

Mr Ted O'Brien MP
Chair, Standing Committee on the Environment and Energy
c/o Committee Secretariat
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21 July 2020

Dear Mr O'Brien,

Regarding the ***Inquiry into the problem of feral and domestic cats in Australia.***

The Australian Mammal Society is an interdisciplinary, national scientific society of biologists, founded in 1958. Our mission is to contribute to the greater understanding and conservation of Australasian mammals. Given the perilous status of many of our mammal species, and the large part played by feral and domestic cats in Australian mammal declines, we support this Inquiry. We thank you and the Hon. Sussan Ley MP for the opportunity to comment. As a society of scientists, most of the information below relates to terms of reference that are relevant to our fields of expertise - particularly terms of reference 1, 2 and 5.

Australia's mammals are the most distinctive of any country on Earth¹. Many of our species come from ancient lineages that evolved in isolation, once Australia became separated from all other landmasses around 40 million years ago². When a species in Australia is lost to extinction, considerable evolutionary history is lost with it. 87% of Australian mammals occur nowhere else on earth³. Hence, Australia bears sole responsibility for their survival.

Australia has the worst mammal extinction rate of any country⁴. In the last 200 years, we have lost at least 30 mammal species⁵. Australian mammal extinctions have continued unabated throughout this time - two of our recent mammal extinctions were between 2009 and 2014⁶ - the Christmas Island pipistrelle and Bramble Cay melomys.

Mammals are proportionally the most threatened class of animals in Australia - 21% of our mammal species are threatened with extinction⁷. Of these species, 10 are listed as Critically Endangered⁸, which means that they are at an extremely high risk of extinction in the immediate future⁹. Even one of our most emblematic mammal species, the koala, which is

¹ Holt et al. 2013

² Eldridge and Herbert 2015

³ Chapman 2009

⁴ Woinarski et al. 2015

⁵ Woinarski et al. 2015

⁶ Woinarski et al. 2016

⁷ Woinarski et al. 2015

⁸ DAWE 2020

⁹ EPBC Act 1999, vol. 1, p. 312 (compilation 53)



estimated to bring billions to the Australian economy every year¹⁰, is facing a high risk of extinction in the medium-term future¹¹.

Feral cats have been implicated in the extinction of at least 22 Australian mammals¹². The true number is likely to be higher, because mammals that were previously unknown to science continue to be discovered, and several went extinct after European arrival (e.g. Northern Pig-footed Bandicoot, Yirratji¹³).

The introduced domestic cat spread across the country between 1820 and 1890¹⁴. The feral cat is now distributed across >99.8% of Australia¹⁵. The only known cat-free areas are 592 islands and 16 fenced predator-free reserves¹⁶ - cumulatively 5,185 km². We have an estimated 2.1-6.3 million feral cats in Australia¹⁷.

Undoubtedly, feral cats have had¹⁸ and continue to have¹⁹ a devastating impact on Australia's fauna. Cats eat an estimated 459 million native mammals²⁰, 377 million native birds²¹, 649 million native reptiles²², 92 million native frogs²³ and 1086 million native invertebrates²⁴ every year. Cats also compete for food with native predators such as owls²⁵ and quolls²⁶. Feral cats contributed to the loss of digging mammals across large parts of the continent, which has reduced tree recruitment and soil fertility^{27,28}. Cats spread diseases, particularly toxoplasmosis, which affects native mammals and humans²⁹.

Most feral cat management occurs at the site and local scale. Landscape-scale baiting is difficult and has limited success³⁰. Recent advances in control technology including *Felixer* grooming traps^{31,32} and *Curiosity* and *Eradicat* poison baits³³ are valuable. However, more needs to be done to find effective, long-term, landscape-scale approach to cat management

¹⁰ Conrad 2014

¹¹ EPBC Act 1999, vol. 1, p. 312 (compilation 53)

¹² Woinarski et al. 2015

¹³ Travouillon et al. 2019

¹⁴ Abbott 2008

¹⁵ Legge et al. 2017

¹⁶ Legge et al. 2017

¹⁷ Legge et al. 2017

¹⁸ Woinarski et al. 2019

¹⁹ Woinarski et al. 2015

²⁰ Murphy et al. 2019

²¹ Woinarski et al. 2017

²² Woinarski et al. 2018

²³ Woinarski et al. 2020

²⁴ Woolley et al. 2020

²⁵ Bilney et al. 2006

²⁶ Glen and Dickman 2005

²⁷ Fleming et al. 2014

²⁸ Halstead et al. 2020

²⁹ Doherty et al. 2017 and reference therein

³⁰ Doherty et al. 2017

³¹ Read et al. 2019

³² Moseby et al. 2020

³³ Doherty et al. 2017



in Australia. This is particularly important in northern Australia, where feral cats are strongly implicated in recent declines of many mammals³⁴. Research is showing that the most promising broad-scale management approach is maintaining habitat integrity so that enough individuals of native prey species can hide and escape from cats to enable populations to persist³⁵. In intact habitats with sufficiently low densities of feral cats, some mammal species can coexist with them^{36,37,38}.

A major reason why cats are able to suppress their mammal prey is that native mammals are exposed by habitat degradation, particularly intensified fire regimes and inappropriate grazing that continually remove ground cover, understorey plants and fallen timber that mammals use for shelter^{39,40}. The spread of feral cats across southern Australia has also been facilitated by rabbits^{41,42}, another introduced species. Feral cat management should not only focus on controlling cats in isolation, but needs to include land management to protect native mammal habitat, and in southern Australia, rabbit control^{43,44}.

The feral cat is one important threat to Australia's declining mammals. However, there are other major causes of mammal extinction and decline. Fewer than 10% of all Australian threatened species are impacted by feral cats⁴⁵. Many other invasive species are wreaking havoc on Australian fauna, flora and ecosystems. Feral foxes have contributed to more mammal extinctions, and continue to have severe effects on our mammals. Other threatening processes are also pushing our globally significant species towards extinction⁴⁶, particularly land clearing, which has removed millions of hectares of threatened species habitat in the past two decades⁴⁷. Catastrophic fires, worsened by climate change⁴⁸, recently killed over one billion Australian animals⁴⁹. Focussing on a single invasive species or single threatening process is inadequate to effectively deal with Australia's ongoing extinction crisis. For Australia to adequately respond to its feral cat problem – and more importantly, its species extinction crisis – far greater effort, money and resources must be allocated⁵⁰.

Below is a list of peer-reviewed studies relevant to the Inquiry Terms of Reference. Many of these papers are open access, and should be freely available to download with the URLs we

³⁴ Davies et al. 2017

³⁵ Doherty et al. 2017

³⁶ Miritis et al. 2020

³⁷ West et al. 2018

³⁸ Ziembicki et al. 2015

³⁹ McGregor et al. 2014

⁴⁰ McGregor et al. 2015

⁴¹ Smith and Quin 1996

⁴² Pedler et al. 2016

⁴³ Doherty et al. 2015

⁴⁴ Geary et al. 2019

⁴⁵ Kearney et al. 2019

⁴⁶ Kearney et al. 2019

⁴⁷ Ward et al. 2019

⁴⁸ van Oldenborgh et al. 2020

⁴⁹ Dickman 2020

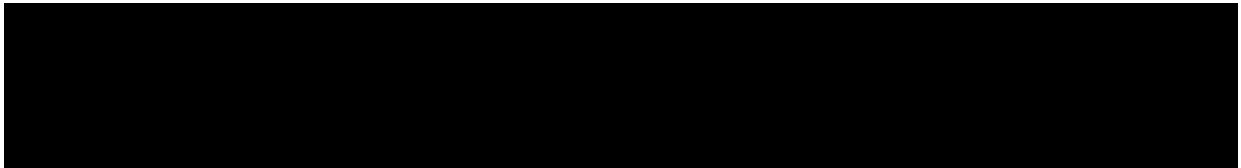
⁵⁰ Wintle et al. 2019



provide. For those articles that are not open access, you can contact the corresponding author of the paper and they will be able to provide a free copy.

Yours Sincerely

Associate Professor Vera Weisbecker, Associate Professor Diana Fisher, and Stephen Kearney on behalf of the Australian Mammal Society and its members.



Associate Professor Vera Weisbecker
Flinders University
President, Australian Mammal Society



Associate Professor Diana Fisher
University of Queensland
Vice-President, Australian Mammal Society



Stephen Kearney
University of Queensland
Conservation Officer, Australian Mammal Society



Australian Mammal Society





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Below is a list of peer-reviewed studies that we think will make the job of the committee that much easier as they have quantified and communicated numerous aspects of feral and domestic cats and their impacts on Australian fauna. The references are listed under the Inquiry Terms of Reference that we believe that they are most relevant to.

1. the prevalence of feral and domestic cats in Australia;

Abbott, I., 2008. The spread of the cat, *Felis catus*, in Australia: re-examination of the current conceptual model with additional information. *Conservation Science Western Australia*, 7(1).

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Woinarski J.C.Z., Legge S.M., Dickman C.R., 2019. Cats in Australia:

Companion and Killer. CSIRO Publishing. <https://ebooks.publish.csiro.au/content/cats-australia>

2. the impact of feral and domestic cats including on native wildlife and habitats;

Doherty, T.S., Dickman, C.R., Johnson, C.N., Legge, S.M., Ritchie, E.G. and Woinarski, J.C., 2017. Impacts and management of feral cats *Felis catus* in Australia. *Mammal Review*, 47(2), pp.83-97. <https://onlinelibrary.wiley.com/doi/abs/10.1111/mam.12080>

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Murphy, B.P., Woolley, L.A., Geyle, H.M., Legge, S.M., Palmer, R., Dickman, C.R., Augusteyn, J., Brown, S.C., Comer, S., Doherty, T.S. and Eager, C., 2019. Introduced cats (*Felis catus*) eating a continental fauna: the number of mammals killed in Australia. *Biological Conservation*, 237, pp.28-40.

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introduced red fox (*Vulpes vulpes*) and feral cat (*Felis catus*). *Wildlife Research*, 45(7), pp.645-657. <https://www.publish.csiro.au/WR/WR18008>

Woinarski, J.C.Z., Murphy, B.P., Legge, S.M., Garnett, S.T., Lawes, M.J., Comer, S., Dickman, C.R., Doherty, T.S., Edwards, G., Nankivell, A. and Paton, D., 2017. How many birds are killed by cats in Australia?. *Biological Conservation*, 214, pp.76-87. <https://www.sciencedirect.com/science/article/pii/S0006320717302719>

Woinarski, J.C.Z., Murphy, B.P., Palmer, R., Legge, S.M., Dickman, C.R., Doherty, T.S., Edwards, G., Nankivell, A., Read, J.L. and Stokeld, D., 2018. How many reptiles are killed by cats in Australia?. *Wildlife Research*, 45(3), pp.247-266. <http://www.publish.csiro.au/WR/WR17160>

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Woinarski, J.C.Z., Legge, S.M., Woolley, L.A., Palmer, R., Dickman, C.R., Augusteyn, J., Doherty, T.S., Edwards, G., Geyle, H., McGregor, H. and Riley, J., 2020. Predation by introduced cats *Felis catus* on Australian frogs: compilation of species records and estimation of numbers killed. *Wildlife Research*. <https://www.publish.csiro.au/WR/WR19182>

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Woolley, L.A., Murphy, B.P., Geyle, H.M., Legge, S.M., Palmer, R.A., Dickman, C.R., Doherty, T.S., Edwards, G.P., Riley, J., Turpin, J.M. and Woinarski, J.C., 2020. Introduced cats eating a continental fauna: invertebrate consumption by feral cats (*Felis catus*) in Australia. *Wildlife Research*. <https://www.publish.csiro.au/WR/WR19197>

3. the effectiveness of current legislative and regulatory approaches;

RSPCA., 2018. Identifying Best Practice Domestic Cat Management in Australia. *RSPCA Australia: Deakin West, Australia*. <https://kb.rspca.org.au/wp-content/uploads/2019/01/Findings-and-Recommendations-Identifying-Best-Practice-Domestic-Cat-Management.pdf>



- 4. the effectiveness of Commonwealth action and cooperation with states and territories on this issue, including progress made under the Threat Abatement Plan, national framework and national declaration relating to feral and domestic cats in Australia;**

nil

- 5. the efficacy (in terms of reducing the impact of cats), cost effectiveness and use of current and emerging methods and tools for controlling feral cats, including baiting, the establishment of feral cat-free areas using conservation fencing, gene drive technology;**

Doherty, T.S., Dickman, C.R., Johnson, C.N., Legge, S.M., Ritchie, E.G. and Woinarski, J.C., 2017. Impacts and management of feral cats *Felis catus* in Australia. *Mammal Review*, 47(2), pp.83-97. <https://onlinelibrary.wiley.com/doi/abs/10.1111/mam.12080>

Kinnear, J.E., 2018. Mammal conservation and invasive species control in Australia: harnessing a potential extinction machine. *Australian Mammalogy*, 40(2), pp.131-135. <https://www.publish.csiro.au/am/pdf/AM17022>

Miritis, V., Rendall, A.R., Doherty, T.S., Coetsee, A.L. and Ritchie, E.G., Living with the enemy: a threatened prey species coexisting with feral cats on a fox-free island. *Wildlife Research*. <https://www.publish.csiro.au/WR/WR19202>

RSPCA., 2018. Identifying Best Practice Domestic Cat Management in Australia. *RSPCA Australia: Deakin West, Australia*. <https://kb.rspca.org.au/wp-content/uploads/2019/01/Findings-and-Recommendations-Identifying-Best-Practice-Domestic-Cat-Management.pdf>

- 6. the efficacy of import controls for high risk domestic cat varieties to prevent the impacts of feral and domestic cats, including on native wildlife and habitats;**

Dickman, C.R., Legge, S.M. and Woinarski, J.C., 2019. Assessing risks to wildlife from free-roaming hybrid cats: The proposed introduction of pet Savannah cats to Australia as a case study. *Animals*, 9(10), p.795. <https://doi.org/10.3390/ani9100795>

- 7. public awareness and education in relation to the feral and domestic cat problem; and**

nil

- 8. the interaction between domestic cat ownership and the feral cat problem, and best practice approaches to the keeping of domestic cats in this regard.**

nil