Inquiry into the problem of feral and domestic cats in Australia

An inquiry by the
Standing Committee on the Environment and Energy

Submission by the
Invasive Species Council

August 2020

Endorsed by:

BUSH HERITAGE AUSTRALIA

Nature Conservation Council The voice for nature in NSW

Nature Conservation Society of South Australia

Document details

Invasive Species Council. 2020. Inquiry into the problem of feral and domestic cats in Australia. A submission by the Invasive Species Council to an inquiry by the Standing Committee on the Environment and Energy. August 2020.

About the Invasive Species Council

The Invasive Species Council was formed in 2002 to advocate for stronger laws, policies and programs to keep Australian biodiversity safe from weeds, feral animals, exotic pathogens and other invaders. It is a not-for-profit charitable organisation with over 3000 supporters, funded entirely by donations from supporters and philanthropic organisations.

Endorsements

This submission prepared by the Invasive Species Council and has been endorsed by the following organisations:

- Bush Heritage Australia
- Nature Conservation Council of NSW
- Nature Conservation Society of South Australia

Intellectual property rights

Inquiries

Invasive Species Council
Address: PO Box 96, Katoomba NSW 2780, Australia
ABN: 27 101 522 829
Web: invasives.org.au
Email: isc@invasives.org.au

Contents

Introduction

We welcome the federal government's inquiry into the problem of feral and domestic cats in Australia.

Our main focus in this submission is the following four terms of reference:

> (c) The effectiveness of current legislative and regulatory approaches.
>
> (d) 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.
>
> (e) 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;
>
> (f) 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.
>
> (g) public awareness and education in relation to the feral and domestic cat problem.

In particular, we comment on the effectiveness of the implementation of the threat abatement plan for predation by feral cats.

Of all the 21 key threatening processes (KTPs) listed under the *Environment Protection and Biodiversity Conservation Act 1999*, predation by feral cats has received the most concerted recent federal attention due to it being the only KTP focus of the Threatened Species Strategy. It should therefore be an exemplar for threat abatement in Australia. We urge the committee to consider how the threat abatement process more generally could be improved to support more effective abatement of the feral cat threat (see ISC and BHA 2020 for recommendations about reforms of the threat abatement system).

Recommendations

Overseeing implementation

1. Maintain national leadership through the feral cat taskforce to achieve long-term reduction of feral cat impacts.
2. Ensure future threatened species strategies prioritise strategic actions to reduce feral cat impacts.

Engaging other sectors

3. Broaden representation within the taskforce to include the agriculture sector, local government, veterinarians, pet traders and pet food industry.

Implementing the threat abatement plan

4. Request states and territories to prepare subsidiary abatement plans specifying their intended actions to implement the national TAP. Consider as part of the upcoming reforms of the EPBC Act how states and territories can be encouraged or required (for example, as part of funding agreements) to prepare implementation plans for all relevant threat abatement plans.
5. Continue to exert national leadership to drive consistency in state and territory feral cat legislation.
6. Encourage and provide technical support for natural resource management groups and/or local governments to prepare detailed action plans to address feral cat impacts.

Prioritising islands

7. Maintain a strong national focus on eradicating cats from islands of high conservation significance.
8. Strengthen biosecurity regulations and strategies for cat-free islands to prevent colonisation or recolonisation.

Engaging and inspiring the community

9. Develop a clear positive vision/targets for abating the threat of feral cats that can be used to convey the value of a strong abatement focus.
10. Develop and implement a communications strategy for the threat abatement program using communication specialists.
11. Aim to expand the national discourse about the impacts of cats to build support for responsible pet ownership.

Reducing the risks of domestic and imported cats

12. Seek standardisation of pet ownership laws across the nation and support national movements towards responsible pet ownership.
13. Consider amending the federal listing of predation by feral cats as a key threatening process to include the predation impacts of domestic cats.
14. Maintain the ban on importation of hybrid cat species and apply it comprehensively, including to Bengal cats; otherwise, require that all imported Bengal cats are desexed.

Gaining and maintaining a social licence

15. Prioritise research into effective replacements for 1080 that are more humane.
16. Promote standardised codes of practice for the humane use of cat control tools.

17. Improve promotion of the welfare outcomes and benefits of feral cat control, focussing on the welfare of native animals affected by invasive animals as well as the targeted invasive animals.

Facilitating the approval of new control methods

18. As part of federal government initiatives to improve access to agricultural and veterinary chemicals (DAWE 2019), give high priority to measures for safeguarding the environment, and expand the initiatives to include facilitating the approval of new environmental products to conserve threatened species.
19. Provide federal and state government funding for the research and administrative tasks needed to gain regulatory approval for new cat control methods.

Addressing interacting threats

20. As a high priority, continue to invest in research as outlined in the TAP for predation by feral cats (actions 1.3, 1.4, 1.7, 1.8, 3.4, 3.5).
21. As part of the threat abatement program, regularly synthesise research findings and their implications for land management policies, programs and funding priorities.
22. Make sure that the potential consequences for feral cat threats are considered in all government-funded land management programs, including for predator management.

Funding effective threat abatement

23. Federal, state and territory governments should make long-term investments in strategic feral cat control and research to fully deliver on the actions needed to achieve threat abatement.
24. Explore alternative funding sources such as from the domestic-cat related industry.

Becoming ambitious

25. Develop a more ambitious long-term goal for national action on feral cat impacts that includes:
    a) no more extinctions caused by cats
    b) the normalisation of responsible cat ownership
    c) thriving small mammal populations.

1 Overseeing implementation

One of the greatest strengths of the implementation process of the threat abatement plan (TAP) for predation by feral cats is the Feral Cat Taskforce currently chaired by Threatened Species Commissioner Sally Box. The Invasive Species Council has participated in the taskforce since its formation and found it to be a dynamic forum focused on outcomes and characterised by considerable goodwill. The taskforce meets about twice a year in Canberra for 1.5–2 days.

Essential elements for the effectiveness of the taskforce have been:

- strong leadership by threatened species commissioners (first Gregory Andrews, then Sally Box)
- participation and goodwill by other major stakeholders – including all state and territory governments, non-government stakeholders (constrained to some extent by a lack of travel support) and researchers
- strong relationships developed between taskforce participants, including across sectors, leading to collaboration on projects
- a strong research focus through the National Environment Science Program 2015-2021, with national reviews of cat predation on Australian mammals and field based research
- federal leadership to overcome blockages e.g. engagement with the Australian Pesticides and Veterinary Medicines Authority (APVMA) to try to speed up approvals
- regular reporting on progress at taskforce meetings, encouraging accountability and proactivity by each stakeholder.

A focus on feral cats within the Threatened Species Strategy 2015-2020 has helped bolster progress towards the implementation of the TAP for predation by feral cats.

Recommendations

1. Maintain national leadership through the feral cat taskforce to achieve long-term reduction of feral cat impacts.
2. Ensure future threatened species strategies prioritise strategic actions to reduce feral cat impacts.

2 Engaging other sectors

Although the taskforce includes non-government sectors, there are some major gaps in the membership. In particular, there is no participation by the farming and local government sectors despite their potential for implementing threat abatement over large parts of Australia. The main focus of current abatement efforts is on the conservation estate, Indigenous lands and islands. Consideration needs to be given to how to support and encourage local governments and farmers in areas with at-risk species to undertake threat abatement. In some areas, the risk of toxoplasmosis infection of farmers and domestic stock is an incentive for threat abatement on farms (Stelzer *et al.* 2019). The Kangaroo Island Feral Cat Eradication Program offers one example of effective collaboration between government, council, industry and resource managers working towards shared interests of feral cat eradication across the landscape (Kangaroo Island Landscape Board n.d.).

Also worth engaging are those who are likely to have influence over the way domestic cats are kept and managed – veterinarians, pet traders and the pet food industry. The Safe Cat Safe Wildlife

campaign provides an example which is a joint initiative between Zoos Victoria and RSPCA Victoria. Launched in 2018, the campaign now has 119 supporting organisations and a community of over 20,000 people (Feral cat taskforce teleconference 2019, pers comm, 28 November).

Recommendations

3. Broaden representation within the taskforce to include the agriculture sector, local government, veterinarians, pet traders and pet food industry.

3 Implementing the threat abatement plan

Implementation of the threat abatement plan is patchy, with variable performance across the states and territories and very little implementation by local governments. A national plan is essential to focus effort on national priorities such as research and the development of effective control options, but it can only be as effective as the willingness of state, territory and local governments, as well as landholders with at-risk biodiversity values, to implement it. A genuine commitment requires the development of subsidiary abatement plans by each state and territory specifying their intended actions, coupled with action at the local level. Thus far, only Tasmania has developed such a plan and the ACT is developing a plan with a commitment to support implementation of the 2015 TAP. NSW has incorporated feral cats as a priority pest species into their NRM-level regional strategic pest animal plans. One focus should be on supporting and providing technical guidance for local governments, natural resource management (NRM) groups and other local bodies to include feral cats in their land and pest management plans.

The threatened species strategy 2015–2020 has helped push states and territories towards consistency in their policies relating to feral cats (Australian Government 2015; Woinarski *et al.* 2018). Recognising the threat of cats in relevant state and territory legislation can facilitate management and aid abatement (i.e. declaring cats as pests under biosecurity legislation or listing predation by feral cats as a key threatening process). For example, in 2019 Western Australia declared feral cats a pest under the Biosecurity and Agriculture Management Act 2007, which allows (but does not oblige) land managers to control cats and allows recognised biosecurity groups to access state funding for cat control (Government of Western Australia 2019). Similarly in January 2020 the Victorian government declared feral cats as an established pest, however this only applies to selected public lands such as national parks and other protected areas.

Recommendations

4. Request states and territories to prepare subsidiary abatement plans specifying their intended actions to implement the national TAP. Consider as part of the upcoming reforms of the EPBC Act how states and territories can be encouraged or required (for example, as part of funding agreements) to prepare implementation plans for all relevant threat abatement plans.
5. Continue to exert national leadership to drive consistency in state and territory feral cat legislation.
6. Encourage and provide technical support for natural resource management groups and/or local governments to prepare detailed action plans to address feral cat impacts.

4 Prioritising islands

Islands free of feral cats can function as important biodiversity conservation hubs and refuges for threatened species. Islands are a more cost-effective option than fenced reserves for conserving species that cannot coexist with feral cats (and foxes) (Woinarski *et al.* 2019).

Australia should maintain a strong focus on eradicating cats from islands of high conservation status. Feral cats have been recorded on at least 87 Australian islands, with the cat status on many islands unknown (DAWE n.d.). Cats have been eradicated from nearly 30 Australian islands (Woinarski *et al.* 2019) and the federal government's threatened species strategy has directed positive progress towards the removal of cats from another five islands – French Island, Bruny Island, Christmas Island, Kangaroo Island and Dick Hartog Island. Indeed, Australia has demonstrated global leadership in island cat eradications; 'the Dirk Hartog project has become the largest successful island feral cat eradication campaign attempted to date' (Woinarski *et al.* 2019).

Eradication is just the first step. An even bigger challenge is to prevent recolonisation by cats and protect other cat-free islands from invasion. This requires consistent monitoring and rigorous biosecurity. Biosecurity for Australian islands has major gaps, as exemplified by the continued introduction of cats to islands over the past few decades. Dickman *et al.* (2010) identified a number of islands of high conservation value that should be prioritised for improved biosecurity to prevent the invasion or re-invasion of feral cats. This should include targeted communication programs, more surveillance and explicit provision for cat-free areas in relevant policy and legislation.

Recommendations

7. Maintain a strong national focus on eradicating cats from islands of high conservation significance.
8. Strengthen biosecurity regulations and strategies for cat-free islands to prevent colonisation or recolonisation.

5 Engaging and inspiring the community

Abatement of feral cat threats will fail at many levels unless there is strong community support for it. The risks include:

- strong vocal opposition to cat control (eg on animal welfare grounds).
- waning of political support for abatement efforts, from federal to local levels, including funding.
- opposition to and flouting of regulations or guidelines for the management of domestic cats.

Effective engagement requires clearly communicating the benefits of abatement, inspiring Australians with a vision of what can be achieved by abatement, and providing information about the role that Australians can play in abatement. It requires taking animal welfare concerns seriously and ensuring that any control is humane, justifiable and effective.

We have been impressed by the communication efforts of the office of the Threatened Species Commissioner, including a strong social media presence. There has also been excellent communication of research by the National Environmental Science Program (NESP) such as that about the numbers of native animals killed by feral and domestic cats.

We recommend a stronger focus on developing a clear positive vision/targets for abating the threat of feral cats that can be used to convey the value of a strong abatement focus. The target in the Threatened Species Strategy – '2 million feral cats culled by 2020' – has the virtue of simplicity but is likely to be off-putting to a substantial number of people for its crude emphasis on killing and the lack of a scientific basis for a numerical target (Doherty *et al.* 2018).

The abatement program needs a communications strategy that can be used by governments (federal, state/territory and local) and other organisations involved in threat abatement work. It is important that communication specialists be employed to help develop that strategy, craft effective messages and monitor its effectiveness (e.g. by before and after surveys).

The communications strategy should include a focus on domestic cats, which have been shown by NESP research to kill large numbers of wildlife (Legge *et al.* 2020). We need a broader national discourse about cats to build support for responsible pet ownership as well as acceptance of the need for the humane control of feral and stray cats.

Recommendations

9. Develop a clear positive vision/targets for abating the threat of feral cats that can be used to convey the value of a strong abatement focus.
10. Develop and implement a communications strategy for the threat abatement program using communication specialists.
11. Aim to expand the national discourse about the impacts of cats to build support for responsible pet ownership.

6 Reducing the risks of domestic and imported cats

Although pet ownership regulations fall within the jurisdiction of local governments, the federal government should exert leadership to push for standardised pet ownership regulations across the nation to limit the numbers of free-roaming cats that prey on wildlife and transition to the stray/feral cat population. The federal government should also play a greater supportive role in national movements towards responsible pet ownership, for example, through the national desexing network (Animal Welfare League QLD 2020).

We strongly support the government's ban on the importation of hybridised cat species. Crosses between domestic and wild cat species, such as the Savannah cat, pose a grave risk to the Australian environment (Dickman *et al.* 2019). Without a total ban, it is inevitable that hybrid genes, including for traits that increase hunting success, would eventually be introduced into feral cat populations (escapes and accidents happen).

The Bengal (a cross between the Asian leopard cat and domestic cat) is an exception to this rule and the government acknowledges that the ongoing importation of Bengals is a 'legacy issue' and 'exception to the general policy' (DAWE n.d.). Given the risks, the ban on hybrids should be comprehensive. If this is rejected, the importation requirements should be tightened to reduce risk, including by mandatory desexing.

Recommendations

12. Seek standardisation of pet ownership laws across the nation and support national movements towards responsible pet ownership.

13. Consider amending the federal listing of predation by feral cats as a key threatening process to include the predation impacts of domestic cats.
14. Maintain the ban on importation of hybrid cat species and apply it comprehensively, including to Bengal cats; otherwise, require that all imported Bengal cats are desexed.

7 Gaining and maintaining a social licence

Strongly related to community engagement is the need to gain and maintain a social licence for controlling (killing) feral cats. Many Australians strongly oppose animal cruelty, including toxins used to kill invasive animals such as 1080, which is used in cat baits.

The Invasive Species Council recently reviewed the conservation and welfare consequences of 1080 baiting (Invasive Species Council 2020) and a summary is provided in Box 1. As a high priority, we recommend research into effective replacements for 1080 that are more humane. However, it is important to maintain 1080 as a control option until there are effective replacements. A ban on 1080 without an effective replacement would overall result in greater suffering, as well as catastrophic declines in native species. The use of 1080 has welfare benefits for native animals that are freed from the pressure of heavy predation or competition by introduced animals.

It is important to work closely with animal welfare experts, particularly the RSPCA, to minimise the adverse welfare consequences of threat abatement and promote a focus on the welfare of native animals affected by invasive animals as well as the targeted invasive animals.

Thanks to federal leadership and support, a new, more humane bait for feral cats known as Curiosity (active ingredient: para-aminopropiophenone – PAPP) has recently been registered. Codes of practice for the use of this bait have been published on the government website, but not yet across all other platforms. National coordination is needed to ensure codes of practice are updated across all key platforms to ensure information on control methods is accessible and consistent. Codes of practice aid in the adoption of humane practices and build community confidence that the bait will be used humanely and effectively.

Objective measures of the animal welfare impact of poisons used in feral animal control are necessary to accurately assess their relative humaneness. Action 4.4 under the TAP is '*Develop specific communication campaigns to accompany the release of a new broad-scale cat control techniques and other current/new cat control techniques and management programs'.* This action should be accorded a high priority. Often it is only through a literature search that independent published research is accessible – for example, a recent paper on the efficacy and welfare of PAPP (Johnston *et al.* 2020). A stronger focus on the communication and ready accessibility of welfare impact results to the public is required.

Recommendations

15. Prioritise research into effective replacements for 1080 that are more humane.
16. Promote standardised codes of practice for the humane use of cat control tools.
17. Improve promotion of the welfare outcomes and benefits of feral cat control, focussing on the welfare of native animals affected by invasive animals as well as the targeted invasive animals.

Box 1. **1080: A Weighty Ethical Issue *(Summary)***

1080 – sodium fluoroacetate – is very important for conservation in Australia, used extensively to protect rare native species from foxes, cats, pigs and rabbits. But many people oppose its use because it is regarded as inhumane.

In this report the Invasive Species Council considers the conservation and welfare consequences of 1080 baiting. We do this as an environmental organisation whose mission is to strengthen protection for Australian species from harmful introduced species, but also as people who care about the welfare of animals, whether introduced or native.

Diagnosing pain and distress in animals is difficult, and there is much uncertainty about the welfare impacts of 1080 poisoning, because the extent to which animals are conscious during some of the worst symptoms is unknown.

However, it seems highly likely that 1080-poisoned animals suffer pain and distress before they become unconscious, although the extent and duration are highly variable and poorly understood. A 2010 assessment by an independent expert panel in New Zealand concluded that 1080 had severe to extreme impacts on the welfare of the species assessed (including cats, pigs and rabbits) lasting from hours to days, depending on the species. The panel had only a low level of confidence in most assessments due to the lack of information about many impacts.

1080 has been essential for enabling the survival or recovery of many threatened species and their reintroduction to sites where introduced predators have been suppressed or eradicated.
The use of 1080 also has welfare benefits for native animals who are freed from the pressure of heavy predation or competition by introduced animals. A ban on 1080 without an effective replacement would overall result in greater suffering (as well as declines in native species).

As a high priority, we recommend research into effective replacements for 1080 that are more humane. Four new more-humane baits have been approved in Australia since 2016, but they cannot totally replace 1080 due to their nontarget impacts and limited delivery options.

We believe that an ethical approach to the welfare problems of 1080 requires the following:

- Develop and deploy more-humane and effective ways of controlling harmful introduced animals.
- Design long-term control programs that minimise the overall extent of killing of introduced animals – for example, by eradicating or substantially suppressing their populations, and by intervening ecologically to help native animals withstand invasive pressures.
- Improve monitoring to ascertain whether 1080 baiting (and other methods) achieve conservation goals and are cost effective (it is unethical to kill animals if no conservation benefit is achieved and wrong to waste scarce conservation funds).
- Strive to better understand (where feasible) the welfare consequences of 1080.
- • Strengthen biosecurity prevention, eradication and containment to stop the establishment and spread of new introduced species.

Download the report from https://invasives.org.au/publications/1080-a-weighty-ethical-issue.

8 Facilitating the approval of new control methods

One impediment to effective threat abatement has been the onerous and slow process for approval of new control methods by the Australian Pesticides and Veterinary Medicines Authority (APVMA), exemplified by the 3.5 years it took for the federal approval of the Curiosity® bait for feral cats and routine difficulties in applying for emergency cat control for threatened species projects. The regulatory system of the APVMA is currently being reviewed. We raised concerns with the review panel about the barriers to approval of new environmental products. The developers of

environmental products have far fewer resources than the big chemical companies supplying farmers with chemicals and often rely substantially on government assistance. Proving the efficacy and safety of new methods across large areas of Australia is complex and expensive. The development of new products for controlling feral cats and other harmful invasive animals is very much in the public interest, so should be facilitated rather than impeded by the processes developed for agricultural products that are applied over very large areas and affect the safety of food for humans. The main focus of the APVMA and the review panel (in their draft discussion paper) has been to support the agricultural sector to gain access to new products. There should be an equally strong focus on supporting the environmental sector.

Recommendations

18. As part of federal government initiatives to improve access to agricultural and veterinary chemicals (DAWE 2019), give high priority to measures for safeguarding the environment, and expand the initiatives to include facilitating the approval of new environmental products to conserve threatened species.
19. Provide federal and state government funding for the research and administrative tasks needed to gain regulatory approval for new cat control methods.

9 Addressing interacting threats

Actions 1.3 and 1.4 of the 2015 threat abatement plan, focused on interacting threats, are critical to strengthening Australia's capacity to abate feral cat threats:

> *1.3 Continue research into understanding interactions between feral cats and other predators: (i) in different landscapes; and (ii) and potential beneficial/perverse outcomes if other predator populations are modified.*
>
> *1.4 Continue research into understanding the role of other major landscape modifiers, such as fire or grazing by introduced herbivores, in feral cat activities and control*

It is increasingly clear that feral cats interact with other threats to drive declines and extinctions. There is persuasive evidence that changes in fire regimes in northern Australia over the past few decades and probably also in grazing regimes, due to the increasing use of drought-tolerant *Bos indicus* and hybrid cattle since the 1970s, have facilitated much more efficient hunting by feral cats, and that this is likely to have substantially increased the predation impacts of feral cats (Fisher *et al.* 2014; Frank *et al.* 2014; McGregor *et al.* 2014; McGregor *et al.* 2015). It has been shown that feral cats target recently burnt areas and that the simplification of vegetation following intense fires or grazing by large herbivores makes mammals easier for cats to detect and capture (Frank *et al.* 2014; McGregor *et al.* 2014; McGregor *et al.* 2015). A study in the central Kimberley found that feral cats were over four times more likely to make a successful kill in open areas than in complex vegetation or among rocks, and killed on average more than seven animals a day (McGregor *et al.* 2015). Even in small numbers, feral cats can cause local extinctions, because they may continue to hunt favoured prey regardless of their density, and because they kill more than they eat (Legge *et al.* 2011).

There is also evidence that foxes and dingoes can suppress the impacts of cats. For example, intensive fox control has been undermined in some cases due to increased populations or altered behaviour of feral cats. This has been observed in research conducted by Bush Heritage Australia (who endorse this submission) on their South Australian reserve (pers comm 2020). Other research indicates that the loss of dingoes in some (not all) areas is likely to exacerbate the impacts of cats.

We won't summarise here the research into interactions between predators, as it is complex, but the research to date shows that the potential for exacerbating the impacts of cats should be considered as part of any program focused on predator control (particularly those funded by governments).

Continuing research into ecological interactions and predator dynamics should be a very high priority. The research so far clearly demonstrates that effective abatement requires not only effective methods for cat control but integrated management of fire regimes, feral and domestic herbivores and other predators to reduce the risks of cat predation. An integrated focus holds out the potential of enabling the coexistence of some threatened species with feral cats. Maintaining and restoring habitat complexity and ecological refuges can boost native wildlife populations, even in the absence of feral cat control (Doherty & Ritchie 2017).

The major challenge for the next phase of threat abatement is to apply the results of research on interacting threats – to develop clear policy goals and guidelines and programs to manage interacting threats. This will require strong leadership by the Australian government.

Recommendations

20. As a high priority, continue to invest in research as outlined in the TAP for predation by feral cats (actions 1.3, 1.4, 1.7, 1.8, 3.4, 3.5).
21. As part of the threat abatement program, regularly synthesise research findings and their implications for land management policies, programs and funding priorities.
22. Make sure that the potential consequences for feral cat threats are considered in all government-funded land management programs, including for predator management.

10 Funding effective threat abatement

A major impediment to effective abatement is insufficient funding.

We applaud the initiative of the previous Threatened Species Commissioner in developing a prospectus to encourage business and philanthropic funding for feral cat threat abatement projects. As of January 2018, this prospectus had helped secure nearly $5 million from non-government sources for projects focused on threatened species recovery (Department of the Environment and Energy 2017).

We also applaud that the strategic focus on feral cats has helped mobilise over $38 million from 2014 to 2018 from the Australian Government through funding programs such as the National Environment Science Program and the National Landcare Program (Department of the Environment and Energy 2019).

However, this level of funding for addressing one of the major threats to Australian wildlife is low, particularly compared to federal funding for other national threats such as wild dog control. To achieve abatement will require considerably more funding. The base national level of funding through the threatened species strategy is highly inadequate.

Recommendations

23. Federal, state and territory governments should make long-term investments in strategic feral cat control and research to fully deliver on the actions needed to achieve threat abatement.

24. Explore alternative funding sources such as from the domestic-cat related industry.

11 Becoming ambitious

The most important elements for effective threat abatement are determination and ambition.

Australia has shown in many other ways that we can achieve mighty things when we have strong national leadership and long-term commitment to an ambitious national goal. Australia is a global leader in understanding the impacts that cats have on biodiversity and should pursue goals that. Australia should not hesitate to set aspirational time-bound goals for a future in which feral cats are no longer a threat. The long term vision of an abated cat threat would see small mammals and other vulnerable wildlife once again thriving, no more extinctions and responsible cat ownership a social norm.

Recommendations

25. Develop a more ambitious long-term goal for national action on feral cat impacts that includes:
    d) no more extinctions caused by cats
    e) the normalisation of responsible cat ownership
    f) thriving small mammal populations.

12 References

Animal Welfare League 2020, *About National Desexing Network,* viewed 6 August 2020, <https://ndn.org.au/about-ndn/>.

Australian Government 2015, *Threatened Species Strategy,* viewed 6 August 2020, <https://www.environment.gov.au/system/files/resources/51b0e2d4-50ae-49b5-8317-081c6afb3117/files/ts-strategy.pdf>.

DAWE (Department of Agriculture, Water and the Environment) 2019, *Improved access to agricultural and veterinary chemicals - $14.3 million initiative,* Australian Government, viewed 6 August 2020, <https://library.westernsydney.edu.au/main/sites/default/files/pdf/cite_Harvard.pdf>.

DAWE (Department of Agriculture, Water and the Environment) n.d., *Feral animals on offshore islands,* viewed 6 August 2020, <https://www.environment.gov.au/biodiversity/invasive-species/feral-animals-australia/offshore-islands>.

DAWE (Department of Agriculture, Water and the Environment) n.d., *Guidance on the import of live hybrid animals,* viewed 6 August 2020, <https://www.environment.gov.au/biodiversity/wildlife-trade/live/import-list/hybrid-animals-guidance>.

Department of the Environment and Energy 2017, *Funding models for threatened species management,* viewed 6 August 2020, <https://www.anao.gov.au/sites/default/files/ANAO_Report_2017-2018_32.pdf>.

Department of the Environment and Energy 2019, *Threatened species strategy – year three report,* viewed 6 August 2020, <https://www.environment.gov.au/system/files/resources/ff192035-6dd2-42a4-b421-7ab98edd3d38/files/threatened-species-strategy-year-3-progress-report.pdf>

Dickman, CR, Denny, E & Buckmaster, T 2010, *Identification of sites of high conservation priority impacted by feral cats,* Report for the Australian Government Department of the Environment, Water, Heritage and the Arts, viewed 6 August 2020, <https://www.environment.gov.au/system/files/resources/d2b345a5-d80c-4f3f-bf39-c85eb08e82a1/files/feral-cat-impacted-sites.pdf>.

Dickman, CR, Legge, SM & Woinarski, JCZ 2019, 'Assessing risks to wildlife from free-roaming hybrid cats: the proposed introduction of pet savannah cats to Australia as a case study', *Animals,* vol. 9. no. 795, DOI 10.3390/ani9100795.

Doherty, TS, Driscoll, DA, Nimmo, DG, Ritchie, EG & Spencer, RJ 2019, 'Conservation or politics? Australia's target to kill 2 million cats', *Conservation Letters,* DOI 10.1111/con1.12633.

Doherty, TS, Ritchie, EG 2016, 'Stop jumping the gun: a call for evidence-based invasive predator management', *Conservation Letters,* vol. 10, no. 1, pp. 15-22.

Fisher, DO *et al.* 2014, 'The current decline of tropical marsupials in Australia: is history repeating?'

Global Ecology and Biogeography, vol. 23, pp. 181-190, DOI 10.1111/geb.12088.

Frank, ASK *et al.* 2014, 'Experimental evidence that feral cats cause local extirpation of small mammals in Australia's tropical savannas', *Journal of Applied Ecology,* vol. 51, 1486-1493.

Government of Western Australia 2019, *Action taken to protect native animals from feral cats,* viewed 6 August 2020, <https://www.mediastatements.wa.gov.au/Pages/McGowan/2019/06/Action-taken-to-protect-native-animals-from-feral-cats.aspx>.

Invasive Species Council 2020, *1080: A weighty ethical issue*, viewed 6 August 2020, <https://invasives.org.au/wp-content/uploads/2020/08/Report-1080-A-Weighty-Ethical-Issue.pdf>.

Invasive Species Council (ISC) and Bush Heritage Australia (BHA) 2020, *Australia's system for abating major threats to biodiversity,* viewed 6 August 2020, <https://invasives.org.au/wp-content/uploads/2020/05/Submission-ISC-BHA-EPBC-Act-review-final-Mar-2020.pdf>

Johnston, M, Algar, D, O'Donoghue, M, Morris, J, Buckmaster, T & Quinn, J 2020, 'Efficacy and welfare assessment of an encapsulated para-aminopropiophenone (PAPP) formulation as a bait-delivered toxicant for feral cats (*Felis catus*)', *Wildlife Research,* DOI 10.1071/WR19171.

Kangaroo Island Landscape Board n.d., *Kangaroo Island feral cat eradication program*, Government of South Australia, viewed 6 August 2020, <https://landscape.sa.gov.au/ki/plants-and-animals/pest-animals/Kangaroo-Island-Feral-Cat-Eradication-Program>.

Legge, S, Kennedy, MS, Lloyd, R, Murphy, SA & Fisher, A 2011, 'Rapid recovery of mammal fauna in the central Kimberley, northern Australia, following the removal of introduced herbivores', *Austral Ecology,* vol. 36, pp. 791-799.

Legge, S, Woinarski, JCZ, Dickman, CR, Murphy, BP, Woolley, L, Calver, MC 2020, 'We need to worry about Bella and Charlie: the impacts of pet cats on Australian Wildlife', *Wildlife Research*, DOI 10.1071/WR19174.

McGregor, HW, Legge, S, Jones, ME & Johnson, CN 2014, 'Landscape management of fire and grazing regimes alters the fine-scale habitat utilisation by feral cats', *Plos One*, vol. 9, DOI 10.1371/journal.pone.0109097

McGregor, HW, Legge, S, Jones, ME & Johnson, CN 2015, 'Feral cats are better killers in open habitats, revealed by animal-borne video', *Plos One*, vol. 10, DOI 10.1371/journal.pone.0133915.

Stelzer, S, Basso, W, Silvan, JB, Ortega-Mora, LM, Maksimov, P, Gethmann, J *et al.* 2019, '*Toxoplasma gondiil* infection and toxoplasmosis in farm animals: risk factors and economic impact', *Food and Waterborne Parasitology,* vol. 15, DOI 10.1016/j.fawpar.2019.e00037.

Woinarski, J, Legge, S & Dickman, C 2019, *Cats in Australia: companion and killer,* CSIRO Publishing, Clayton South, Victoria.