Committee on the Environment and Energy Inquiry into the problem of feral and domestic cats in Australia.

Invasive species are a central threat to Australia's unique environment and its biodiversity. Of these invasive species, cats are the most damaging due to their ubiquity and presence in all Australia's terrestrial habitats, their voracious predation habits, support of cat-dependent diseases such as toxoplasmosis, and high breeding rates.¹ Cats also have a unique dualism, being on the one hand beloved family pets, and on the other feral predators that exert a toll on wildlife in areas that are remote from human habitation. This dualism makes cats a potentially difficult problem to manage. Feral cats are less susceptible than other mammalian pest species to traditional techniques used in pest management. These techniques, like poison baiting, trapping or shooting are less useful because feral cats are often cryptic, suspicious of new objects such as traps, and prefer to hunt and kill for food rather than take baits. Predation by feral cats is listed as a Key Threatening Process under the *Environment Protection and Biodiversity Conservation Act 1999*.

Addressing the threat posed by feral and domestic cats is an essential aspect of government policy. Australia's scientists, particularly environmental scientists, are well-placed to inform the House and the Government on the prevalence and impact of cats on the environment and to advise on measures which are likely to be effective in controlling them.

The role of science in public policy

The Australian Academy of Science strongly supports the principle that public policy should be informed by the best available evidence. It is appropriate at all levels of government to ensure that evidence is used to inform policy and that the evidence base is as strong, up to date and as comprehensive as possible. As the Australian government's response to the COVID-19 pandemic has demonstrated, policy is more effective and has greater public support, where it is actively informed by the best available evidence base.

Australians trust science and trust scientists. This trust has developed because the scientific process is based on fidelity and transparency to data, a robust peer review process, and a respect for the expertise embedded in scientists and scientific organisations and Australian universities.

The hallmarks of good science are demonstrated expertise, accurate and unbiased reporting, and a commitment to opening one's work to the scrutiny of peers and the public. For this reason, the most valuable research is that which appears in peer-reviewed literature and is open to examination and critique. This openness builds trust, and this trust is essential, allowing scientists to expand their thinking and their hypotheses, leading to a deeper understanding of the world. Through greater understanding, better public policy is made.

Science and cats

Detailed knowledge of cat prevalence and impacts (TOR a, b)

Cats were introduced to Australia in 1788 and spread rapidly across the continent. They are now present on over 99.9% of the mainland, and 100 of Australia's larger islands. The population of feral cats in natural environments Australia is estimated to fluctuate between around 1.4 million after continent-wide droughts to 5.6 million after extensive wet periods. The population of feral cats living in towns and cities in Australia is over 700,000.² The population of domestic cats in Australia is 3.8 million.³

Cats are internationally recognised as a threat to species conservation efforts. In the last 400 years, cats have caused or contributed to 26% of all the world's extinctions of reptile, bird and mammal species.⁴ Australia has the worst record of mammal extinctions in modern times compared with any other country. Of the 34 mammal species that have become extinct in the past 250 years, cats have been a primary contributor to 25 of these extinctions.^{5,6}

Cats continue to cause declines in native species. A recent series of articles provides reliable estimates of predation by cats on frogs,⁷ reptiles,⁸ birds,⁹ invertebrates¹⁰ and mammals.¹¹ Cats have been found to prey on up to 151 native mammal species, including 50 species listed as threatened under the IUCN or Australian legislation.¹²

Cats also act as vectors for pathogens such as *Toxoplasma gondii*, *Toxocara cati*, *Sarcocystis* spp. and *Bartonella henselae*, which cause infection and disease in people, and inflict substantial costs to livestock production.¹³

The impacts of cats in Australia, including through predation, competition, and as vectors for disease have recently been comprehensively summarised in the scientific literature. See, for example, *Cats in Australia: Companion and Killer* by Woinarski, Legge and Dickman.⁵

Although the threat abatement plan focuses on predation by feral cats, pet cats are also significant predators.¹⁴ Any strategy to manage cat predation should consider pet and stray cats as well as ferals.

Cat populations are inflated to high levels in areas that support high densities of introduced prey species such as rabbits.¹⁵ Cat abundance and impacts can be moderated by the presence of other predators such as foxes and dingos.¹⁶ Because of this, cat management must be integrated with the management of different species.

The effectiveness of current legislative and regulatory approaches, and cooperation between the levels of government (TOR c, d)

As noted above, predation by feral cats is listed as a key threatening process under the *Environment Preservation and Biodiversity Conservation Act 1999*. A threat abatement plan has been established under this Act. However, the EPBC Act does not mandate implementation or funding of the threat abatement plan (except on Commonwealth land), which means the plan is progressed inconsistently and inadequately by the Commonwealth and state governments, and by non-government organisations to the limit of their resources. The Feral Cat Taskforce provides a voluntary mechanism for coordinating some activity between jurisdictions, but it does not provide any funding to members to carry out cat management actions.

The legislative context surrounding cats is complicated: they are represented both as pest animals and as companion animals, and their treatment under both streams of legislation varies between the states and territories. Further complicating their status and management, most pet cat and stray cat management is enacted by local government, which can introduce their own bylaws to varying extents among the jurisdictions.

In 2015, the meeting of Environment Ministers resulted in a declaration to reform legislation to improve alignment among the jurisdictions to improve feral cat and pet cat management. This is a promising start, but progress has been limited.

The Commonwealth's 2015 Threatened Species Strategy recognised cats as a key threat to Australia's wildlife and included a range of specific targets to reduce the abundance of cats and their impacts. The objectives of the Strategy have been partially achieved.¹⁷

Effectiveness of cat control measures (TOR e)

Eradication of cats from Australia is not feasible, and cats are notoriously difficult to manage, but there are many control measures for cat populations that can be effective in particular situations, including poison baiting, shooting, and trapping.⁵ Habitat management (i.e. by managing fire and grazing to maintain ground cover) has effectively reduced cat abundance and impacts in northern Australia.^{18,19}

The impacts of cats on native wildlife can be mitigated by establishing predator-free exclusion areas - offshore islands and fenced enclosures on the mainland. A stocktake in 2018 found 17 fenced and 101 island havens, containing 188 populations of 32 predator-susceptible threatened mammal species.²⁰ The study also identified many species which were not represented in these havens or were only found in one or two. The authors judged that the species at most risk from extinction from predation and in most need of a haven was the critically endangered central rock-rat (*Zygomys pedunculatus*).

It is essential that monitoring of cat predation be maintained. Monitoring can reveal counter-intuitive aspects of cat population control, such as the identification that low-level culling of cats can increase local populations as dominant individuals are removed, and others gain greater access to hunting resources.¹

Import controls for high-risk domestic cat varieties (TOR f)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Biosecurity Act 2015 regulate importation of hybrids. Hybrids can only be imported if they are on the Live Import List of

the EPBC Act. The Minister for the Environment can include new taxa on the list, and there is an application process to enable that.

Hybrids can have novel traits that increase the risk to Australian wildlife. For example, the savannah cat is a hybrid of the domestic cat and serval *Leptailurus serval*. The Minister for the Environment blocked an application to import this hybrid in 2008 because a risk assessment judged that the extraordinary leaping ability of the hybrid would increase the risk to native species, should the hybrid become feral.²¹

Public awareness and education (TOR g)

Compared to the public of other countries, Australians are more aware of the impacts of cats on native wildlife, more likely to change their behaviour to reduce cat impacts, and more likely to support regulatory and management changes to reduce the impacts of cats (both pet and feral).²²

The interaction between domestic cat ownership and the feral cat problem, and best practice approaches to the keeping of domestic cats in this regard (TOR h)

The flow of cats between pet cat and feral cat populations is poorly understood, but cat dumping and wandering very likely contribute to the feral cat populations in towns and cities. Feral cats in towns and cities can reach very high densities because they are subsidised by human refuse. The most effective way to manage feral cats in urban areas is through better refuse management, including fencing of dumps and other sources of food such as intensive farm sites. Local government can also use intensive trapping at strategic locations. In other countries, trap-neuter-release (TNR) is promoted as a method for reducing the numbers of feral cats in towns and cities. However, reviews across many studies show that TNR is not effective: it does not minimise cat populations, it does not stop cats from killing wildlife, and it encourages people to dump unwanted cats.²³

Pet cats can be managed to remove their impacts on wildlife by:

- Keeping them contained indoors or in an outdoor cat run
- Desexing cats before they reach sexual maturity
- Bring in mandatory registration for pet cats, including microchipping
- Increase support to local governments to declare some residential areas as cat-free
- Limit the number of pet cats per household
- Ensure education and awareness-raising materials about cat impacts and responsible pet cat management are made available to the public

Recommendations

Legislation: Improve the legislative and regulatory support for cat management. Enhance alignment between Commonwealth, State and Territory legislation so that feral cats are consistently recognised as an environmental threat, and an agricultural threat (because of their role as a vector of diseases significant to livestock production), and so that responsibilities for their management are clear.

Support local government to strengthen their regulatory position concerning both feral (stray) cat as well as pet cat management, and to strengthen their capacity to manage stray and pet cats. The list of specific pet actions listed above should be strongly encouraged in every local government area.

Management: Actions – particularly under the feral cat predation threat abatement plan – must be adequately resourced, by the Commonwealth and by State and Territory governments.

Evolve the current threat abatement plan into a nationally coordinated and implemented plan for the strategic management of cats, that includes specific targets for native species conservation at identified locations. Effective controls for cats will be long-term and multi-faceted (i.e., using a combination of conservation fencing, poison-baiting, eradication from islands, trapping and shooting, habitat management, rabbit management, etc.). Such controls must be integrated with other conservation measures, including restoring threatened native species to suitable habitats. No single control measure will be sufficient, but the coordination of multiple control measures will be required.

Monitoring programs must be maintained. As eradication of cats is not viable except in small areas (islands, fenced exclosures), monitoring will generally be focused on the impacts of cat predation rather than numbers of cats.

Research: Research should be supported to understand better the flow of individual cats along the pet–stray–feral continuum.

New methods for controlling cats should be explored and resourced. Such avenues may include:

- novel traps such as the Felixer
- toxic collars and implants in threatened species reintroduction programs (“toxic trojans”)
- engineered disease
- gene drive opportunities.

Communication: The public, and pet cat owners in particular, must be educated about the importance of containing their pet cats indoors or in secure outdoor cat runs.

To discuss or clarify any aspect of this submission, or to arrange further consultations with the Academy and its Fellowship, please contact [REDACTED] at [REDACTED]

Yours sincerely,

Professor John Shine AC PresAA
President
The Australian Academy of Science

References

1. Lazenby, B. T., Mooney, N. J. & Dickman, C. R. Effects of low-level culling of feral cats in open populations: a case study from the forests of southern Tasmania. *Wildl. Res.* **41**, 407 (2014).
2. Legge, S. *et al.* Enumerating a continental-scale threat: How many feral cats are in Australia? *Biol. Conserv.* **206**, 293–303 (2017).
3. Animal Medicine Australia. *Pets in Australia: A national survey of pets and people.* (2019).
4. Doherty, T. S., Glen, A. S., Nimmo, D. G., Ritchie, E. G. & Dickman, C. R. Invasive predators and global biodiversity loss. *Proc. Natl. Acad. Sci. U. S. A.* **113**, 11261–11265 (2016).
5. John Woinarski, Sarah Legge & Chris Dickman. *Cats in Australia: Companion and Killer.* (CSIRO Publishing, 2019).
6. Dickman, C. R. *Overview of the impacts of feral cats on Australian native fauna.* (1996).
7. Woinarski, J. C. Z. *et al.* Predation by introduced cats *Felis catus* on Australian frogs: compilation of species records and estimation of numbers killed. *Wildl. Res.* (2020) doi:10.1071/wr19182.
8. Woinarski, J. C. Z. *et al.* How many reptiles are killed by cats in Australia? *Wildl. Res.* **45**, 247 (2018).
9. Woinarski, J. C. Z. *et al.* How many birds are killed by cats in Australia? *Biol. Conserv.* **214**, 76–87 (2017).
10. Woolley, L.-A. *et al.* Introduced cats eating a continental fauna: invertebrate consumption by feral cats (*Felis catus*) in Australia. *Wildl. Res.* (2020) doi:10.1071/wr19197.
11. Murphy, B. P. *et al.* Introduced cats (*Felis catus*) eating a continental fauna: The number of mammals killed in Australia. *Biol. Conserv.* **237**, 28–40 (2019).
12. Woolley, L. *et al.* Introduced cats *Felis catus* eating a continental fauna: inventory and traits of Australian mammal species killed. *Mamm. Rev.* **49**, 354–368 (2019).
13. Legge, S. M., Taggart, P. L., Dickman, C. R., Read, J. L. & Woinarski, J. Impacts from cat-dependent diseases that affect people and livestock costs Australia \$6 billion per year. *Wildl. Res.*
14. Legge, S. *et al.* We need to worry about Bella and Charlie: the impacts of pet cats on Australian wildlife. *Wildl. Res.* (2020) doi:10.1071/wr19174.
15. Doherty, T. S. *et al.* Impacts and management of feral cats *Felis catus* in Australia. *Mamm. Rev.* **47**, 83–97 (2017).
16. Molsher, R., Newsome, A. E., Newsome, T. M. & Dickman, C. R. Mesopredator Management: Effects of Red Fox Control on the Abundance, Diet and Use of Space by Feral Cats. *PLoS One* **12**, e0168460 (2017).
17. Department of the Environment and Energy. *Threatened Species Strategy: Year Three Report.* <https://www.environment.gov.au/system/files/resources/ff192035-6dd2-42a4-b421-7ab98edd3d38/files/threatened-species-strategy-year-3-progress-report.pdf> (2019).
18. Stobo-Wilson, A. M. *et al.* Habitat structural complexity explains patterns of feral cat and dingo occurrence in monsoonal Australia. *Divers. Distrib.* **26**, 832–842 (2020).

19. Davies, H. F., Maier, S. W. & Murphy, B. P. Feral cats are more abundant under severe disturbance regimes in an Australian tropical savanna. *Wildl. Res.*
20. Legge, S. *et al.* Havens for threatened Australian mammals: The contributions of fenced areas and offshore islands to the protection of mammal species susceptible to introduced predators. *Wildl. Res.* **45**, 627–644 (2018).
21. Dickman, C. R., Legge, S. M. & Woinarski, J. C. Z. Assessing risks to wildlife from free-roaming hybrid cats: The Proposed Introduction of Pet Savannah Cats to Australia as a Case Study. *Animals* **9**, (2019).
22. Hall, C. M. *et al.* Community Attitudes and Practices of Urban Residents Regarding Predation by Pet Cats on Wildlife: An International Comparison. *PLoS One* **11**, e0151962 (2016).
23. Crawford, H. M., Calver, M. C. & Fleming, P. A. A case of letting the cat out of the bag—why trap-neuter-return is not an ethical solution for stray cat (*Felis catus*) management. *Animals* vol. 9 (2019).