Australian Government

Department of Climate Change, Energy, the Environment and Water

Threat abatement plan for predation by feral cats 2023

Consultation draft: September 2023

CONSULTATION

© Commonwealth of Australia 2023

Ownership of intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights) in this publication is owned by the Commonwealth of Australia (referred to as the Commonwealth).

Creative Commons licence

All material in this publication is licensed under a Creative Commons Attribution 4.0 International Licence except content supplied by third parties, logos and the Commonwealth Coat of Arms.

Inquiries about the licence and any use of this document should be emailed to copyright@dcceew.gov.au.

Cataloguing data

This publication (and any material sourced from it) should be attributed as: *DCCEEW 2023, Threat abatement plan for predation by feral cats*, Department of Climate Change, Energy, the Environment and Water, Canberra. CC BY 4.0.

This publication is available at https://www.dcceew.gov.au/environment/biodiversity/threatened/threat-abatement-plans/drafts-open.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090 Canberra ACT 2601
Telephone 1800 900 090
Web dcceew.gov.au

Disclaimer

The Australian Government acting through the Department of Climate Change, Energy, the Environment and Water has exercised due care and skill in preparing and compiling the information and data in this publication. Notwithstanding, the Department of Climate Change, Energy, the Environment and Water, its employees and advisers disclaim all liability, including liability for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying on any of the information or data in this publication to the maximum extent permitted by law.

Acknowledgements

The department thanks the stakeholders who contributed their input to the development of this draft plan, and Professor Sarah Legge and Professor John Woinarski for their support in preparing this draft plan.

Acknowledgement of Country

Our department recognises the First Peoples of this nation and their ongoing connection to culture and country. We acknowledge Aboriginal and Torres Strait Islander Peoples as the Traditional Owners, Custodians and Lore Keepers of the world's oldest living culture and pay respects to their Elders past, and present.

Front cover: Feral cat © Copyright Joanne Heathcote

DRAFT FOR CONSULTATION

Contents

DRAFT FOR CONSULTATION

DRAFT FOR CONSULTATION

Figures

DRAFT FOR CONSULTATION

Tables

DRAFT FOR CONSULTATION

1 Summary

Predation by feral cats is recognised as a key threatening process under the Australian *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), in recognition of the significant detrimental impact of feral cats on many Australian threatened species. The national management of feral cats has been coordinated and implemented through a succession of threat abatement plans (established in 1999, 2008 and 2015). These plans have contributed to major gains in knowledge about cats and their impacts; to important advances in the efficacy and range of options available to manage them; to significant conservation outcomes, especially for species most susceptible to cat predation; and to broad stakeholder recognition of the threat posed by feral cats and the need for actions to reduce that threat. This plan builds from the foundations established in these previous plans.

This threat abatement plan has been developed, and should be implemented, in accordance with the following principles:

1) Stakeholder groups with interests in cat management and welfare should be respectfully engaged.
2) The management of feral cats should incorporate and support the management objectives and expertise of Indigenous Australians.
3) Programs to reduce cat impacts should use actions that are justified by optimising biodiversity outcomes, overall humaneness, and the sustainability of the action(s).
4) Cat management should occur within an evidence-based and adaptive management framework, where monitoring leads to continual improvements in knowledge and refinement of management actions.
5) Cat management should consider a broad ecological context, including potential consequences on other feral animals, and be conducted in a manner that integrates pest control for biodiversity outcomes.
6) The priority accorded to the management of feral cats should be commensurate with the ongoing severe impacts of cat predation on much of Australia's fauna, including many threatened species, and with the magnitude of beneficial impacts likely to arise from cat control.

This threat abatement plan for predation by feral cats sets a long-term goal, with a 30-year horizon: **To reduce the impacts of cats sufficiently to ensure the long-term viability of all affected native species.**

Cat impacts on fauna arise mainly from predation, and potentially also from diseases that are spread by cats. Impacts may be direct (e.g., cats substantially reduce a population via predation or disease), or indirect (e.g., cats disrupt ecosystems by reducing the abundance of ecologically significant species).

DRAFT FOR CONSULTATION

The goal will be achieved when:

- There are no further extinctions of native species, nor extirpations of island populations (including seabird colonies), due to impacts from cats.
- Cat-driven declines in extremely and highly cat-susceptible native species (as defined in Table 1, section 4.1.1) are stopped and reversed to the extent that these species are no longer eligible for listing as threatened as a result of cat impacts (recognising that some cat-susceptible species may also be affected by other factors, the effective control of cats may not always be sufficient to allow for such recovery, and the conservation of such species may be contingent on management of cats and other threats).
- Cat impacts are reduced across large landscapes and priority locations, such that no currently unlisted species become threatened because of impacts from cats.

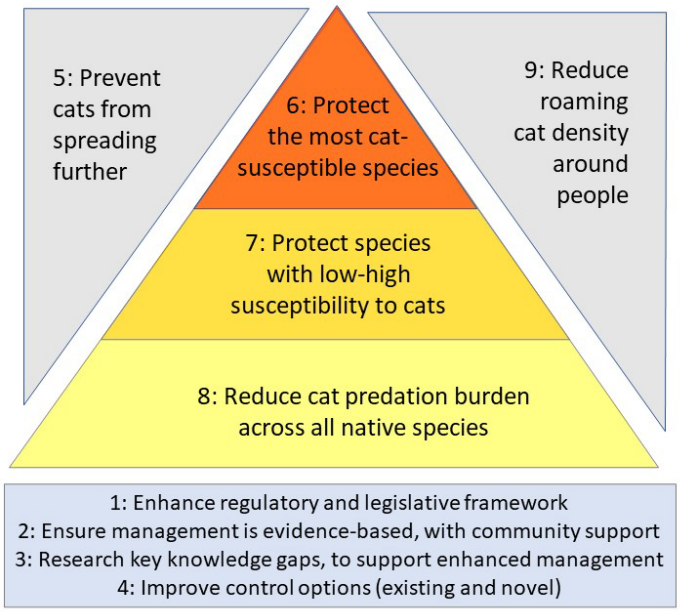
To move strategically towards this long-term goal, the plan has nine objectives to organise actions over the next 5 and 10 years. The objectives have been developed following review of the previous threat abatement plans, and consultation with experts and stakeholder groups, including Indigenous groups.

Four are cross-cutting objectives that support the delivery of the on-ground actions covered in the other five objectives. They include enhancing legislative and regulatory settings; ensuring cat management is evidence-based and supported by the public; delivering research to inform management; and improving control options.

Five objectives are designed to deliver on-ground benefits to native species affected by cats: one seeks to prevent further spread of cats to islands; three objectives seek to protect native species that vary in their susceptibility to cat predation; and one objective focuses on protecting native species living in peri-urban areas.

DRAFT FOR CONSULTATION

Figure 1 The relationships between the nine objectives in the threat abatement plan



Objectives 1 to 4 are cross-cutting, and support the on-ground objectives 5 to 9. Objectives 6 to 9 are hierarchical, with objective 6 requiring the strongest cat control for the most cat-susceptible native species.

This plan primarily addresses the threat of predation by feral cats, but also acknowledges and considers the role of cats as vectors for pathogens causing serious disease in native animal species, livestock and people. It also recognises that pet cats also cause predation impacts on native species, and can become a source for the feral cat population, especially around human habitation and infrastructure.

DRAFT FOR CONSULTATION

2 Introduction

Predation by feral cats (*Felis catus*) is recognised as a key threatening process under the Australian *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), in recognition of the significant detrimental impact of feral cats on many Australian threatened species. The national management of feral cats has been coordinated and implemented through a succession of threat abatement plans (established in 1999, 2008 and 2015). These plans have coordinated and supported the management of feral cats nationally, and contributed to major gains in knowledge, significant conservation outcomes and broad stakeholder recognition of the threat posed by feral cats and of the need for actions to reduce that threat. This plan builds from the foundations established in these previous plans.

This threat abatement plan for predation by feral cats consolidates and extends the national framework provided by previous threat abatement plans to guide and coordinate Australia's response to the impacts of feral cats on biodiversity. It identifies the research, management and other actions needed to ensure the long-term survival of native species and ecological communities affected by feral cats.

Although the main impact of cats on native species is via predation (and the listed key threatening process is focused on predation by feral cats), cats also compete with some native species for food and are vectors for pathogens that cause disease in native species, livestock and people; the plan addresses these impacts. Cats also have broader ecological impacts, due to the disruption of ecological services provided by many cat-susceptible species. In addition, although the plan focuses on feral cats, it includes some consideration of pet cats because they also prey upon native species, and can become a source for the feral cat population, especially around human habitation and infrastructure.

The threat abatement plan for predation by feral cats is supported by, and supports, the Australian Government's Threatened Species Action Plan 2022-2032 (Commonwealth of Australia 2022). The Threatened Species Action Plan outlines an action-based approach to protecting and recovering Australia's threatened plants and animals, as well as priority places. Feral cat management is explicitly the subject of two targets, and relevant to many other targets, in the Threatened Species Action Plan, because cat control is integral to improving the trajectories of many of the Action Plan's priority species, places and habitats. Those explicit targets are:

- Target 8. Feral cats and foxes are managed across all important habitats for susceptible priority species using best practice methods; and
- Target 9. Feral cats and foxes are managed in all priority places where they are a key threat to condition, using best practice methods for the location.

Targets in the 2022-2032 Threatened Species Action Plan align with the objectives and actions in this threat abatement plan (see section 9.3 for details).

DRAFT FOR CONSULTATION

This plan should be read in conjunction with the background document (*Background document for the threat abatement plan for predation by feral cats*; Commonwealth of Australian 2023). The background document provides relevant key information and referenced sources on feral cat ecology, distribution and abundance; impacts on environmental, social and cultural values; current and emerging management practices; and research priorities.

2.1 Pre-consultation with Feral Cat Taskforce and Indigenous land managers

The plan has also been shaped through two pre-consultation processes: one, with the national Feral Cat Taskforce (which has a membership drawn from Commonwealth, state and territory government conservation and pest animal management agencies, animal welfare organisations, researchers and other stakeholders). The second pre-consultation process was with Indigenous Ranger groups and organisations across the country, between July and September 2022. This involved virtual and face-to-face interviews, and online surveys, with people from 100 Indigenous groups or organisations, and an additional 10 organisations that work very closely with Indigenous partners. Many interviews occurred specifically at women's forums, to obtain diversity of voice. This pre-consultation process sought to understand whether Indigenous land managers considered cats a threat to Country, what cat management was already in place, what factors constrain more effective management, what could be achieved with additional support, and the preferred form of such additional support. Summaries of the pre-consultation information are available in Appendix 7.

This pre-consultation explicitly addresses s271(3e) of the EPBC Act, that stipulates that, in making a threat abatement plan, 'regard must be had to … the role and interests of indigenous people in the conservation of Australia's biodiversity'.

2.2 Threat abatement plans

The EPBC Act provides for the identification and listing of key threatening processes to biodiversity. Predation by feral cats was listed under the legislation preceding the EPBC Act, the *Endangered Species Act* 1992, and under the EPBC Act subsequently. Successive threat abatement plans were established in 1999, 2008 and 2015.

The Australian Government develops threat abatement plans with assistance from other governments, natural resource managers and scientific experts. It then facilitates their implementation through partnerships and co-investments with other government agencies, industry and other stakeholders.

Threat abatement plans for invasive species such as feral cats not only include striving for better technical solutions, but also critical enabling objectives such as ensuring that knowledge of abatement methods is disseminated in accessible formats to potential users; addressing social, legal and economic knowledge gaps and barriers; identifying research priorities; and integrating interests relating to environmental conservation with biosecurity and agricultural production, human health and amenity.

DRAFT FOR CONSULTATION

Recovery plans and conservation advices for threatened species that are susceptible to predation by cats may also outline priorities for cat management and research. Given the geographical extent of the threat from cats, and the large number of native species affected by cat predation, regional natural resource management plans and site-based plans may provide a suitable scale and context for integrating these individual priorities and developing operational plans to manage cats. They allow biosecurity, agricultural production, human health and amenity, and environmental considerations to be jointly addressed, and allow management to be integrated across the local priority vertebrate pests within the scope of other natural resource management priorities.

The national coordination of pest animal management activities occurs under the Australian Pest Animal Strategy. The Invasive Plants and Animals Committee, comprising representatives from all Australian, state and territory governments, has responsibility for implementation of this strategy. This threat abatement plan provides guidance for the management of feral cats within that broader context.

2.3 The review of the 2015 threat abatement plan

In accordance with the requirements of the EPBC Act, the 2015 threat abatement plan for predation by feral cats (Commonwealth of Australia 2015a) was reviewed in 2021 by the Department of Agriculture, Water and the Environment. The review found that the 2015 plan had provided a good national framework for actions included in the first (2015-2020) Threatened Species Strategy (Commonwealth of Australia 2015b), and for research and management undertaken by the National Environmental Science Program, state and territory governments, researchers, local groups and other stakeholders. However, the review also found that predation by feral cats remained a major threat to Australia's native species, and that a revised plan could build on the progress made so far.

In addition, the House of Representatives Standing Committee on the Environment and Energy recently inquired and reported on the problem of feral and domestic cats in Australia (HoR SCEE 2020), and developed a 'plan to save Australian wildlife', which included a recommendation for a new iteration of the feral cat threat abatement plan:

> *'Recommendation 3. The Committee recommends that the Australian Government develop a clear strategy to inform its resourcing of and response to the problem of feral cats, including through a 'reset' of its current policy and planning. This should comprise: a. A new iteration of the Threat Abatement Plan for predation by feral cats ...'*

This document replaces the previous threat abatement plan published in 2015; it incorporates the knowledge gained since 2015, and has been modified in light of the recommendations from the review of the 2015 plan, and the report from the House of Representatives inquiry into the problem of feral and domestic cats. The threat abatement plan aims to guide the responsible use of public resources and achieve the best conservation outcome for native species threatened by predation by feral cats, given the opportunities and limitations that exist.

DRAFT FOR CONSULTATION

3 Cat definitions, ecology, distribution and abundance

Section 3 provides a brief overview of the ecology, distribution and abundance of cats. The background document contains further information, and referenced sources.

3.1 Cat definitions

Domestic cats were derived from African wildcats *Felis lybica*, about 4000 years ago, in north Africa. The domestic cat is treated taxonomically as a separate taxon, *Felis catus*, from its wild ancestor, and 'domestic cat' is the generally accepted vernacular for this species, encompassing pet cats and feral cats. Domestic cats were, and remain, highly capable of moving from pet into feral scenarios, which is partly why feral cat populations have established in almost every place where people have brought pet cats.

Cats have a complex relationship with people, with a status varying from treasured pets to environmental scourge. This has led to many approaches to defining cats, based on the level of ownership (e.g. owned, semi-owned, unowned), socialisation (e.g. socialised, semi-socialised, unsocialised), lifestyle (e.g. house cat, farm cat, stray, feral), and containment (e.g. indoor cat, free-roaming). These schemas do not always line up well and any one cat can occupy seemingly contradictory positions; for example, a free-roaming cat could be either a pet or a feral cat, and an unsocialised cat could be an owned farm cat.

This threat abatement plan follows a categorisation that corresponds with the differences in management focus, and the actions most likely to be in-scope:

- **Feral cats** are not formally owned, or cared for, by people. They survive by hunting or scavenging for themselves and live in diverse habitats. Most feral cats live in natural environments and have no or few interactions with people. A subset of feral cats is found in and around cities, towns and rural properties; these cats may rely on resources that are inadvertently or deliberately provided by people, such as rubbish tips or abundant rodent populations. These cats are sometimes called 'stray cats'.
  - *In this plan, management approaches, actions and objectives for feral cats seek to reduce their abundance or change their hunting behaviours to reduce impacts on the most susceptible native species; some actions for feral cats living in and around human infrastructure differ from those in scope in more natural environments.*
- **Pet cats** are owned by a person or people; their needs (food, shelter, veterinary care) may be wholly or partly supplied by their owners. Some pets are contained indoors, but others roam widely, and feed themselves.
  - *In this plan, management approaches, actions and objectives for pet cats seek to promote the uptake of principles for responsible ownership of pets, and to reduce the likelihood of pet cats supplementing the feral cat population, and contributing to pathogen transmission.*

DRAFT FOR CONSULTATION

In this plan, 'cat' is used to refer to pet and feral cats collectively, whilst the terms 'pet cat' and 'feral cat' are used to refer to those specific subsets of cats. Feral cats may be further described as those living in natural environments, and those living in or around human infrastructure or heavily modified environments.

3.2 Cat ecology

Feral cats are medium-sized (females average 3.3 kg, males average 4.2 kg) carnivores that hunt a broad range of animal prey. They are live prey specialists, usually avoiding carrion. Across Australia, the diet of feral cats is highly variable, and also shows some seasonal variation, with this variation reflecting spatio-temporal changes in the abundance of animal species. Mammals tend to be the dominant prey item when available, but birds, reptiles and invertebrates may also be important components of the diet. Although cat diet is broad, individual cats may 'specialise' on particular prey species, or types of prey. Cats are usually nocturnal and crepuscular, but will also hunt during the day (e.g., when nights are cold).

The social, mating and spacing systems of cats are flexible, and depend mainly on resource availability. Females usually occupy mostly non-overlapping ranges of around 5-10 km^2 in size (but potentially much larger if resources are scant), with male ranges overlaying those of more than one female. Cats will leave their home ranges to take advantage of temporary or seasonal food bounties elsewhere. If resources are extremely limiting, cats can leave their ranges and roam large distances in search of food. At the other extreme, when resources are clumped and superabundant (for example, near rubbish dumps in towns), female cats can aggregate into matrilineal colonies (or clowders), with males more loosely attached and potentially moving between more than one colony. The mating system varies with the spacing system – cats are polygamous, but as cat density decreases it becomes more possible for a single male to control short-term mating access to a receptive female.

Feral cats live for an average of 3–7 years. Males begin breeding at 1 to 2 years of age. Females usually reach sexual maturity in their first year. They are seasonally polyoestrous, coming into breeding condition with increasing daylength (i.e., during 'spring'), and then having oestrus cycles continuously until they achieve pregnancy. During oestrus, female cats are induced ovulators, releasing eggs in response to mating. The length of the breeding season is short in areas with harsh winters, but can extend to 9-10 months in areas with milder conditions. Pregnancy lasts 2 months, and kittens reach independence after about six months of age. Female cats usually produce one to two litters, each of three to five kittens, per year; but more litters, and larger litters, are possible.

3.3 Cat distribution and abundance

Cats were introduced to Australia from 1788. They spread rapidly across the continent, and now occupy 99.9% of Australia's land area, in habitats as diverse as tropical rainforests, alpine environments and the driest deserts. They are present across all tenures, including protected areas; they are absent only from fenced areas built specifically to exclude cats (and foxes), and from some islands.

DRAFT FOR CONSULTATION

As a result of research guided by previous threat abatement plans, Australia has one of the most robust estimates for the cat population size of any country in the world, and a substantial evidence base for the impacts of cats on native species. There are 1.4 to 5.6 million feral cats in natural environments (with the number fluctuating depending on environmental conditions), over 0.7 million feral cats in heavily modified habitats, and 5.3 million pet cats (2022 estimate).

DRAFT FOR CONSULTATION

4 Cat impacts

Section 4 provides a brief overview of impacts of cats, and which native species are most adversely affected. The background document contains further information and referenced sources.

4.1 Predation

Cats are one of the world's most invasive species, having reached every continent (including Antarctica, as pets) and many islands. They are responsible for over a quarter of the world's bird, reptile and mammal extinctions since the year 1600. Cats have caused profound species loss in Australia, helping to give Australia the worst mammal extinction rate of any country in modern times: over 10% of the Australian terrestrial mammal species extant 250 years ago are now extinct. Of the 33 Australian mammal species rendered extinct since European colonisation, cats have mostly or substantially contributed to two-thirds of these losses. Examples of these extinct species include the pig-footed bandicoots *Chaeropus* spp., lesser bilby *Macrotis leucura*, broad-faced potoroo *Potorous platyops*, bettongs *Bettongia* spp., hopping mice *Notomys* spp. and rabbit-rats *Conilurus* spp. Cats have also contributed to three of the nine extinctions of Australian bird species since 1788.

Cats continue to drive population decline in Australian native animal species. Predation by cats is a recognised threat to over 200 nationally threatened species, and 37 listed migratory species (of which nine are also listed as threatened) (Appendix 1). Feral cats in Australia kill over 1.5 billion native mammals, birds, reptiles and frogs, and 1.1 billion invertebrates each year. Pet cats kill over 500 million native vertebrate animals each year. Although their overall toll is lower than that imposed by feral cats, because pet cats live at high density, their 'local' impacts are much higher than that of feral cats.

4.1.1 Which extant native species are most susceptible to cat predation?

The predation toll from pet cats falls unevenly across species; small- to medium-sized (i.e. up to ~4 kg) terrestrial mammals, ground-dwelling or ground-nesting birds, and colonial reptiles are all more likely to be preyed on by cats. In addition, species occurring in more open, arid environments are more likely to be preyed upon. However, the likelihood of being eaten by a cat does not necessarily translate to the impact on the population, because prey species vary in their capacity to bear the predation burden from cats. For example, species with faster reproductive rates may be able to compensate for the predation toll from cats more readily than species with lower reproductive outputs.

The susceptibility of native species to cat predation is highly variable. Many extinct, and some extant threatened mammals, cannot co-exist with even low densities of cats; and extant species that are extremely cat-susceptible are now found only in small areas (islands and mainland fenced exclosures) where cats are absent. At the other extreme, the population viability of some native species is not, or is minimally, affected by the presence of cats. Identifying where native species fall along this continuum is critical for shaping the cat management actions necessary to prevent declines and extinctions. For example, species that are most cat-susceptible can survive only if cats are absent,

DRAFT FOR CONSULTATION

whereas less cat-susceptible species may thrive with less intensive cat control, or even if habitat quality is improved enough so that cat impacts are reduced or compensated for.

This threat abatement plan uses the categories of predator susceptibility defined by Radford *et al*. (2018) (Table 1) as a basis for identifying and organising the levels of cat control needed to ensure the persistence and viability of native species threatened by cats. In this plan, the cat-susceptibility of all native non-marine mammals and reptiles, land-birds and threatened seabirds has been categorised according to this schema, using information available in species recovery plans and conservation advices, action plans, expert assessment of threats to vertebrates, and a series of papers that quantified dietary information and the likelihood of being consumed by a cat. The list of mammal, reptile, land bird and threatened seabird species considered moderately, highly or extremely susceptible to cat predation is given in Appendix 2; and details on the methods for categorising, and the current extent of protection against cats for the most cat-susceptible species, are provided in the background document.

Overall, nine species of mammals and one species of bird are extremely susceptible to cat predation; and 38 mammals, three land-birds, and four reptile species are highly susceptible to cat predation. Of threatened seabirds, six species are extremely cat-susceptible and one is highly cat-susceptible. Removing cat impacts is crucial for preventing declines and extinctions in these species.

Many of the 21 mammal species identified as priorities in the 2022-2032 Threatened Species Action Plan are recognised as being extremely or highly susceptible to predation by cats (and/or in some cases, by foxes): these include the chuditch (western quoll) *Dasyurus geoffroii*, eastern quoll *D. viverrinus*, northern quoll *D. hallucatus*, numbat *Myrmecobius fasciatus*, greater bilby *Macrotis lagotis*, mountain pygmy-possum *Burramys parvus*, western ring-tailed possum *Pseudocheirus occidentalis*, Gilbert's potoroo *Potorous gilberti*, quokka *Setonix brachyurus*, New Holland mouse *Pseudomys novaehollandiae*, northern hopping-mouse *Notomys aquilo*, and central rock-rat *Zyzomys pedunculatus*. In addition, two of the 22 priority bird species are highly susceptible to cat predation; these are the night parrot *Pezoporus occidentalis*, and western ground parrot *Pezoporus flaviventris*; and so is one reptile, the great desert skink *Liopholis kintorei*.

DRAFT FOR CONSULTATION

Table 1 Categories of susceptibility to cat predation that determine the level of cat control required to ensure population viability, and the numbers of extant terrestrial mammal, birds and reptile species that fall into each category.

Susceptibility of native animal species to cat predation		Number of species: Mammals	Number of species: Land birds	Number of species: Reptiles	Number of species: Threatened seabirds
Extreme	Population likely to be extirpated where cats occur, and cats were, or are, or plausibly could occur in at least 50% of the native species' range.	9 (12 counting subspecies)	1	0	6
High	Population likely to be extirpated where cats occur, and cats were, or are, or plausibly could occur in 20-50% of the native species' range. OR Population likely to persist with cats, but with severe reduction (>50%) in its population size and viability, and cats were, or are, or plausibly could occur in at least 50% of the native species' range.	38 (48 counting subspecies)	3	4	1
Moderate	Population likely to persist with cats, but with moderate reduction (<50%) in its population size and viability.	24 (26 counting subspecies)	11 (13 counting subspecies)	9	8 (9 counting subspecies)
Low	Likely to persist with cats but with some reduction in population size or viability (i.e. 0-9%); will have higher viability where cats are more effectively controlled.	227 (232 counting subspecies)	611 (665 counting subspecies	977	0
Not	Viability is unaffected by introduced predators.				

Where subspecies exist, they are tallied with the new total shown in brackets. Vagrants and introduced species have been excluded from the tallies. For seabirds, which are present on land only to breed, and usually on islands, only nationally threatened species were considered.

DRAFT FOR CONSULTATION

4.1.2 Which ecological communities are most susceptible to cat impacts?

Population declines and local extirpations of native animal species due to cat predation may compromise the healthy functioning of ecological communities, and potentially even their structure and composition. For example, many of the native mammal species that are now extinct or missing from most of their previous (and in many cases, extensive) range were prodigious diggers, with their turnover of soil and litter having substantial beneficial effects on decomposition rates, nutrient cycling, seed germination, plant recruitment patterns and fire regimes. The ecological consequences of loss or reduction in the services provided by cat-susceptible mammal species probably had, and continues to have, detrimental impacts on some threatened ecological communities; however, this is not yet explicitly documented for any of those communities.

Given the types of species that are most susceptible to cat predation, and the ecology and behaviour of cats, the ecological communities most adversely affected by cats are probably those that are structurally simple; that occur in arid and semi-arid areas or on islands; that contain keystone animal species that are ground-dwelling and within the prey size range for cats (i.e. <4 kg); that have vegetation structure which is heavily transformed by fire (like heath); and that are heavily affected by fragmentation.

4.1.3 Factors that amplify cat predation impacts

The threat of cat predation is moderated or compounded by other factors, including co-occurring threats. Abundant populations of introduced rabbits *Oryctolagus cuniculus* and introduced or native rodents (especially house mouse *Mus musculus*) support higher densities of feral cats, which can result in higher predation pressure on native species. The risks to native animals from these 'inflated' cat populations can be acute when sudden reductions in primary productivity (e.g., a return to dry conditions after prolonged rainfall) cause rabbit or rodent populations to crash, forcing cats to switch to alternative prey species. Changes to the fire regime or to grazing pressure that simplify the structural complexity of the ground layer may worsen the predation risk to ground-dwelling animals, partly because cats are drawn to hunt in, or along the edges, of recently burnt areas; and because the success of hunting attempts by cats increases in open areas. Habitat fragmentation may increase predation risk, because cat density can be higher in the modified habitats surrounding the fragments, and cats may target the fragments, or their edges, for hunting. Because of these interactions, the level of cat control needed to protect native species will vary, depending on the context.

4.2 Competition

Cats may deplete prey resources for native predators such as quolls, raptors and varanids (goannas). Cats may also use resources for shelter such as hollow logs and burrows, or even large bird nests, that would otherwise be used by native species. Cats may create a 'landscape of fear', causing native species to change their behaviour in ways that compromise their survival, for example by avoiding foraging in the most profitable areas.

DRAFT FOR CONSULTATION

4.3 Disease

Cats carry many arthropods, and viral, parasitic, bacterial and fungal pathogens that can infect and cause disease in other species. Some of these pathogens rely exclusively on cats to complete their life cycle. These pathogens were introduced to Australia with the cat. The diseases they cause would not occur here if cats were absent, and these diseases will disappear eventually from areas where cats are eradicated. Of these cat-dependent pathogens, *Toxoplasma gondii* is of most concern. It is a single-celled parasite that cycles between cats and any other warm-blooded animal. *Toxoplasma gondii* infections can cause morbidity and death in individuals of many native species. *Toxoplasma gondii* infections also affect the behaviour of individual animals in ways that make them more vulnerable to predators (e.g., poor coordination, slower reflexes, riskier behaviour). The incidence of *Toxoplasma gondii* infections in populations of native animal species can be high, especially in colder and wetter climates, but whether these effects are sufficient to cause population-level decline is still unresolved.

Many cat-borne pathogens affect livestock and people, including five that depend on cats to complete their lifecycle. People are affected by cat roundworm *Toxocara cati*; by *Bartonella henselae*, a bacterium that causes cat scratch disease; and, most seriously, by *Toxoplasma gondii*. People infected with *Toxoplasma gondii* can experience mild to severe flu-like symptoms, eye disease, and inflammation of the brain and heart; women who become infected during pregnancy may experience miscarriage or have a child with congenital deformities. More pervasively, long-term infections of *Toxoplasma gondii* in people are being increasingly linked to a suite of behavioural changes that predispose them to accidents, and higher risk of mental health issues including depression and schizophrenia. Livestock are affected by all three pathogens that affect people, and also by two species of single-celled parasite in the genus *Sarcocystis*. *Toxoplasma gondii* again has the most serious impacts, as it can cause abortions of lambs. *Sarcocystis* infection can cause affected meat, and even whole carcasses, to be discarded from marketing.

In a recent analysis, the economic costs of the human health and livestock impacts from cat-dependent pathogens in Australia were estimated to exceed $6 billion dollars per year.

4.4 Public amenity

In built-up areas, feral cats and free-roaming pet cats can cause nuisance to residents and impose a substantial burden on local governments that are usually responsible for implementing the companion animal legislation of their jurisdiction, and also for controlling feral cats living in towns and cities. A recent survey of local governments reported that staff considered both pet and feral cat management to be very important for public amenity and wildlife protection. Local government staff also noted that the ‘leakage’ of pets into the feral population was a serious problem and considered that pet cat management was an important component of managing feral cats.

DRAFT FOR CONSULTATION

However, respondents stated that cat management was very challenging, because they lacked the resources to manage feral cats adequately, and because managing pet cats was constrained by uneven levels of awareness of cat impacts among the community, uneven levels of support for responsible pet ownership practices among the community, and inconsistent and weak legislation and regulation across government jurisdictions that affected the ability of local government to enforce compliance. The survey report found that local governments on mainland Australia and Tasmania spend over $76 million annually on pet and feral cat management.

4.5 Indigenous cultural values

Feral cats have had and continue to have a range of detrimental impacts on Indigenous cultural values. Many of the native animal species that have become extinct or severely depleted because of cat predation had cultural significance. Many were important totemic or food items and distinctive components of Country, and the loss of these species represents a challenge to the ongoing responsibility for the care of Country. The return to Country of animal species that have become regionally extinct due to cat predation, such as through reintroductions to large exclosures, can help restore cultural values and the perceived health and integrity of Country.

In some parts of Australia, there is now a long-standing practice of hunting of feral cats by Indigenous Australian for food and bush medicine. Cats are also kept in many Aboriginal communities and outstations, for companionship and because they are believed to reduce the numbers of snakes and other problem animals. These pet cats may have significant impacts on local populations of native species.

The pre-consultation with Indigenous land managers carried out to inform this plan showed that most Indigenous rangers and other land management groups consider that cats are a problem, because they damage Country by preying on native species (including threatened species and culturally significant species) and upset the balance of ecosystems (“cats do not belong”). Feral cats are explicitly recognised as a threat to Country in most healthy country plans or analogous planning documents. However, most plans do not include specific actions that focus on cats, most groups do not have targeted cat control programs in place, and views on the best methods to achieve cat control varied. Many groups did not support direct lethal control, considering it ineffective with the tools available to them, or too risky for non-target species (e.g., poison baits can be consumed by many other animals, including dingoes), or that killing an animal without eating it was ‘wasteful’. Many groups noted that lethal control requires funding, equipment, regulatory approvals, information, or training that are challenging to acquire. Instead, many groups preferred a whole-of-ecosystem management approach for controlling cats. For example, managing fire was cited as a way of reducing the predation impacts from cats.

Many consulted groups noted that views about cats in the broader community were more mixed, because community members may not have access to information about cat impacts on native species and Country that rangers do, and because some community members feel that feral cats now have a place in the system. Many groups also noted many people in their communities made a distinction between feral cats and community cats, and that the number of community cats was increasing.

DRAFT FOR CONSULTATION

4.6 Critical habitat and World Heritage Areas

The Environment Protection and Biodiversity Conservation Regulations 2000 (Part 7) stipulate that a threat abatement plan must state, *inter alia*, areas of habitat listed in the register of critical habitat kept under section 207A of the Act that may be affected by the key threatening process concerned. Critical habitat is registered for five species: wandering albatross *Diomedea exulans* (Macquarie Island), grey-headed albatross *Thalassarche chrysostoma* (Macquarie Island), shy albatross *T. cauta* (Albatross Island, The Mewstone, Pedra Branca), black-eared miner *Manorina melanotis* (Gluepot Station, Taylorville Station and (part of) Calperum Station), and Ginninderra peppercress *Lepidium ginninderrense* (part of Belconnen Naval Transmission Station). Of these areas of critical habitat, feral cats were a major predator of nesting seabirds, including some threatened species, on Macquarie Island, and largely for that reason were eradicated in 2000, resulting in substantial recovery of several seabird species. There are no feral cats on Albatross Island, the Mewstone or Pedra Branca. Feral cats are not a major threat to black-eared miners, so control measures for feral cats are not a priority for the listed critical habitat for black-eared miners at Gluepot, Taylorville and Calperum. Feral cats are not a threat for Ginninderra peppercress, so control measures for feral cats are not a priority for the listed critical habitat for Ginninderra peppercress at Belconnen.

Of the 15 Australian sites listed as World Heritage for present-day natural values, cats have been eradicated from the Lord Howe Island group and Macquarie Island; have never occupied the Heard and McDonald Islands site; and have been eradicated from (or not colonised) some parts of Shark Bay (e.g., Dirk Hartog Island, Faure Island, Bernier and Dorre Islands). Cats are present and subject to some management at most other natural sites (including Budj Bim Cultural Landscapes, Gondwana Rainforests of Australia, Great Barrier Reef, Greater Blue Mountains Area, Kakadu National Park, K'gari (Fraser Island), Purnululu National Park, Tasmanian Wilderness, The Ningaloo Coast, Uluṟu-Kata Tjuṯa National Park, and Wet Tropics of Queensland). At some of these sites, cats are having some impact on the natural values for which the sites were recognised.

DRAFT FOR CONSULTATION

5 Cat management

Section 5 provides a brief overview of cat management. More information is available under the objectives below, and the background document contains further information and referenced sources.

Cats are challenging to control, but a research effort by many stakeholders over the past 10-20 years has increased the range of options available, and improved our knowledge of when and where each option works best. The current options are:

- Directly reducing cat numbers by
  - Excluding or eradicating cats from islands and purpose-built fenced areas on the mainland.
  - Poison-baiting (deployed from the ground or air).
  - Trapping, hunting and shooting.
- Indirectly reducing cat numbers or impacts by:
  - Reducing introduced rabbit and rodent populations.
  - Allowing dingo populations to persist or re-establish.
  - Managing fire and grazing to maintain a complex ground vegetation layer (to reduce cat hunting success).

Pet cats are managed through responsible pet ownership practices, including containing the cat to the owner's property, identification, registering and desexing. However, these pet ownership practices are difficult to accomplish in remote, rural and regional areas, for example where access to veterinary services is limited or absent.

Each feral cat control option has limitations, such as

- Some can only be used at very small scales relative to the overall distribution of cats (e.g., cat-exclusion fencing; intensive shooting and trapping).
- Some are only partly effective (e.g., managing habitat to reduce cat hunting success; reducing rabbit density to also reduce fox and cat density).
- Some raise welfare concerns for cats, or may have impacts on non-target species (e.g., poison-baiting).
- Some are subject to regulation and training pre-requisites that are a barrier to uptake, especially to non-government land managers, including Indigenous ranger groups.
- Most options are short-term, or need sustained input and potentially substantial investment to maintain effectiveness.
- Most are only applicable in some geographic areas; and are generally not coordinated across sites, agencies/organisations and jurisdictions.

DRAFT FOR CONSULTATION

Singly or collectively, these constraints hinder the capability of many groups across Australia to engage in effective and long-lasting control of feral cats. For example, the pre-consultation process showed that low effectiveness, concerns about cat welfare and impacts on non-target species, regulatory and training barriers, and funding constraints, were key constraints for the control of cats by Indigenous ranger groups.

Despite these limitations, the current cat control effort is preventing further extinctions, helping the recovery of some threatened species, and reducing the likelihood of some currently unthreatened species from becoming threatened. Continuing to refine and support the use of these control options is essential, whilst new control approaches are developed. New modifications or options for cat control aim to increase target specificity, increase efficacy, improve humaneness, or offer longer-term solutions, when compared to existing cat control options. For example, new toxin formulations and delivery systems aim to have better welfare outcomes and target specificity; guardian dogs could repel introduced predators from sites without requiring lethal cat control; and synthetic biology such as immunocontraception and using gene drives to engineer cat genomes could potentially increase the scale at which cat populations can be effectively managed. Although eradicating feral cats from the continent remains infeasible, increasing the scale and effectiveness of control, and the number and extent of cat-free areas, is achievable.

In food webs, cats are medium-sized predators that interact with prey species and other predators, including other introduced pest species. In particular, rabbit and rodent populations can sustain elevated populations of cats, and foxes may reduce the abundance of cats. Cat management should be integrated with concurrent management for introduced foxes, rabbits and introduced rodents, to optimise overall conservation benefits and to reduce the likelihood of perverse outcomes.

5.1 Public support for cat management

Surveys have shown that a majority of the Australian public recognises that cats have a negative effect on wildlife, and supports cat management. However, ongoing communication and engagement, particularly to include culturally and linguistically diverse communities, including those with recent emigrants from countries where cats are not considered a problem for wildlife, is important for maintaining awareness of cat impacts, and support for ongoing cat management.

In addition, the pre-consultation process for this plan highlighted the need to greatly improve access to information about feral and pet cat impacts (on wildlife, Country, and human health) and management options to Indigenous communities. Currently, the mainstream platforms with information about cat impacts and control are almost universally not used by rangers, and there is little culturally appropriate information available to community members more broadly.

DRAFT FOR CONSULTATION

6 Guiding principles for plan development and implementation

The threat abatement plan has been developed, and should be implemented, in accordance with the following principles:

1. Stakeholder groups with interests in cat management and welfare should be respectfully engaged.

A public that understands, and is engaged with, the issues associated with cat management will help provide the social licence required to implement this threat abatement plan. Although cats contribute to substantial environmental harm, pet cats are also much-loved family companions, and it is essential that feral (and pet) cat management planning and implementation engages broadly and respectfully with all sectors that have a stake in this issue. Compared with people in other countries, the Australian public already has a high level of awareness about the impacts of feral and pet cats on native wildlife, and generally supports management to reduce those impacts. The co-benefits of cat management for cat welfare, human health, and livestock production outcomes, in addition to biodiversity outcomes, are now well-established, and provide a basis for development and implementation of cat management that provides beneficial outcomes to all stakeholders. Focusing on the multiple benefits of improved cat management will help to maintain broad support for managing feral cats in natural environments, and will encourage the public to contribute to abatement through enhanced management of pets, and feral cats around towns.

Furthermore, given the adverse impacts of cat-borne diseases on livestock production, cat management should where possible be coordinated across the conservation and agricultural sectors.

2. Cat management should incorporate and support the management objectives and expertise of Indigenous Australians.

The introduction of cats has diminished, and continues to diminish, cultural and ecological values of Indigenous Australians, changing the nature of Country for which they hold cultural and spiritual responsibility. In some regions, as cats supplanted native species, they became a food source and bush medicine. The ecological knowledge of Traditional Owners can help guide the management of cats. Indigenous groups manage a very large proportion of the continent, including many areas critical for the conservation of threatened species and ecological communities, and supporting their involvement in cat management is critical to the success of this threat abatement plan. This principle aligns with target 16 in the 2022-2032 Threatened Species Action Plan (“First Nations-led recovery activities for threatened species and ecological communities are increased”).

3. Programs to reduce cat impacts should use actions that are justified by optimising biodiversity outcomes, overall humaneness, and the sustainability of the action(s).

Cats occur across almost all of Australia and have impacts on many threatened species, so there may be benefits achieved from effective cat management almost everywhere. But there are particular places and species for which the management of cats will most likely produce the most, and most

DRAFT FOR CONSULTATION

enduring, conservation benefits. This plan should help inform such priorities, and help ensure that the threat posed by cat predation is abated most strategically and effectively.

Ameliorating the impacts of cat predation could involve actions that: reduce the density of cats by lethal means (e.g. shooting, toxic baiting); indirectly lower cat density (e.g. reduce rabbit populations to lower the cat population; reduce the access to food subsidies around towns and farms); or that do not reduce cat density *per se*, but instead shift the burden of cat predation away from highly cat-susceptible native species to other species that are more able to persist with cat predation (e.g. managing fire to reduce the hunting success of cats on ground-dwelling birds and mammals). In any situation, actions to reduce cat impacts will or may involve killing individual cats or other animals. Therefore, choice among the action options should be justified by seeking to optimise:

- The biodiversity outcomes:
  - To what extent will the action provide benefits to populations of native species, relative to taking no action?
  - Are there co-benefits from the action that increase the environmental outcomes (e.g. managing grazing pressure to maintain structural diversity of the grass and ground layer is likely to lead to multiple benefits as well as reducing cat impacts)?
  - If there are risks of collateral damage (perverse outcomes) from cat control to other native species, are these acceptably low?
- The overall humaneness of the action(s), to:
  - Individual cats.
  - Individuals from other, non-target species potentially affected by the control action.
  - Individual native (or introduced) animals that may have been injured or disease-affected by cats, but would be less likely to be so affected if cat density is reduced.
- The sustainability of the action:
  - Actions that result in enduring benefits (e.g. eradicating cats from an island), and actions that can be continued indefinitely because they are inexpensive or have other benefits that drive their continuance (e.g. rabbit control), are preferred to short-term, less sustainable options, all else being equal.

4. Cat management should occur within an evidence-based and adaptive management framework, where monitoring leads to continual improvements in knowledge and refinement of management actions.

- Cat control programs should be designed based on the best evidence available at the time.
- The effectiveness of cat management should be rigorously monitored, with such monitoring information made publicly available and used to refine ongoing management.
- Although much is known of cat ecology, impacts and control, there remain some key knowledge gaps that constrain understanding of cat impacts, and the effectiveness of cat control options; cat management can and should be improved with research that adds to a more robust and comprehensive evidence base.

DRAFT FOR CONSULTATION

5. Cat management should consider a broad ecological context, including the potential consequences on other feral animals, and be conducted in a manner that integrates pest control for biodiversity outcomes.

- Cats are a component of dynamic ecological systems, and have strong links with many other species, including some other pest species. Cat management should be integrated with concurrent management for introduced rodents, foxes and rabbits, to optimise overall conservation benefits. For example:
  - Where possible cat control should be combined with fox control, to seek an overall reduction in the pressure imposed by introduced predators.
  - Cat control planning and operations should consider consequences for other pest species, including rabbits and introduced rodents, and aim to reduce potential perverse outcomes.
  - Actions taken primarily to manage other vertebrate pests (especially foxes, rabbits and rodents) should take account of any impacts of those actions on feral cats.

6. The priority accorded to the management of feral cats should be commensurate with the ongoing severe impacts of cat predation on much of Australia's fauna, including many threatened species, and with the magnitude of beneficial impacts likely to arise from cat control.

- Given the number of species affected by the threat posed by cats and the EPBC Act's stipulation that a threat abatement plan should 'maximise the chances of the long-term survival' of affected species, the implementation of this plan is an important component of efforts to conserve and recover Australia's biodiversity. This relative significance is recognised in the Threatened Species Action Plan, which includes two targets explicitly relating to the management of cats (and foxes).
- The EPBC Act specifies that, in making a plan, regard must be had to '... the most efficient and effective use of the resources that are allocated for the conservation of species and ecological communities' (s 271 (3)(b)). This requirement is addressed in this plan through priority rankings of actions.

In addition to these specific guiding principles, the EPBC Act stipulates that 'in making a threat abatement plan, regard must be had to:

- '... minimising any significant adverse social and economic impacts consistently with the principles of ecologically sustainable development'; and
- 'meeting Australia's obligations under international agreements between Australia and one or more countries …' (s 271(3)). This requirement may be especially germane for the management of cats on islands that contain significant colonies of seabirds, many of which are listed under international agreements.

This plan has been developed with regard to these matters.

DRAFT FOR CONSULTATION

7 Long term goal

The EPBC Act provides an overall context and purpose for threat abatement plans: that 'a threat abatement plan must provide for the research, management and other actions necessary to reduce the key threatening process concerned to an acceptable level in order to maximise the chances of the long-term survival in nature of native species and ecological communities affected by the process' (s. 271(1)). Within that given context, this threat abatement plan for predation by feral cats sets a long-term goal, with a 30 year horizon: **To reduce the impacts of cats sufficiently to ensure the long-term viability of all affected native species.**

Cat impacts arise from predation, and potentially also from diseases that are spread by cats. Impacts may be direct (e.g., cats substantially reduce a population via predation or disease), or indirect (e.g., cats disrupt ecosystems by reducing the abundance of ecologically significant species).

The goal will be achieved when:

- There are no further extinctions of native species, nor extirpations of island populations (including seabird colonies), due to impacts from cats.
- Cat-driven declines in extremely and highly cat-susceptible native species (defined in Table 1, section 4.1.1) are stopped and reversed to the extent that these species are no longer eligible for listing as threatened as a result of cat impacts (Recognising that some cat-susceptible species may also be affected by other factors, the effective control of cats may not always be sufficient to allow for such recovery, and the conservation of such species may be contingent on management of cats and other threats).
- Cat impacts are reduced across large landscapes and priority locations, such that no currently unlisted species become threatened because of impacts from cats.

This goal is consistent with, and will contribute to, three of the objectives of the 2022-2032 Threatened Species Action Plan:

Objective 1 (The risk of extinction is reduced for all priority species)
Objective 2 (The condition is improved for all priority places)
Objective 3 (New extinctions of plants and animals are prevented)

To move strategically towards this long-term goal, the plan has nine objectives to organise 68 actions over the next 5 and 10 years. The objectives have been developed following review of the previous threat abatement plans, and consultation with experts and stakeholder groups, including Indigenous groups (Refer to Appendix 7). Under each objective, the actions are grouped under six strategic themes: Improve legislation, regulation and planning frameworks; Prioritise and plan using evidence; Support management; Reduce cat impacts; Enhance knowledge; Maintain public support.

DRAFT FOR CONSULTATION

8 Objectives, performance criteria, and actions

There are nine objectives in this plan. Four are cross-cutting objectives that support the delivery of the on-ground actions covered in the other five objectives:

Cross cutting:

Objective 1 – Coordinate and enhance the legislative, regulatory and planning frameworks.

Objective 2 – Plan and implement cat management within an evidence-based framework, and use this to help maintain broad community and stakeholder support.

Objective 3 – Undertake research on cat ecology and impacts to inform management undertaken across multiple objectives.

Objective 4 – Refine the use of existing tools, and develop new tools, for directly controlling feral cats, and make the tools appropriately accessible.

On-ground action:

Objectives 5 to 9 focus on reducing cat impacts using management approaches that are already available, or at an advanced stage of development and thus likely to become available within the life of this plan (i.e. 10 years).

Objective 5 – Prevent cats from spreading further, to islands that are currently without cats.

Objectives 6, 7 and 8 are structured hierarchically to deliver protection to native species depending on how cat-susceptible they are, and therefore what level of cat control is required. In reality, susceptibility to cat predation is a continuum, both across species and even within species that exist over large areas, or across a range of habitat types. The objectives are organised in this way to reflect the overall goal of the plan, which is to ensure the recovery and long-term persistence of all affected native species, especially threatened species, island populations and susceptible breeding populations of seabirds. This plan prioritises species whose existence is most imperilled by cats (i.e., cat susceptible species), because such prioritisation is likely to have the greatest impact on reducing the likelihood of species becoming extinct, and enabling recovery. However, in some situations, or operating within the cat-susceptibility levels described in Objectives 6, 7 and 8, it may be appropriate to also recognise some prioritisation for managing cats to benefit culturally significant (to help maintain or restore cultural values) and ecologically important threatened species (to help maintain or restore ecological function).

Objective 6 – Protect the most cat-susceptible species: Remove and exclude cats from an expanded network of cat-free fenced and island havens, and manage those havens to maintain or enhance their conservation values.

DRAFT FOR CONSULTATION

Objective 7 – Protect species with moderate to high cat-susceptibility: Suppress feral cat density in and near prioritised populations of these species.

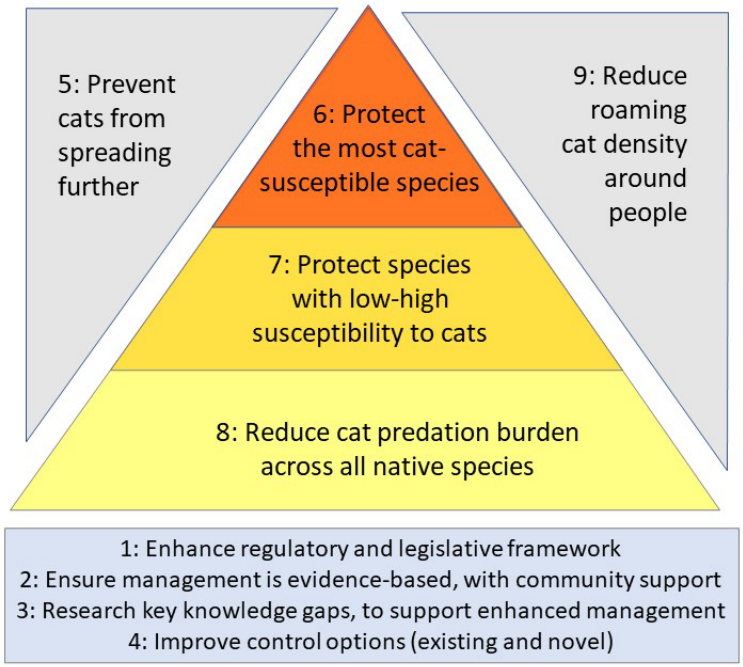
Objective 8 – Reduce the burden of cat predation across all native species with holistic management of habitat and species interactions over large areas.

Note that because these objectives are structured according to the cat-susceptibility of native species, many actions will provide benefits across objectives; for example, many of the actions in objectives 6 and 7 will also benefit the native species that are the focus of objective 8.

Objective 9 – Reduce density of feral cats and free-roaming pet cats around areas of human habitation and infrastructure.

This plan primarily addresses the threat of predation by feral cats, but acknowledges and considers 1) the role of cats as vectors for pathogens causing serious disease in native species, livestock and people; and 2) that pet cats also cause predation (and disease) impacts on native species, and can become a source for the feral cat population, especially around human habitation and infrastructure.

Figure 2 A schematic showing the relationships between the 9 objectives in this threat abatement plan.



Actions under objectives 1, 2, 3 and 4 will enable actions in objectives 5 to 9. Objectives 6, 7 and 8 address the conservation of native species that vary in their susceptibility to cat predation. The most intensive cat control is needed for the species that are the subject of objective 6, and the actions required (e.g., creating cat-free islands and fenced areas) will benefit a smaller number of native species, over a smaller geographic extent, than actions in objectives 7 and 8.

The sections below provide detail for each objective, including the rationale behind each objective, the performance criteria to be used to evaluate progress at 5 and 10 years (i.e., by 2028 and 2033), then a table outlining the actions required to meet the objective. Each action is assigned a relative priority (categorised as 'very high, 'high', or 'medium'), and the most likely stakeholder group(s) responsible for delivering that action is indicated. The identification of responsibility should not be taken as excluding the involvement of other parties where needed. Research-focused actions to address key knowledge gaps and thus support achievement of the objective are collated in a listing of key knowledge gaps at Appendix 3. Many actions in this threat abatement plan are rated as very high or high priority, reflecting the urgency of tackling the threat from multiple angles.

The EPBC Act (at s. 271) notes that a threat abatement plan '... may state the estimated ... cost of the threat abatement process' and that '... in making a threat abatement plan ... regard must be had to ... the most efficient and effective use of the resources that are allocated for the conservation of species and ecological communities'. However, estimating costs of the individual actions described in this plan, and across all actions in the plan in its entirety, is challenging, because costs will vary greatly depending upon the scale of implementation of actions and the duration over which they are required. Section 9.2 below provides indicative costings of some conservation actions relevant to this plan; and we apply this information to categorise the actions as of high, medium and low cost, with these classes nominally and indicatively defined as high (>$1 million over a 5-year period), medium ($100,000 to $1 million over a 5-year period) and low (<$100,000 over a 5-year period).

Many of the actions detailed in the following sections are linked and dependent upon other actions. The management of cats is a complex challenge and requires coordinated and integrated actions across many fields. To help contextualise individual actions, for each objective a diagrammatic representation is used to indicate the linkages between inter-related main actions.

DRAFT FOR CONSULTATION

8.1 Objective 1. Coordinate and enhance the legislative, regulatory and planning frameworks

Rationale

The management of cats in Australia is a complex challenge, involving Commonwealth, state/territory and local government levels, many disparate stakeholder groups with diverse perspectives and values and a maze of legislation and regulation. Conservation outcomes sought from cat management are more likely to be achieved where there is collaboration, consistency and harmonisation in this effort and in the overall legislative context. There has been substantial progress in collaboration in the policy settings for, and management of, cats across Australia over recent years. Such developments include the commitment to the national declaration of feral cats as a pest by the environment ministers in 2015: most jurisdictions accordingly now recognise feral cats as a pest (see Appendix 4). The establishment in 2015 and subsequent operation of a national Feral Cat Taskforce has also served to increase coordination in the management of feral cats across Australia. The 2022-2032 Threatened Species Action Plan commits to maintaining this coordination: 'Promote best practice management through the National Feral Cat and Fox Co-ordinator and Feral Cat Taskforce to co-ordinate consistent on-ground actions'.

Notwithstanding this progress, there is considerable scope for further coordination and collaborations. For example, more work is needed to make current control options more consistently available across jurisdictions (Appendix 5), and more accessible to all management groups, including Indigenous rangers. Legislation governing pet cat management remains highly variable across jurisdictions; moreover, the management of pet cats mostly falls to local governments, which can, to varying extents, introduce their own bylaws with specific provisions. The resulting patchwork of regulations is confusing to the public, and hard to enforce. Improving alignment of companion animal legislation across jurisdictions, and across local governments, and enabling local governments to set bylaws (such as cat prohibition) to suit local conditions more easily, would help lift the standards of pet cat management, and reduce the biodiversity impacts of pet cats.

Information about cat impacts and cat management options has improved substantially in recent years, but these knowledge advances have not necessarily been transferred to other conservation planning and policy instruments. This includes conservation planning documents for cat-susceptible threatened species, especially if those species were listed before the new knowledge became available. Cat impacts, interactions with other threats, and management priorities, are therefore not consistently recorded in recovery plans and conservation advices for managers and regulators. This is a problem, because, for example, knowing that a prescribed burn of moderate to high severity could elevate cat activity and thus predation, should prompt managers to consider whether post-fire predator control is required to protect a threatened species. Similarly, if habitat clearing for a new road or suburban development

DRAFT FOR CONSULTATION

proposal could increase the access of cats to an area currently supporting cat-susceptible species, the recovery plan/conservation advice should alert regulators to consider cat impacts, as well as habitat loss, when considering the environmental impact of the project.

More generally, there remains scope for increasing the coordination of regional planning, impact assessment and the development and implementation of offsets, as mechanisms to support, complement and implement this threat abatement plan. For example, the development and implementation of regional plans could include actions that identify key sites for the conservation of cat-susceptible species and for the strategic implementation of feral cat management programs. Assessments of development proposals could include more consideration and mitigation of the potential impacts of such proposals on the abundance and impacts of cats; and could include consideration of strategic management of feral cats in priority areas as an acceptable and long-lasting offset to some of the biodiversity loss attributable to the development.

Feral cat management also intersects with the management of other invasive vertebrate pests, and may be most effective when there is an appropriate coordination in the legislative, regulatory and management context across pest species. The national coordination of pest animal management activities occurs under the Australian Pest Animal Strategy. The Invasive Plants and Animals Committee, comprising representatives from all Australian, state and territory governments, has responsibility for implementation of this strategy.

Relevant legislation and regulation also relate to biosecurity issues, including the importation of cats into Australia. There is a risk that cats could also affect a broader range of species should any of the designer hybrids (where *Felis catus* is interbred with another species of small cat, e.g. savanna cat, a hybrid between the domestic cat and the serval, *Leptailurus serval*) become established. This is because these hybrid cats have different body sizes, physical abilities, and behaviours that could give them 'access' to native species that are currently less susceptible to impacts from the feral domestic cat. Some designer hybrids may also be more able to cross water barriers to reach islands if they are likely to swim, and to access native species currently protected within havens if they are able to scale higher fences than existing feral cats.

DRAFT FOR CONSULTATION

Performance Criteria

Table 2 Objective 1. Performance Criteria

Objective 1. Performance criteria	By 2028	By 2033
Legislation, regulation frameworks are enhanced and coordinated		
Commonwealth, states and territory legislation consistently identifies feral cats as a pest and provides the context and foundation to support improved cat control.	Yes	Yes
State and territory legislation relating to pet cat management is more aligned and improved.	Yes	Yes
There is increased consistency across jurisdictions in what cat control options are permissible, with such regulation informed by appropriate levels of risk assessment.	Yes	Yes
Over the period 2023 to 2033, no new hybrid cats are imported to Australia, because the current national ban on importation of cat hybrids not already present in Australia is maintained.	Yes	Yes
Planning frameworks are enhanced and coordinated		
All new threat abatement plans for pest species that interact with cats, and recovery plans and conservation advices for newly listed threatened species affected by cat predation (or cat-borne disease), show explicit linkages to this threat abatement plan, and their priority management actions are coordinated with the actions described in this plan.	Yes	No
Such linkages to the cat threat abatement plan are established for all relevant threat abatement plans, recovery plans and conservation advices.	No	Yes
At least one regional planning trial has been established that coordinates and prioritises cat management to benefit multiple threatened species and at priority sites.	Yes	Yes
At least one trial is established for enhanced management of cats as a biodiversity offset, as part of development impact assessment processes.	Yes	Yes
At least one trial is adopted for a biodiversity certificate scheme for land managers who effectively control feral cats at a site with significant value for cat-susceptible species	Yes	Yes

DRAFT FOR CONSULTATION

Actions

Table 3 Objective 1. Actions

Objective 1. Coordinate and enhance legislative, regulatory and planning frameworks		Priority	Cost	Responsibility	Timelines
Legislation, regulation frameworks					
1.1	Enhance harmonisation across government legislation that identifies feral cats as a pest, requires feral cats to be controlled, and identifies control techniques that may be used, based on evidence of efficacy and risks.	Very High	Low	Commonwealth, state and territory governments	Starting immediately
1.2	Enhance consistency across state and territory legislation for companion animals, including mandating the principles of responsible pet ownership, and enabling local governments to more easily set additional bylaws that designate suburbs as cat-free.	High	Low	State and territory governments, local governments	Starting immediately
1.3	Local governments improve regulatory and policy settings to reduce pet cat impacts [see also objective 9 for management actions]: • Where there are gaps in state/territory legislation, by introducing bylaws to require responsible pet cat ownership (registration, identification, desexing, household caps, containment). • By applying conditions of cat prohibition in suburbs near areas with high biodiversity value.	Very High	Medium	State and territory governments, local governments	Starting immediately
1.4	Harmonise relevant legislation or regulations across governments to prevent or reduce the likelihood of the introduction of cats to islands on which they are not currently present (linked to Actions 2.1 and 3.1; and Objective 5)	Very High	Low	Commonwealth, state and territory governments, local governments	Starting immediately
1.5	Continue to disallow importation of new domestic cat hybrids that potentially threaten either a different suite of native species, or threaten some native species more markedly than the current domestic cat.	Very High	Low	Commonwealth	Starting immediately
1.6	Ensure the potential consequences for impacts of cats are considered in development impact assessment processes, and that the potential benefits of cat control programs are considered in offset designs.	Medium	Low	Commonwealth	Starting in the period 2023-2028
1.7	Consider the potential of a 'biodiversity certificate' system for land managers who undertake cat control at sites of high biodiversity value. This aligns with Target 22 of the Threatened Species Action Plan (Community groups lead or participate in recovery activities for all accessible priority species and places, including through citizen science).	Medium	Low	Commonwealth, land-holders	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

Objective 1. Coordinate and enhance legislative, regulatory and planning frameworks		Priority	Cost	Responsibility	Timelines
Planning frameworks					
1.8	Align abatement of cat impacts across conservation planning for threatened species. • All recovery plans and conservation advices for cat-susceptible threatened species should be consistent with, and include linkages, to this threat abatement plan, including specific references to the management of cats and interactions of cats and other threats. • The compilation of a database of cat-susceptible threatened species (Appendix 2) is routinely updated to include newly listed cat-susceptible threatened species. • The potential impacts of cat predation (and consequent broader ecological ramifications) are considered in recovery plans for newly listed threatened ecological communities. • Where relevant, Healthy Country plans include consideration of the need to manage cats to benefit threatened and culturally significant species, with management and monitoring aligned with this threat abatement plan	High	Low	Commonwealth	Starting immediately
1.9	Coordinate cat management across threatened species: Trial a regional approach to cat management that coordinates actions for feral and pet cats to benefit multiple cat-susceptible species. (Note that this is an extension of whole-of island cat management plans already in place for populated islands such as Christmas Island. In its consideration of cat impacts and management, the regional plan should nest within the national priorities outlined in this national threat abatement plan.)	Medium	Low	Commonwealth, state and territory governments	Starting in the period 2023-2028
1.10	Maintain and enhance linkages of cat threat abatement plan with those for other vertebrate pests, and ensure oversight and coordination of feral pest management through the Australian Pest Animal Strategy.	Medium	Low	Commonwealth	Starting in the period 2023-2028
1.11	Align management plans for Commonwealth land with this threat abatement plan, to ensure that cat management in these areas (protected areas and other land uses) is exemplary.	High	Low	Commonwealth	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

8.2 Objective 2. Plan and implement cat management programs within an evidence-based framework, and use this to help maintain broad stakeholder and community support.

Rationale

Actions within this objective are foundational for many other objectives. Objective 2 seeks to ensure that cat management meets the guiding principles of this threat abatement plan; in other words, that actions are prioritised to try to achieve the most substantial and lasting conservation benefits; that actions are evidence-based and justified (effective, humane, sustainable); and that management is coupled with monitoring to guide management adaptation and reporting. This objective therefore includes actions relating to the use, collection and interpretation of evidence associated with management programs. It also seeks to ensure that appropriate information is readily available to those seeking to undertake cat management, and that many of the current constraints identified during consultation that impede such management can be overcome or reduced.

This objective also seeks to identify and prioritise islands, sites and regions for cat management based on their biodiversity values and the extent to which cats may impact those values, and to help identify spatial variation in the optimal modes of cat control. Such prioritisation is consistent with the 2022-2032 Threatened Species Action Plan, which identifies a set of 20 priority places for which management can achieve significant conservation benefits for Australian biodiversity. Cat management is an important issue in many of these priority places.

Given the diverse relationships between people and cats, it is essential to maintain broad public understanding of the impacts of cats, and of the conservation, human health and economic outcomes that can be achieved with effective cat management. Therefore, this objective includes actions to ensure that information about cat impacts and management can be shared transparently with the broader community, so that social licence for cat management is maintained.

DRAFT FOR CONSULTATION

Performance Criteria

Table 4 Objective 2. Performance Criteria

Objective 2. Performance criteria	By 2028	By 2033
PRIORITISE AND PLAN USING EVIDENCE - Cat management across Australia optimises benefits across those native species most affected by cat predation by prioritisations of:		
Islands for which cat eradication would be most feasible, cost-effective, likely to be supported by stakeholders, and result in the greatest conservation dividend.	Yes	Yes
Locations (e.g. subregions) where new cat-free havens (islands or fenced areas) could be established to protect viable populations of the most cat-susceptible species, with this planning aiming to have species represented across their previous ranges, in a spectrum of habitats, and informed by climate change projections.	Yes	Yes
Sites where native species with moderate to high cat-susceptibility can be protected by intensive cat control.	Yes	Yes
Topographical or other **refuge areas** where holistic management of ecosystems and other threats that interact with cats could most benefit native species.	Yes	Yes
Peri-urban and urban areas where feral and pet cat management will benefit native species.	Yes	Yes
SUPPORT MANAGEMENT - Managers (across the spectrum of community groups, NGOs, state agencies, Indigenous groups) have access to the information they need, and are supported to deliver effective cat management		
Feral Cat Taskforce meets regularly, functions constructively, and makes available the information about cat management and outcomes available to diverse stakeholder groups.	Yes	Yes
Practitioner network designed, established, widely used and productive.	Yes	Yes
Information to guide managers on options for cat control, including a complete set of relevant Codes of Practice and Standard Operating Procedures, are available and accessible to diverse stakeholder groups.	Yes	Yes
Standards for monitoring outcomes of cat management are developed, accessible for diverse stakeholder groups, and widely applied.	Yes	Yes
Standardised protocols for monitoring changes in cat activity and density, accessible for diverse stakeholder groups, exist and are widely used.	Yes	Yes
ENHANCE KNOWLEDGE/SUPPORT MANAGEMENT - Information about the operation and outcomes of cat control programs is collated, and coordinated reporting is made available to all relevant stakeholders		
National databases recording cat management programs and their outcomes exist and are used to inform reporting (e.g. of Threatened Species Action Plan, cat threat abatement plan review, State of the Environment Report).	Yes	Yes
National databases collating data on cat density and diet are maintained and curated, with an increase of at least 50% more records by 2033.	No	Yes
Monitoring for the effectiveness of cat control, including the potential for perverse outcomes, is undertaken, with results collated and used to refine management.	Yes	Yes

DRAFT FOR CONSULTATION

Objective 2. Performance criteria	By 2028	By 2033
MAINTAIN PUBLIC SUPPORT – Information about cat impacts and management outcomes is transparent and accessible		
Public awareness of cat impacts, and support for cat management that reduces impacts on Australian biodiversity, is maintained or increased.	Yes	Yes

Actions

Table 5 Objective 2. Actions

Objective 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support		Priority	Cost	Responsibility	Timelines
Prioritise and plan using evidence					
2.1	Prioritise cat-free islands on which surveillance monitoring for cat incursions should be established. • Prioritisation is likely to be based on the biodiversity and cultural values potentially compromised by cats (e.g. number of cat-susceptible species and the irreplaceability of populations); the likelihood that cats could be introduced there (e.g. proximity to mainland, popularity as a stopover location for boats); and the feasibility of a rapid response to remove the cat(s) should they be detected. [note links to actions 3.1, 5.1 and 5.2 and objective 8] • Traditional Owners should be involved in prioritising cat-free islands for surveillance monitoring. *The Indigenous Kimberley Islands Safe Haven (iKISH) program could offer a suitable pilot study for regional surveillance prioritisation.*	High	Medium	Researchers, Commonwealth, state and territory governments, Traditional Owners.	Starting immediately
2.2	Prioritise islands for cat eradication, to protect cat-susceptible species and potentially support island translocations. • Prioritisation is likely to be based on the residual biodiversity values that are threatened by cats (e.g. number of cat-susceptible species and seabird breeding colonies, and the irreplaceability of populations); the cultural values ascribed by Indigenous Australians that are threatened by cats; the likelihood that cats could re-invade (e.g. proximity to mainland, popularity as a stopover location for boats); feasibility of eradication; costs; stakeholder support; and the feasibility of a rapid response to remove the cat(s) should they re-invade. • Prioritisation should also consider the potential use of the island as a haven for mammal translocations and/or restoration of seabird breeding populations.	Very High	Medium	Researchers; Commonwealth, state and territory governments, NGOs, Traditional Owners	Starting immediately

DRAFT FOR CONSULTATION

Objective 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support		Priority	Cost	Responsibility	Timelines
	[note links to actions 3.1, 5.1 and 5.2 and objective 8; although these other actions will generate additional information to enhance action 2.2, there is enough existing information to initiate 2.2 immediately]				
2.3	Prioritise subregions for creation of new cat-free havens (including islands), to support translocations of extremely and highly cat-susceptible mammals and potentially species from other groups. [note links to Objective 6] Update existing systematic planning work (Ringma *et al.* 2019) by: • Considering how climate change will affect the climatic suitability of the haven for the species in the future. • Considering the co-benefits of cat removal for other species at the haven site (including culturally important species; in situ populations of other species; for islands, the propensity to support/recover nesting seabirds). • The potential adverse ecosystem effects of cat removal (e.g. mesopredator release of invasive rodents on islands). • The cost-effectiveness of maintaining the cat-free status of the haven over at least 30 years (this duration is needed to account for the higher costs of ongoing surveillance, management and capital replacement of fenced areas versus islands).	Very High	Medium	Researchers, Commonwealth, state and territory governments, NGOs, Traditional Owners	Starting immediately
2.4	Prioritise sites for intensive cat control to protect species of moderate to high cat-susceptibility that exist as remnant populations (e.g., dibblers, bilbies, great desert skinks). [note links to Objective 7] • Prioritisation may be based on the conservation value (current or potential) at this site, the cultural value of the species and site, the effectiveness and feasibility of sustaining control in the long term, cost, non-target impacts, the interest of the local landholders and communities (both Indigenous and non-Indigenous) in the site and species. • Priority sites should also include 'important habitat' for the Threatened Species Action Plan Priority Species that are cat-susceptible and have populations outside of havens (i.e. bilby, numbat, eastern quoll, Gilbert's potoroo, quokka, western ringtail possum, central rock-rat, chuditch (western quoll), New Holland mouse, mountain pygmy-possum, northern quoll, northern hopping mouse, northern brushtail possum, Leadbeater's possum (lowland population)).	Very High	Medium	Researchers, Commonwealth, state and territory governments, NGOs, Traditional Owners	Starting immediately
2.5	Prioritise areas for intensive, holistic management of fire, grazing, and introduced rabbits, to protect all native species through reduction in impacts of cat predation and interactive impacts. [note links to Objective 8]	Very High	Medium	Researchers, Commonwealth state and territory governments, NGOs, Traditional Owners	Starting immediately

DRAFT FOR CONSULTATION

Objective 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support		Priority	Cost	Responsibility	Timelines
	Prioritisation should consider: • Current and future climate. • Refuge areas where cat impacts are low because of topographical or climatic factors that limit cat density and/or their hunting efficiency. • Refuge areas where native species populations retract to during some circumstances (e.g. relatively mesic areas in the arid zone, during runs of dry years).				
2.6	Prioritise areas for managing feral (and pet) cats living near human habitation and infrastructure. [note links to Objective 9] • Collate spatial information on the locations of cat-susceptible native species adjacent to towns, communities and outstations, so that appropriate cat management can be intensified in these areas.	High	Medium	Researchers, Animal Management in Rural and Remote Indigenous Communities (AMRRIC) (for communities)	Starting immediately
Support management					
2.7	Maintain the national Feral Cat Taskforce as a primary mechanism to help coordinate the management of feral cats across jurisdictions. *[Note that action 4.1 details a specific network to promote coordination and collaboration across cat-free haven sites and managers.]*	Very High	Low	Commonwealth, state and territory governments; NGOs, Feral Cat Taskforce (FCT) members; Office of the Threatened Species Commissioner (OTSC); National Cat Coordinator	Starting immediately
2.8	Create a 'practitioner resources and network', or regional networks, for Indigenous groups, community groups, and individual landholders, to make information about impacts, research, monitoring and management accessible, and to help managers make connections with other practitioners. The network would help practitioners to: • Share practical knowledge about cat control options • Learn about processes for obtaining permits and training • Find guidance for choosing control options and monitoring options • Suggest avenues for accessing scientific support • Make connections with other land managers • Share approaches for enhancing community support and engagement in pet and feral cat management	Very High	Medium	Commonwealth, state and territory governments; NGOs, AMRRIC; National Cat Coordinator; Centre for Invasive Species Solutions (CISS); National Environmental Program Resilient Landscapes Hub (NESP RL Hub)	Starting immediately

DRAFT FOR CONSULTATION

Objective 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support		Priority	Cost	Responsibility	Timelines
	The network could potentially also establish a 'library of equipment' such as various traps and monitoring gear, for temporary loan. *Such a network was a key recommendation from the pre-consultation process with Indigenous land management groups. The network(s) could adapt and build on aspects of the information-sharing model developed by the WA Feral Cat Working Group, and provide links to other information sources.*				
2.9	Support land managers to plan for and implement effective cat control programs by improving guidance about which cat control option(s) are most appropriate for their particular context and conservation objectives, based on: • The current or potential importance of sites for cat-susceptible threatened species. • The extent to which cat impacts must be reduced to protect native species at those sites. • Potential risks and perverse outcomes. • Potential impacts on, and linkages with, other vertebrate pest species. • Features of the management area (e.g. habitat type, proximity to towns, accessibility). • The options available given location and regulation. • For the use of toxins, include when each toxin and toxin presentation is available, and most likely to be effective (based on geography, seasonality, non-target risks), and what should be monitored to ensure non-targets impacts and efficacy are both acceptable.	Very High	Low	NESP RL Hub/CISS	Starting immediately
2.10	(In addition to 2.9) support Indigenous ranger groups to control cats: • Support ranger exchanges for peer-peer skill-sharing about using tracking and other techniques to hunt and control cats near sites with threatened native species. • Ensure rangers can access the full suite of control options available for their area, by providing training and administrative support (e.g. to acquire permits) if needed. • Consider bounty systems with payment systems that are structured to encourage cat hunting in designated areas. • Where feasible, control programs should include monitoring for cat density/activity and outcomes for native species.	High	Low	Indigenous Desert Alliance, regional land councils, state and territory governments	Starting immediately
2.11	Maintain, enhance and update as required Codes of Practice (CoPs) and Standard Operating Procedures (SoPs), coordinated across jurisdictions, assessed using the humaneness index, and presented in a variety of formats to maximise accessibility to diverse stakeholder groups.	High	Low	Commonwealth, state and territory governments	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

Objective 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support		Priority	Cost	Responsibility	Timelines
Enhance knowledge/ Support management					
2.12	Improve monitoring attached to control programs: • Develop national framework/standards for monitoring cat abundance/activity, impacts, and management effectiveness (i.e. the extent to which outcomes for native species are achieved), for different habitats and different stakeholder groups. These can be based on the guide to survey methods for cats that is available here: monitoring guidelines produced by the NESP TSR Hub. • Continue to explore ways to incorporate new methods like eDNA sampling, artificial intelligence linked to camera arrays, into monitoring. *This action builds on the progress achieved by 'The Glovebox Guide for Managing Feral Cats' (Pestsmart), and 'A guide to surveying red foxes and feral cats in Australia'. (NESP Threatened Species Recovery Hub Project 1.1.5 report).*	Very High	Low	Terrestrial Ecosystem Research Network (TERN), state and territory governments	Starting immediately
2.13	Establish and maintain national databases for collating details of cat control programs, monitoring data and outcomes. Use these databases to: • Summarise information on the extent, benefits and any detriment of specific control options, including toxins, to ensure ongoing use is transparent and remains justified. • Document the extent of recovery of native species for which cat control is an objective, based on appropriate monitoring of native species at sites subject to cat management, and nationally with respect to the conservation status of cat-susceptible species. • Prepare reports on the level and nature of cat management and its outcomes, to table at Feral Cat Taskforce meetings, and to feed into documents such as Threatened Species Action Plan and SoE reports, and the cat TAP review. • Develop adaptive management responses to monitoring outcomes. *This action builds on the progress achieved by the FeralCatScan app.*	Very High	Low	Commonwealth, state and territory governments	Starting in the period 2023-2028
2.14	Establish and maintain national databases on fundamental information about cats, including: • Cat density estimates from site studies • Cat diet, and records of native species being preyed on by cats • Cat presence/absence on islands [including information gained from action 3.1] *This action builds on the databases created by the NESP TSR Hub.*	High	Low	Commonwealth	Starting immediately

DRAFT FOR CONSULTATION

Objective 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support		Priority	Cost	Responsibility	Timelines
Maintain public support					
2.15	Engage and communicate with the broader public. • Disseminate information on cat management issues and biodiversity outcomes of cat management via regular and social media, with content and format tailored for different stakeholder groups. • Make available information on the multiple benefits of habitat, pest animal, and dingo management (for regions where the benefits are known), in accessible formats, to diverse land manager groups. • Develop engaging materials illustrating the impacts of cats on Australian fauna, and management options, as teaching resource packs for use in school education programs. • Undertake research to understand whether the engagement is changing attitudes and behaviours.	Very High	Low	FCT; OTSC; Commonwealth, state and territory governments; NGOs, AMRRIC; Indigenous organisations; National Farmers Federation; Meat Livestock Australia; Australian Veterinary Association; state education departments; National Cat Coordinator	Starting immediately, links to all other actions
2.16	Maintain and increase broad public support for improved cat management for conservation, cat welfare, human health, and livestock production outcomes. • Understand the level of public acceptance for different control options for feral cats in natural environments (including poison-baiting, shooting, etc), and what might change those views. • Understand the complexities in how Indigenous communities may view feral cats, and their place in Country, and as pets, and how best to discuss cat management. *This action is also relevant to objective 9, which has actions specific to feral cats living near people, and pets.*	Very High	Medium	Researchers, AMRRIC, Royal Society for the Prevention of Cruelty to Animals, Indigenous groups	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

8.3 Objective 3. Undertake research on cat ecology and impacts to inform management undertaken across multiple objectives

Rationale

Over the period spanned by successive threat abatement plans for feral cats, there has been a major research focus on the ecology, management and impacts of cats in Australia, and this has built a robust and broad evidence base. However, some knowledge gaps continue to constrain effective management. A comprehensive assessment of research priorities for the management of feral cats has recently been compiled by the Western Australian Biodiversity Science Institute in collaboration with the WA Feral Cat Working Group: this compilation (Webber 2020) is broadly relevant across Australia. This objective includes actions relating to fundamental research on some aspects of cat ecology and impacts, and of the ecology and management needs for cat-affected native species. One important knowledge gap relates to the occurrence of cats on islands. Although the presence or absence of cats is known for many Australian islands, there are also many islands where this status is not known or documented. To help identify current and potential havens, and inform prioritisation for cat eradications on islands, there is some need for targeted island surveys. Such surveys could also usefully assess the occurrence on islands of threatened species, breeding colonies of seabirds and other species, and of pest species; and help identify constraints to cat eradication efforts.

This objective focuses on research that is relevant to multiple other objectives. Note that additional research actions related to specific objectives are also described under those objectives.

DRAFT FOR CONSULTATION

Performance Criteria

Table 6 Objective 3. Performance Criteria

Objective 3. Performance criteria	By 2028	By 2033
ENHANCE KNOWLEDGE - Key priorities for further expansion of the evidence base are addressed		
For all islands > 10 ha with known or potential high conservation values, and for which the cat status is currently unknown, the presence or absence of cats is resolved through field survey or consultation (this will inform the prioritisation carried out in objective 2).	Yes	Yes
Surveillance monitoring for increased cat impacts is established in at least five locations where cat-susceptible species are still abundant	Yes	Yes
The prevalence of toxoplasmosis and other diseases in cats, and in native species, is documented across Australia.	Yes	No
The impacts of varying levels of cat predation on population viability across at least 50% of threatened species that are of extreme or high susceptibility are described.	No	Yes

Actions

Table 7 Objective 3 Actions

	Objective 3. Undertake research on cat ecology and impacts to inform management undertaken across multiple objectives	Priority	Cost	Responsibility	Timelines
Enhance knowledge					
3.1	Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands: • Survey of islands, focusing on those > 10 ha (the smallest island area known to have a cat population is 8 ha), for which occupancy by cats is unknown, to confirm the presence or absence of cats, and other vertebrate pests; and to document biodiversity values, including seabird breeding colonies.	High	Medium	Researchers, Commonwealth, state and territory governments, Traditional Owner groups	Starting immediately
3.2	Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and PVAs:	High	Medium	Researchers	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

Objective 3. Undertake research on cat ecology and impacts to inform management undertaken across multiple objectives		Priority	Cost	Responsibility	Timelines
	• Identify which native species are most susceptible to cat predation, when and why. • Find the thresholds of cat density at which population-level impacts on native species become evident. • Include some select native species occurring in areas near human habitation and infrastructure (cross-ref with action 9.3).				
3.3	Design and implement surveillance monitoring that may detect increased cat impacts at locations where cat-susceptible species are still abundant. • Monitor cat density (and ideally, their prey) at locations where cat-susceptible species are still abundant even though cats are present (e.g. Tasmania, rugged areas of the northwest Kimberley, southwest WA, Groote Eylandt, wet forests and rainforests of the east coast), to ensure any increases in cat density are picked up promptly and can inform management response. This information may be available via actions in objective 2, but any gaps should be filled. *This should overlap with the Threatened Species Action Plan Targets 8 and 9, to manage cats in all areas of important habitat for cat-susceptible priority species, and in all priority places whose condition is threatened by cats.*	Medium	Medium	Researchers, Commonwealth, state and territory governments, NGOs	Starting immediately
3.4	Investigate impacts of cat-borne diseases to native wildlife, and options for responses.	Medium	Medium	Researchers	Starting in the period 2023-2028
3.5	Undertake fundamental research on cat ecology to inform the design and implementation of existing control options such as toxin-baiting, shooting and trapping; and to inform the potential use of novel control options such as genetic technology [objective 4]. • Describe, across a range of habitats, the feral cat's mating system, population demographics, dispersal behaviour and spacing patterns, and recruitment, including after cat removal (i.e. re-invasion). • Describe interactions of cats with other predators (dingoes, Tasmanian devils, quolls), especially the mechanisms that affect the ability of cats to coexist with native predators.	High	Medium	Researchers	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

8.4 Objective 4. Refine the use of existing tools, and develop new tools, for directly controlling feral cats, and make the tools appropriately accessible

Rationale

Over the durations of the previous cat threat abatement plans, there has been substantial progress in developing and refining the use of options to directly control cats. Objective 4 seeks to further direct and hone their application. In addition, this objective includes actions to continue the development of novel cat control options based mainly on synthetic biology that may become available for use beyond the life of this plan.

Existing (and potential future) cat control options may be used across objectives, and indeed field trials described here will usually take place as part of the on-ground action listed under one or more other objectives. Although cat exclusion (using fencing) is the focus of objective 6, eradicating cats from within fenced areas or from islands may require the use of the control options detailed here in objective 4. Indirect methods of reducing cats or their impacts, including by manipulating ecological interactions (e.g., reducing densities of introduced prey species) are covered in objective 8.

Further information about each cat control option is given in the background document. Here, we include brief context on each option that provides context for the actions under this objective.

Toxic baits that target cats

Toxic baiting using aerial delivery of Eradicat baits (containing 1080 poison) has been critical for maintaining populations of highly and extremely cat-susceptible species in parts of the southwest of Western Australia. It has also been used under minor use permits to protect populations of extremely/highly cat-susceptible species such as central rock-rats, and bridled nailtail wallabies, and to eradicate cats from islands (e.g. West Island in the Sir Edward Pellew island group). New presentations of 1080 are being trialed (Hisstory), and an alternative toxin (Curiosity) has recently been registered for use across Australia . However, baiting trials of Eradicat and the newer formulations have given variable results: encounter rates, declines in bait palatability over time, uptake by non-target species, cat hunger and ambient weather conditions all play a part, but more work will improve understanding of why toxic baits do/do not work in different situations, and thus sharpen protocols. In addition, there are non-target risks, public concerns about humaneness and the use of poison generally, baiting effectiveness may decline over time, and perverse outcomes are possible. Given these issues, toxic baiting programs should be justified based on the expected conservation benefit and a thorough assessment of risks, and programs should be accompanied by robust monitoring to quantify the potential non-target impacts, to confirm that reductions in cat density are occurring, and that these are translating to measurable benefits for native species. In addition, data from across projects should be nationally collated to facilitate information-sharing, including incorporation into formal

DRAFT FOR CONSULTATION

analysis of the effectiveness of different management approaches (cross-reference objective 2). These steps will help maintain public support and confidence that the use of poison to control feral cats is justified.

Other toxin delivery systems

Alternative ways of delivering toxin to cats may increase target specificity and reduce the opportunity for learned avoidance or inherited bait shyness. These include 'Felixer' grooming traps (that shoot a toxin onto a cat when it moves past a sensor), toxic implants and toxic collars (useful for targeting 'problem' cats responsible for disproportionate predation). Alternative toxin presentations are at various stages of development, with further trials required to refine their use, and to inform their regulatory controls.

Trapping, shooting, tracking

Trapping, shooting and tracking can be useful cat control options for small areas, and when control effort can be maintained fairly intensively over time. Cage trapping, tracking and shooting are the most feasible direct control options for many land managers, including Indigenous ranger groups, as they require less training or have more navigable regulatory frameworks than other options. They may be especially effective when integrated with other control options, such as toxic-baiting. Soft-jaw traps often outperform cage traps, but non-target impacts can be an issue, extra training is required, and they are not legal for use in all jurisdictions (Appendix 5). Shooting can potentially occur over larger areas than trapping, and can be enhanced by using thermal scopes or trained dogs to bail cats. Shooting is also a control option available to a large section of the public. However, the effectiveness of shooting carried out by recreational shooters, farmers and landholders for reducing cat density and impacts is mostly poor or unclear, because the shooting is often not intensive nor sustained, and because there is rarely any monitoring of outcomes attached to the activity. There are therefore opportunities to better harness the interest and skills of recreational shooters and landholders to control cats effectively, with improved program design and outcome monitoring.

In parts of the Tanami, Gibson and Great Sandy Deserts, Indigenous people hunt cats by following cat tracks by car and on foot to where cats are hiding under vegetation or in burrows. The cats are hunted for bush tucker and medicine, as cat meat is considered to give strength and health. Cat hunting has been encouraged in areas supporting cat-susceptible threatened species (*Ninu* (bilby), *Tjalapa* (great desert skink)), by formalising the action in IPA management plans, and by offering bounties to encourage cat hunting near threatened species. The approach works best in areas with good substrate for tracking (e.g. sandy deserts), and when there are multiple motivations for continuing to hunt (e.g. conservation, food, medicine, bounty). The cat hunting is inspiring for other Indigenous ranger groups with aspirations to manage cats on their own Country, even if other techniques are more suitable for their area.

DRAFT FOR CONSULTATION

Guardian dogs

Guardian dogs were bred originally in Europe and Asia to protect livestock from large predators. They have more recently been used in conservation in both Europe and north America. In Australia, they have been/are being used successfully to protect some native species living in small areas (e.g. fairy penguins, gannets, eastern barred bandicoots) from foxes. It is unclear whether guardian dogs can also successfully repel feral cats, and also if there are circumstances where introducing large canids into ecosystems could have adverse impacts.

Novel control options

Novel options for cat control aim to increase target specificity and efficacy, improve humaneness, or offer longer-term solutions, when compared to existing cat control options. The options include using immunocontraception and gene drives to reduce cat populations. None are likely to be operative within the lifetime of this plan, but progress towards their development and evaluation should be maintained. Disease has been used to help achieve eradications of cats from islands in other countries, but is unlikely to be effective on the Australian mainland, and may be considered unacceptably inhumane.

Trials of immunocontraception have been undertaken in the past, some are still underway, and the approach may be useful in some situations (e.g. for island eradications).

Synthetic biology offers opportunities for new approaches to reducing cat populations. Synthetic biology aims to redesign animals, or biological systems, to produce novel functions. Genetic engineering, which involves manipulating the genome of individual animals, is an example of synthetic biology. There is currently considerable interest in a particular application of genetic engineering called gene drives, where gene sequences are inserted into individual animals that then propagate through populations with each reproductive event. For example, gene drives could be used to make cats more susceptible to a toxin, or to skew the sex ratio towards one sex, or to make carriers of the gene sterile. Releasing gene drives into the feral cat population is a complex problem, with many components, that will take >20 years and a multidisciplinary effort to be successful. The main barriers to developing and implementing gene drive technologies include technical (molecular and ecological) knowledge gaps; implementation knowledge gaps; legislation, policy and regulation misalignments and gaps; and public acceptance and ethics.

The susceptibility of native species to cats is exacerbated by the lack of co-evolutionary history and thus predator naivety. Potentially, natural selection can be simulated to encourage predator recognition and avoidance behaviour in cat-susceptible species, by exposing populations of native species to controlled levels of cats. Trials of this possibility have been undertaken at Arid Recovery (SA) and Wild Deserts (NSW), with a related trial carried out in the ACT (with a focus on foxes rather than cats). These trials have revealed shifts in morphology and behaviour of some wildlife species, consistent with improvement in predator avoidance capability. However, it is unclear how far such predator recognition and avoidance can be pushed in these native species, especially

DRAFT FOR CONSULTATION

given the reduced genetic diversity caused by the substantial population loss in recent times. In the meantime, controlled exposure to cats may have value in ongoing management of native species within cat-free havens, given the speed with which predator recognition and avoidance behaviour can be lost.

This objective aligns with target 19 in the 2022-2032 Threatened Species Action Plan: ‘At least 5 new tools are developed to mitigate the impact of broad-scale threats on threatened species’.

DRAFT FOR CONSULTATION

Performance Criteria

Table 8 Objective 4. Performance Criteria

Objective 4. Performance criteria	By 2028	By 2033
SUPPORT MANAGEMENT/ ENHANCE KNOWLEDGE - Control options are available, and their use is optimised such that cats can be more effectively suppressed in any Australian landscape and region		
Toxic baits (Eradicat, Curiosity, Hisstory) and alternative toxin presentations (e.g., Felixer) are registered and available for use in those parts of Australia where their use is justified based on the biodiversity benefit, overall humaneness and sustainability.	Yes	No
The biodiversity benefits, and attendant risks, of shooting, trapping, and tracking for controlling cats, in different contexts, are better quantified.	Yes	No
The use of guardian dogs to repel cats from sites supporting populations of cat-susceptible species has been trialled and evaluated.	Yes	No
The potential to develop synthetic biology (e.g. immunocontraception, gene drives) to reduce populations of cats is explored.	Yes	No
Improved understanding of the extent to which cat recognition and avoidance by native prey species can be encouraged via managed selection.	Yes	Yes

Actions

Table 9 Objective 4. Actions

	Objective 4. Refine the use of existing tools for directly controlling feral cats, and develop new tools	Priority	Cost	Responsibility	Timelines
Support management/Enhance knowledge					
	Toxins				
4.1	Improve the use of toxins: • Carry out meta-analysis of efficacy data from existing and new field trials of toxic baits, including environmental impacts, and use to sharpen protocols. • Improve understanding of non-target impacts and ways to minimise these.	High	Medium	Centre for Invasive Species Solutions (CISS), National Environmental Science Program Resilient Landscapes Hub (RL Hub),	Starting immediately

DRAFT FOR CONSULTATION

Objective 4. Refine the use of existing tools for directly controlling feral cats, and develop new tools		Priority	Cost	Responsibility	Timelines
	• Improve understanding of broad-scale environmental impacts of the two toxins used for cats, 1080 and PAPP (Para-aminopropiophenone). • Continue trials of toxic implants (in prey) and toxic collars (for prey and for sentinel cats), and determine when these approaches are most effective. • Refine formulations to produce longer-lasting baits.			state and territory governments	
4.2	Seek national registration for Hisstory	High	Low	Commonwealth, WA Department of Biodiversity, Conservation and Attractions	Starting immediately
4.3	Complete field trials of, and refinements to, Felixer grooming traps; then register Felixer grooming traps for use nationally.	Very High	Medium	Australian Pesticides and Veterinary Medicines Authority (APVMA), NGO (Thylation)	Starting immediately
4.4	Explore options for field euthanasia for live-trapped cats that are not based on shooting or lethal injection, to make it possible for land managers (Indigenous and non-Indigenous) to humanely kill captured cats.	High	Low	CISS; Commonwealth, state and territory governments	Starting immediately
	Cat hunting, shooting, trapping				
4.5	Collaborate with a recreational shooting group to trial the value of sustained shooting programs to reduce cat density and generate biodiversity outcomes: • The trials should include monitoring for cat density/activity and outcomes for native species [as per objective 2]. • The information should be used to develop guidelines to support other shooting groups to design and implement effective cat control, coupled with appropriate monitoring.	Medium	Low	Sporting shooters; researchers; CISS; Royal Melbourne Institute of Technology (RMIT)	Starting in the period 2023-2028
4.6	Continue to explore the potential of new attractants to draw cats to control or monitoring points: • 'Mata Hari Judas' technique (using female cats with induced oestrus to attract remaining cats in closed populations). • Synthetic production of *Alcalypha indica* root.	High	Low	Researchers	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

Objective 4. Refine the use of existing tools for directly controlling feral cats, and develop new tools		Priority	Cost	Responsibility	Timelines
	Guardian dogs				
4.7	Carry out trials to establish whether guardian dogs can effectively repel cats, and benefit native species.	High	Medium	Researchers; NGOs; state, territory governments	Starting in the period 2023-2028
	Future control options: immunocontraception, gene drives, accelerated selection				
4.8	Disease: develop a risk assessment framework using diseases as part of multiple control options in specific circumstances, such as island eradications.	Medium	Low	Researchers; NGOs; state and territory governments	Starting in the period 2023-2028
4.9	Immunocontraception: Continue research to develop approaches with improved efficacy over sustained periods, and feasible spreading mechanisms.	Medium	Medium	Researchers	Starting in the period 2023-2028
4.10	Synthetic biology: Develop a detailed plan for progressing the use of gene drives to control cat populations, structured into stages with clear decision points and risk assessments undertaken before progressing to the next stage. The plan should address the molecular, ecological and implementation knowledge gaps; the legislative, policy and regulation misalignments and gaps; and public acceptance and ethics issues. Other proposals to develop synthetic biological approaches to cat control would need to consider these gaps.	Very High	Medium (for plan development only)	Commonwealth, state and territory governments	Starting in the period 2023-2028
4.11	Accelerated selection: Continue research on exposing extremely and highly cat-susceptible species to managed populations of cats within havens to encourage maintenance and enhancement of predator recognition and appropriate behavioural responses. Consider additional species and sites beyond those included in research to date.	Very High	Medium	Researchers, state and territory governments, NGOs	Starting immediately

DRAFT FOR CONSULTATION

8.5 Objective 5. Prevent cats from spreading further, to islands that are currently without cats

Rationale

This objective aims to ensure that the threat from cat predation does not expand geographically (i.e., to islands that are currently cat-free). Cats have spread across all habitats on the Australian mainland, and all the larger islands. For many Australian islands, it is not known whether cats are present or absent. However, most small and many medium-sized islands are currently cat-free, and many of these protect populations of cat-susceptible terrestrial species (mainly mammals) and important seabird breeding colonies. Cats could become established on these islands if pet cats, or stowaway feral cats, are accidentally or deliberately released to these islands. Note that action 1.9 also links to this Objective.

DRAFT FOR CONSULTATION

Figure 3 Objective 5: Stop cats from spreading further

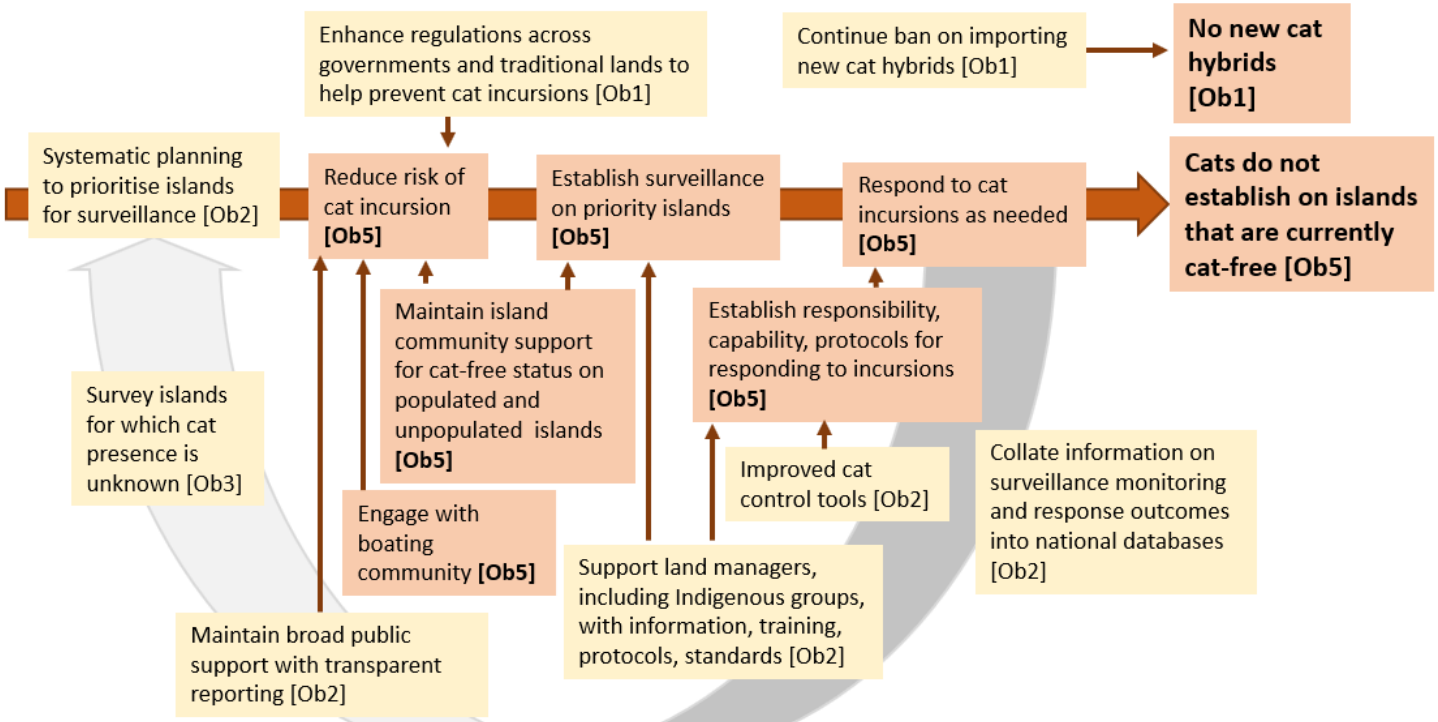


Diagram showing the relationships between the core actions [Ob5] that lead to the outcome under objective 5 [Ob5], and key supporting actions from the cross-linking objectives [Ob1-4].

DRAFT FOR CONSULTATION

Performance Criteria

Table 10 Objective 5. Performance Criteria

Objective 5. Performance criteria	By 2028	By 2033
REDUCE CAT IMPACTS - Cats do not establish on any islands that currently do not have them		
No islands have been newly colonised by cats.	Yes	Yes
SUPPORT MANAGEMENT - Island land managers are supported to keep islands cat-free		
Indigenous groups whose traditional lands include islands are supported to develop planning, surveillance, and response approaches to keep their islands cat-free.	Yes	Yes
All islands with high biodiversity values are identified; and management and regulations are in place to protect those high priority islands that are currently without cats from risks associated with the introduction of cats (e.g. surveillance if the island is cat-free, followed by response if cat invasion is detected).	Yes	Yes
ENHANCE KNOWLEDGE – Outcomes are being used to inform ongoing management		
Information from island surveillance programs is flowing to national collations [objective 2]	Yes	Yes
MAINTAIN PUBLIC SUPPORT – Stakeholders that use or manage islands are aware of the potential impacts of cat introductions		
Awareness of the potential impacts of the introduction of cats to islands is increased in individuals or groups who own and/or manage land on cat-free islands, or who visit islands for commercial or recreational purposes; and there is increased support for maintaining the cat-free status of islands.	Yes	Yes

DRAFT FOR CONSULTATION

Actions

Table 11 Objective 5. Actions

	Objective 5. Prevent cats from spreading further, to islands that are currently without cats	Priority	Cost	Responsibility	Timelines
Support management					
5.1	Establish surveillance monitoring on priority cat-free islands with high biodiversity values, to facilitate a rapid response should cats reach them. • Traditional Owners should be involved in this monitoring. • Easily accessible islands could be monitored through regular survey using camera traps, track monitoring, etc. Networks of motion sensing cameras, integrated with AI recognition software, that sends alerts and/or images of cats through the phone or satellite networks, may be an efficient option for some situations. *This action will be informed by the prioritisation undertaken in action 2.1, and the information collected under action 3.1.*	High	Medium	Commonwealth, state and territory governments, Traditional Owner groups	Starting in the period 2023-2028
5.2	Establish responsibility, capability, and protocols for rapid response to eradicate cat incursions from these islands of high biodiversity value. • Where islands are the responsibility of Indigenous groups, these groups should be supported to respond.	High	Medium	Commonwealth, state and NT governments; Traditional Owner groups	Starting in the period 2023-2028
5.3	Prevent accidental cat introductions to islands from boats. • Disseminate information through yachting and boating associations, barge companies, fishing charters and other tourism enterprises, to highlight the importance of preventing cat incursions to islands. • Install signs at boat landing spots to the same effect. • Support Traditional Owner groups to establish formal access arrangements for visitors to their islands.	Very High	Low	Commonwealth, state and territory governments, boating associations, traditional owners	Starting immediately
Enhance knowledge					
5.4	Collate information from island surveillance programs into national databases [objective 2]	High	Low	Commonwealth, state and territory governments, Traditional Owner groups	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

Objective 5. Prevent cats from spreading further, to islands that are currently without cats		Priority	Cost	Responsibility	Timelines
Maintain public support					
5.5	Engage with island residents to promote support for maintaining cat-free island status • Where cat-free islands have, or could have, temporary or permanent residents, engage with that community to understand values, attitudes, behaviours; then develop approaches to discourage the transport of pet cats to that island. • For islands under Indigenous tenure, work with the community to understand values, attitudes, behaviours; then develop approaches to discourage the introduction of cats to cat-free islands.	High	Low	Commonwealth, state and NT governments; Indigenous landholders	Starting immediately

DRAFT FOR CONSULTATION

8.6 Objective 6. Protect the most cat-susceptible species: Remove and exclude cats from an expanded network of cat-free islands and fenced havens, and manage those havens to maintain or enhance their conservation values

Rationale

Some native species are highly unlikely to persist in the presence of even very low densities of cats; these highly to extremely cat-susceptible species are the subject of objective 6. The set of species includes 47 mammal species, 6 bird species, and 4 reptile species (Table 1 in section 4.1.1; background document, section 8). Fifteen of these taxa are also Priority species in the Threatened Species Action Plan (see section 4.1).

Maintaining and increasing the numbers of areas that are cat-free – both islands and fenced areas on the mainland – is an essential component of preventing the extinction of native species that are most susceptible to cat predation, whilst other options for reducing cat impacts are improved or developed [objective 4]. Cat-free havens have been critical for protecting cat-susceptible species that have declined or been extirpated from the mainland (details in background document). Cat-free islands also offer safe breeding sites for seabirds, and hold cultural significance for many Indigenous groups.

To date, the conservation benefits of creating cat-free havens have focused on cat-susceptible mammals. This threat abatement plan presents a preliminary assessment of the cat-susceptibility of reptiles and land-birds (section 4.1.1), finding relatively few whose long-term persistence is likely to rely on representation with cat-free areas. This analysis could be refined, with additional field data on cat impacts, and using a structured expert elicitation.

Further expansion of the haven network is required to increase the representation of species currently present, to include more currently unrepresented species that are cat-susceptible (i.e, fill the 'protection gap'), and to strengthen the resilience of the network in the context of climate change (including the likely increase in the incidence of drought and severe wildfire) and other threats. Havens are currently managed by many types of groups and organisations. This diversity is a strength, as it engages with a broader cross section of society, draws funding from a wide range of sources, and fosters complementary objectives. Haven managers develop their own communication and support pathways; however, there are opportunities to improve coordination and information exchange across the disaggregated network. This objective in the cat threat abatement plan will achieve the most efficient and effective outcomes if haven managers are supported to collaborate and skill-share, through a Safe Haven Network Working Group (as outlined in the 2022-2032 Threatened Species Action Plan).

DRAFT FOR CONSULTATION

The management of native species protected within cat-free havens is usually addressed (albeit to varying extents) in threatened species' conservation planning documents. However, there are some general management considerations that transcend individual species and apply across the network of cat-free havens, and that are therefore relevant to this threat abatement plan. In particular, havens need to be managed to maintain their cat-free status (e.g., by regular surveillance monitoring); to minimise the potential detrimental consequences of creating barriers to dispersal (to some species at fenced havens); to minimise the risk of genetic bottlenecks; to minimise the risk of losing predator recognition and response behaviours in the cat-free populations; and to source ongoing maintenance costs (especially for fenced areas) and restoration costs following any major environmental disturbance event (e.g., severe wildfire).

Targets for haven creation:

Ten-year targets for protection for extremely and highly cat-susceptible species should be set by the Safe Haven Network Working Group, but interim targets used in this plan are:

- Extremely cat-susceptible species should be represented in at least three havens, with an overall population size across havens of at least 2000, with that population stable or increasing.
- Highly cat-susceptible species should be represented in at least 1 cat-free haven, or an area with sustained, very intensive cat control, and with an overall population size of at least 2000 that is stable or increasing.

Current extent of protection gap:

As of December 2022, there are 25 cat-free fenced areas and 119 cat-free islands protecting extremely and highly cat-susceptible native species. However, there remains a protection gap. An analysis of this gap, and the priorities for additional species protection is presented in the background document, section 8.3.

The immediate priorities for new haven creation are:

- **Complete the cat eradication underway on Christmas Island.**
- **Establish ten haven populations for eight mammal species.**

DRAFT FOR CONSULTATION

The extremely cat-susceptible mammal species that are priorities for new havens are:

- 2 new havens for the central rock-rat (it is currently only in one recently-created haven, and is a priority species in the 2022-2032 Threatened Species Action Plan).
- 2 new havens for the brush-tailed rabbit-rat (it may still exist on at least one cat-free island, but this needs confirmation)
- 1 new haven for the Mala (it has a total population of < 2000, although recently introduced populations at Newhaven and Dirk Hartog are expected to increase)
- 1 new haven for the Gilbert's potoroo (it has a total population of << 2000, and is a priority species in the 2022-2032 Threatened Species Action Plan).

The highly cat-susceptible mammal species that are priorities at least one haven each are:

- northern hopping-mouse (a priority species in the 2022-2032 Threatened Species Action Plan).
- northern bettong
- broad-toothed rat
- Carpentarian rock-rat

There are no existing fenced areas suitable for these species, but existing cat-free islands may be suitable for four species (northern hopping mouse, brush-tailed rabbit-rat, central rock-rat, mala).

Reptiles:

No reptile species is a priority for a haven.

Birds:

The cat eradication underway at Christmas Island is critical for the conservation of the Indian Ocean red-tailed tropicbird. Cat control and eradication on other islands, such as Norfolk Island, would benefit several bird species.

DRAFT FOR CONSULTATION

This objective closely aligns with the following target in the 2022-2032 Threatened Species Action Plan:

> **Target 12** *Five new populations of appropriate species are added across the national safe haven network to improve representation of invasive predator-susceptible threatened species; and the commitment to create a 'safe haven network working group'.*

Figure 4 Objective 6: Protect the most cat-susceptible species

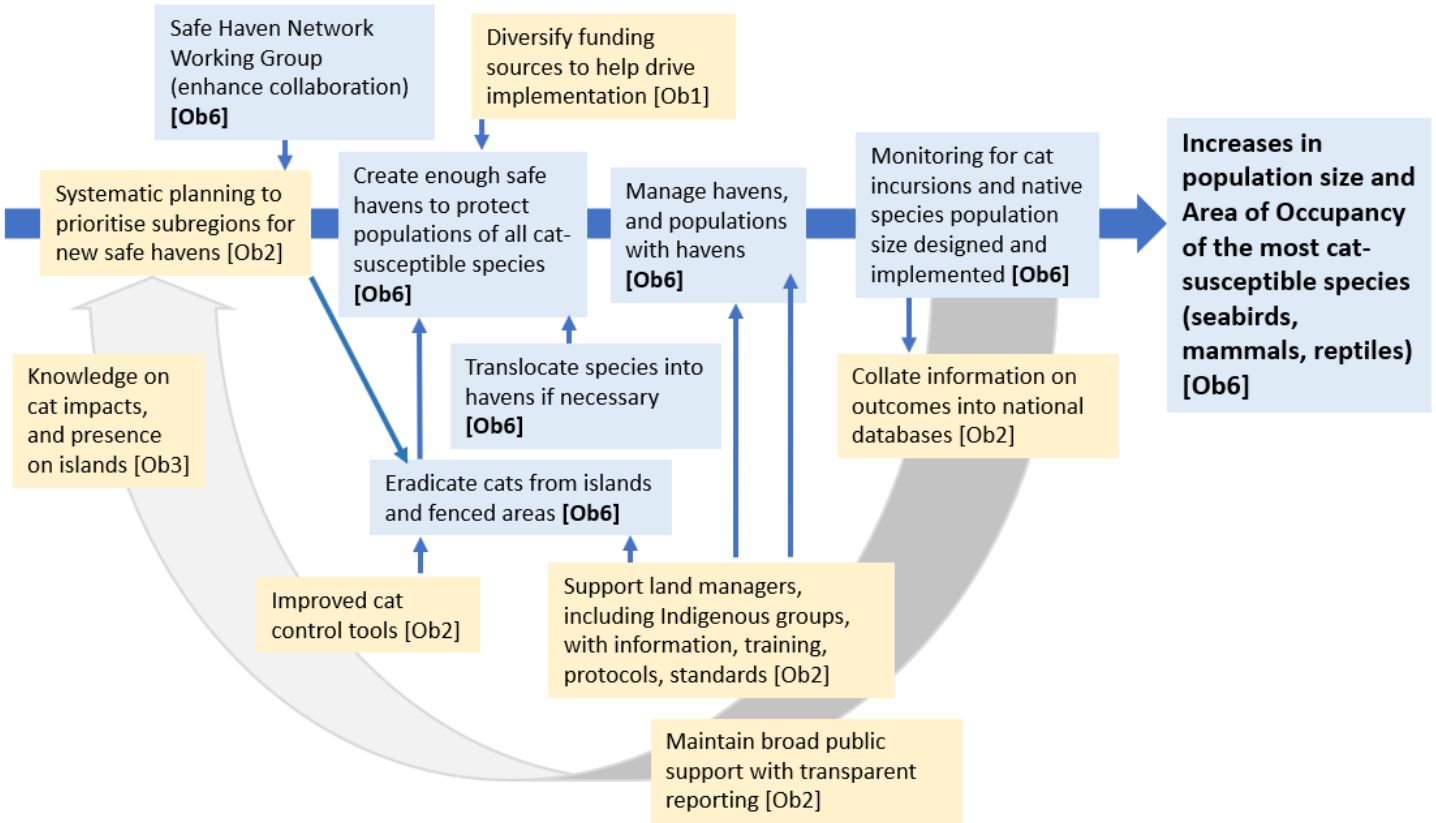


Diagram showing the relationships between the core actions [Ob6] that lead to achieving the outcome under objective 6 [Ob6], and key supporting actions from the cross-linking objectives [Ob1-4].

Performance Criteria

Table 12 Objective 6. Performance Criteria

Objective 6. Performance criteria	By 2028	By 2033
SUPPORT MANAGEMENT – Mechanisms to promote coordination and collaboration are in place		
'Safe Haven Network Working Group' established and functional.	Yes	Yes
Indigenous groups whose traditional lands include islands are supported to eradicate cats if that is identified by them as a priority.	Yes	Yes
REDUCE CAT IMPACTS – All extremely and highly cat-susceptible species are represented in cat-free havens, situated mostly across their previous range, and managed to maximise their long-term viability		
Enough cat-free havens (islands or fenced areas) are created (or planned) in strategic locations (identified in action 2.3) so that: • All extremely cat-susceptible species are represented (through translocations or in situ populations) in at least three havens. • All highly cat-susceptible species represented in at least one cat-free haven or one area with intensive cat management. In practice, this is likely to mean completing the cat eradication from Christmas Island, and establishing 10 new haven populations for eight mammal species. Haven populations should be situated mostly across their previous range, and managed to maximise their long-term viability.	No	Yes
Seabird breeding colonies are maintained, increased or restored as a consequence of eradication of cats from priority islands (identified in action 2.2):		
• Cats are eradicated from at least five of the highest priority islands	Yes	No
• Cats are eradicated from at least ten of the highest priority islands	No	Yes
The conservation value of havens is maintained and enhanced and the occurrence of susceptible animal species within them is maintained through effective prevention of cat incursions (linked to objective 5), and management of other threats.	Yes	Yes
ENHANCE KNOWLEDGE – Outcomes are being used to inform ongoing management		
Monitoring programs for all of the most cat-susceptible species, and of habitat condition, are designed and implemented, for all havens. Information is flowing to national collations [objective 2].	Yes	Yes

DRAFT FOR CONSULTATION

Actions

Table 13 Objective 6. Actions

Objective 6. Protect the most cat-susceptible species: Remove and exclude cats from an expanded network of cat-free fenced and island havens, and manage those havens to maintain or enhance their conservation values		Priority	Cost	Responsibility	Timelines
Support management					
6.1	Enhance mechanisms to promote coordination and collaboration across cat-free haven sites and managers. For example: • Create a 'Safe Haven Network Working Group' (as per the Threatened Species Action Plan): A coordinated network of relevant government, non-government, Indigenous and community groups to promote efficiencies across the haven network by sharing information on operational, ecosystem and species management issues • Commonwealth and state governments endorse investment plan for haven creation in the priority subregions and species identified in action 2.3.	Very High	Low	Commonwealth, state and territory governments, Traditional Owners, NGOs, other landholders	Starting immediately
Reduce cat impacts					
6.2	Create sufficient new havens to optimise protection for all the most cat-susceptible species. Targets should be established by the Safe Haven Network working group; draft targets to be achieved by 2033 are noted in the rationale above.	Very High	High (c. $2 million for each of c. 10 haven projects)	Commonwealth, state and territory governments, Traditional Owners, NGOs, other landholders	Starting in the period 2023-2028
6.3	Eradicate cats from at least 10 islands identified as high priority (in action 2.2), using the best control options given the circumstances.	Very High	High (c. $2 million for each of c. 10 projects	Commonwealth, state and territory governments, local governments, Traditional Owners, other landholders	Starting in the period 2023-2028
6.4	Manage havens to maintain their cat-free status and ameliorate the impacts of other threats: • Continue management and biosecurity arrangements that ensures the exclusion of cats (and foxes) from havens.	High	High	Commonwealth, state and territory governments, Traditional Owners,	Starting immediately

DRAFT FOR CONSULTATION

Objective 6. Protect the most cat-susceptible species: Remove and exclude cats from an expanded network of cat-free fenced and island havens, and manage those havens to maintain or enhance their conservation values		Priority	Cost	Responsibility	Timelines
	• Manage other threats that may affect the cat-susceptible native species within havens (e.g., fire, drought, introduced herbivores, genetic heterogeneity, loss of predator awareness).			NGOs, other landholders	
Enhance knowledge					
6.5	Design and implement monitoring programs to report on changes in population, genetic diversity and other relevant attributes of cat-susceptible species in havens, and of broader ecological ramifications of haven establishment and management	High	Medium	Commonwealth, state, territory governments, Traditional Owners, NGOs, other landholders	Starting immediately
Maintain public support					
6.6	Ensure community support for cat eradications from islands: • For islands under Indigenous tenure, work with the community to understand values, attitudes, behaviours; then develop approaches to gain support for eradication, and to engage community members in the eradication program. • If these islands are inhabited, engage with the community to understand values, attitudes, behaviours; then develop approaches to encourage the phasing out of pet cat ownership, or high standards for pet cat ownership (such as cats must be desexed, microchipped and registered, and kept indoors). Desexing programs can be supported by bringing vets to islands for free desexing and health checks. • Island communities may need support from local/state governments, and vet services, to carry out these actions.	High	Medium	Commonwealth, state and territory governments, local governments, Traditional Owners, community groups	Starting immediately

DRAFT FOR CONSULTATION

8.7 Objective 7. Protect species with moderate to high susceptibility to cats: Suppress feral cat density in and near prioritised populations of these species

Rationale

Some native species may persist with much-reduced levels of cat predation, achieved through intensive and sustained cat control at key sites; these species are the subject of objective 7. The set of species considered to have moderate to high cat-susceptibility includes 61 mammal species, 11 bird species, and 13 reptile species (Table 1 in section 4.1.1; background document, section 8). (Some populations of these species live in or near human habitation, where feral cat density may be elevated, and impacts may also come from pet cats. Minimising cat impacts on these populations requires a different suite of actions, and is the subject of objective 9.)

In open settings (i.e., where cat immigration is possible), the options for cat control differ in terms of their efficacy (or our knowledge of that), where they can be used, the scale at which they can be applied (e.g. several square km for intensive trapping, to hundreds of square km for aerial deployment of toxic baits), their humaneness, cost and sustainability (see background document). Local knowledge and well-defined objectives are keys to choosing the best control option, and using it effectively. For example, understanding what features of the landscape are used by traversing cats can direct where to set traps, and markedly reduce the trapping effort required, compared to attempts to trap across the entire area. Similarly, if one or a handful of cats are causing most of the impacts, then targeting those cats for removal will be more effective and efficient that attempting to reduce density across a larger area.

Many of the actions in objective 2, that relate to selecting the most appropriate control option for each site, monitoring effectiveness and outcomes, and supporting land managers to control and monitor cats, are highly relevant to objective 7. For example, monitoring the effect of control on cats, and the outcomes for native species, is critical for achieving objective 7. This is because suppressing cat abundance at sites can have unintended consequences, including increases in cat activity (because immigration is encouraged by territory vacancies). Even if cat abundance is reduced, cat impacts may vary little, for example if most of the problematic killing is being carried out by a small number of individual cats. Cat control efficacy can attenuate over time, if cats learn to avoid the control, and if behavioural avoidance is inherited. Information gained through monitoring can be used to adapt control and obtain the best outcomes.

This objective aligns with, and contributes to a target in the 2022-2032 Threatened Species Action Plan:

> **Target 8** *Feral cats and foxes are managed across all important habitats for susceptible priority species using best practice methods.*

DRAFT FOR CONSULTATION

Figure 5 Objective 7: Protect moderately to highly cat-susceptible species

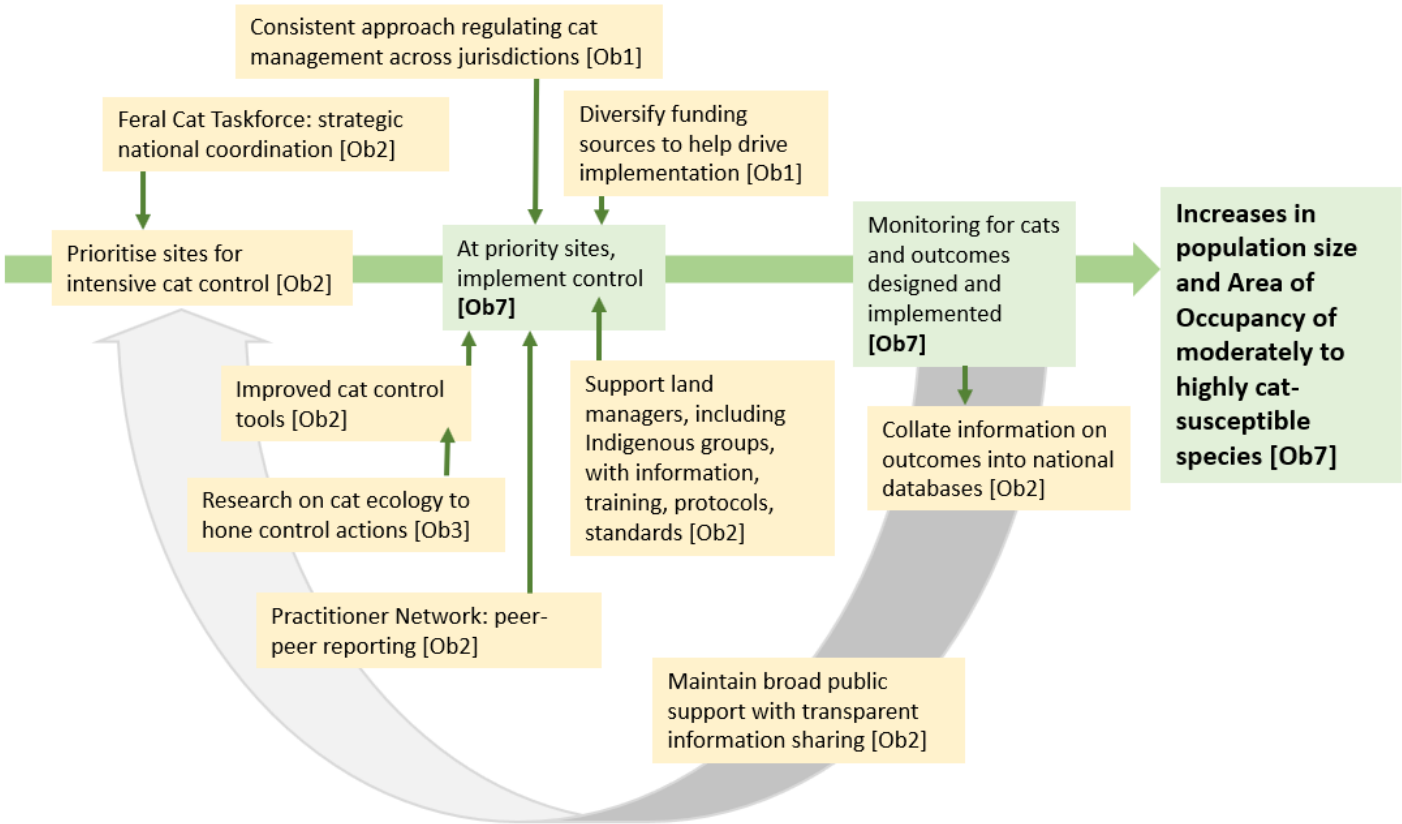


Diagram showing the relationships between the core actions [Ob7] that lead to achieving the outcome under objective 7 [Ob7], and key supporting actions from the cross-linking [Ob1-4].

DRAFT

Performance Criteria

Table 14 Objective 7. Performance Criteria

Objective 7. Performance criteria	By 2028	By 2033
REDUCE CAT IMPACTS – Populations of species with moderate to high cat-susceptibility are maintained or increased at priority sites using a range of approaches best-suited to the specific situation		
Cats are being managed effectively at all priority sites ('important habitat' for priority species) identified in objective 2.	Yes	Yes
Populations of cat-susceptible priority species (including species considered priorities for Indigenous people) at these sites are persisting or increasing in abundance.	No	Yes
ENHANCE KNOWLEDGE – Outcomes are being used to inform ongoing management		
Monitoring programs are designed and implemented for over 75% of species that have moderate to high cat-susceptibility, with information flowing to national collations [objective 2]	Yes	Yes

Actions

Table 15 Objective 7. Actions

	Objective 7. Protect species with moderate to high susceptibility to cats: Suppress feral cat density in and near prioritised populations of these species	Priority	Cost	Responsibility	Timelines
7.1	Based on the prioritisation undertaken in action 2.4, at priority sites, implement the most appropriate cat control option(s). • Priority sites will include 'important habitat' for the Threatened Species Action Plan Priority Species that are cat-susceptible and have populations outside of havens (i.e. bilby, numbat, eastern quoll, Gilbert's Potoroo, quokka, western ringtail possum, central rock-rat, chuditch, New Holland mouse, Mountain Pygmy-possum, northern quoll, northern hopping mouse, northern brushtail possum, Leadbeater's possum (lowland population). • Indigenous rangers may prioritise sites by considering culturally important species that are affected by cats. • Design and implement a monitoring program at managed sites that can report on the abundance of cats and cat-susceptible species, and other conservation outcomes.	Very High	High	Land managers, including government agencies, Indigenous groups, NGOs	Starting immediately

DRAFT FOR CONSULTATION

Objective 7. Protect species with moderate to high susceptibility to cats: Suppress feral cat density in and near prioritised populations of these species		Priority	Cost	Responsibility	Timelines
	• Monitoring in some situations could also seek to identify whether impacts on native species are being caused by a small subset of the cat population, in which case target removal of the problem cats may be effective. Depending on the option(s) used, swapping control approaches from time to time may be wise.				
7.2	Design monitoring programs for species of moderate to high cat-susceptibility, and implement them for over 75% of these species (linked to action 2.13)	Very High	Medium	Researchers, land managers, government agencies, Indigenous groups, NGOs	Starting immediately

DRAFT FOR CONSULTATION

8.8 Objective 8. Reduce the burden of cat predation across all native species, with holistic management of habitat and species interactions over large areas

Rationale

Many native species can persist if cat predation is partially reduced, or if susceptibility is moderated by contextual factors such as topographic complexity, vegetation structure, and whether other introduced species are present; these are the subject of objective 8. Many dozens of species and ecological communities could benefit from actions undertaken as part of this objective (Table 1 in section 4.1.1; background document, section 8).

Cats consume millions of native animals daily from across Australia. Such predation will directly reduce the viability, and add to the threat burden, of many species. Rather than aiming to reduce cat numbers directly, this objective seeks to reduce cat impacts by manipulating the ecological interactions that cats are part of, potentially over very large scales. Although cat impacts may not be sufficiently reduced to retain species in the landscape that are extremely cat-susceptible, this holistic management approach should provide benefit to a range of species with low, moderate, and even highly cat-susceptible species (e.g. bilbies, dusky hoping mouse) in some circumstances. This approach will also improve ecological function, or the health of Country, by managing threats that cause detriment to ecosystems in their own right, as well as through their interactions with cats. The holistic intent of this objective is aligned with how Indigenous groups approach managing Country.

Reduce introduced rabbit and rodent populations: Rabbits are favoured prey items for cats; their presence elevates cat density, which can cause hyper-predation of native species. Reducing rabbit densities is an effective and efficient way to reduce cat densities, enough to benefit many cat-susceptible species, although not those that are extremely cat-susceptible. Rabbits also contribute to reduced habitat complexity which can worsen cat impacts (see below). Introduced rodent populations on some islands support high cat densities. In the arid zone, high rainfall can drive rodent irruptions that in turn support high feral cat densities. Reducing rabbit and rodent populations must be planned carefully to avoid adverse effects of prey-switching to native species by cats, because the sudden increase in predation can cause rapid population declines in those native species, until the cat population re-stabilises at a lower level. For example**,** short-term cat control could be undertaken to coincide with the knock-down of introduced prey, to minimise the impact of prey-switching while also taking advantage of the greater susceptibility of (hungry) cats to control methods like baiting. Management that controls rabbits and introduced rodents also has many other benefits to conservation, agricultural productivity and other values.

DRAFT FOR CONSULTATION

Manage dingo populations, where possible, to benefit cat-susceptible native species: The reduction or loss of dingoes from ecosystems may trigger a cascade of changes, including higher kangaroo density, changes to vegetation, and lower abundances of small mammals (i.e. the prey of cats). Dingoes kill cats; it is possible that in some circumstances dingoes reduce cat density, or at least alter cat behaviour in ways that shift which native species are bearing the cat's predation pressure. However, the role of dingoes in controlling mesopredators (such as cats) and moderating their impacts is still unsettled; dingoes may exert mesopredator control in some biomes more than others, and their interactions may be affected by prey densities, their own densities, and the occurrence and density of other predators such as foxes.

Dingoes are genetically and morphologically distinct from domestic dog breeds, but hybridisation between domestic dogs and dingoes has occurred, and continues to occur, in many areas, especially south-eastern Australia. The term 'wild dog' is often used to include feral domestic dogs and hybrids of dingoes and domestic dogs, but the extent of hybridisation is difficult to tell from external appearance, and the functional roles of dingoes in ecosystems seem unaffected by hybridisation.

Dingo management is complex and contested. Dingoes have considerable significance in Indigenous culture, and dingo management should respect such value. Dingoes also have direct and indirect beneficial and detrimental impacts on wildlife, and on pastoral productivity, including through reducing the density of macropods, rabbits and goats that compete with cattle for grazing. Dingo management overlaps partly, at least in some areas, with control of wild dogs. The management of wild dogs is guided by the national Wild Dog Action Plan, and there are other related planning documents, regulations and legislation at state/territory levels. Thus, any management options for canids in Australia that seek the goal of reducing the impacts of feral cats on Australian threatened species also need to consider the broader context of consequences for other values, and to align where possible with controls for wild dogs where such action is required. Accordingly, consideration of dingo management in this plan seeks mostly to focus on research that can provide a robust and regionally specific evidence base that can be used to evaluate the broad costs and benefits (to threatened species and other assets) of a range of management options.

Recovery and reintroduction of Tasmanian devils: There is some evidence that the recent rapid and severe decline of Tasmanian devils has produced cascading ecological impacts including increased abundance of feral cats and consequent reduced abundance of some native animal species (including threatened species). Based on these observations, there have been some proposals to reintroduce devils to selected sites on the Australian mainland, noting that devils were widespread on the mainland up to about 4000 years ago. Such proposals are contentious, as the devils themselves may exert predation pressure on native wildlife species and on some livestock.

DRAFT FOR CONSULTATION

Manage fire and grazing to increase/maximise the structural diversity of the ground habitat: It is likely that managing fire and grazing to maximise vegetation cover near the ground will benefit many native species, in habitats where fire or grazing is common, and where alternative structural refuges (e.g. rugged rocky areas) do not exist. Ground layer complexity has been directly shown to moderate cat impacts in the tropical savannas of northern Australia, and in temperate forests in southeastern Australia. The same effect is inferred in desert environments. The increased impacts arise from a combination of higher cat density and higher hunting efficiency.

This objective closely aligns with, and contributes to a target in the 2022-2032 Threatened Species Action Plan:

> **Target 9** *Feral cats and foxes are managed in all priority places where they are a key threat to condition, using best practice methods for the location.*

DRAFT FOR CONSULTATION

Figure 6 Objective 8: Reduce predation burden across all species

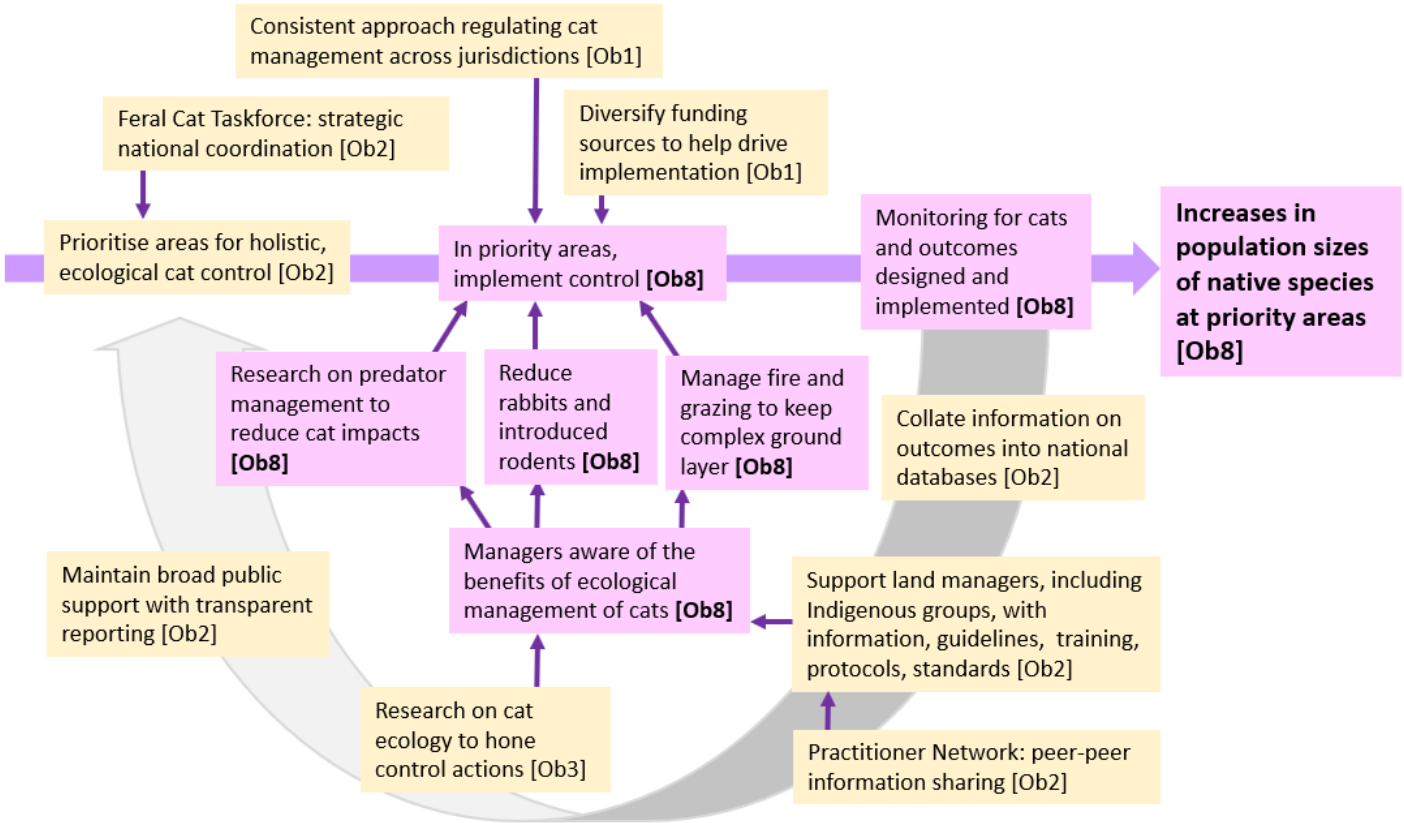


Diagram showing the relationships between the core actions [Ob8] that lead to achieving the outcome under objective 8 [Ob8], and key supporting actions from the cross-linking [Ob1-4].

DRAFT

Performance Criteria

Table 16 Objective 8. Performance Criteria

Objective 8. Performance criteria	By 2028	By 2033
REDUCE CAT IMPACTS – Large areas (large property to regional scale) are managed holistically to reduce cat predation impacts, and restore ecological function		
Monitoring programs are designed and implemented to assess conservation outcomes at priority sites for holistic management (identified in action 2.5)	Yes	Yes
Populations of native species that are preyed upon by cats increase in abundance at priority sites, as a result of improved holistic management practices.	No	Yes
Feral rabbit populations continue to be suppressed.	Yes	Yes
SUPPORT MANAGEMENT – Benefits of ecological management of cats broadly understood, and supported with information		
Habitat-specific guidelines for optimal fire patterns and introduced herbivore grazing thresholds that will minimise cat impacts are produced.	Yes	Yes
Feral cat (and other pest animal) impacts factored into fire management planning, and into post-fire response plans.	Yes	Yes
The outcomes of cat control after fire (on cat populations and cat-susceptible species) are monitored.	Yes	Yes
Land managers, including Indigenous rangers, are aware of the potential options for dingo management, especially of the potential consequences of these management options for feral cats, but also more broadly including conservation and economic benefits of habitat, pest animal, and dingo management for reducing cat impacts, and of the potential costs.	Yes	Yes
ENHANCE KNOWLEDGE		
Research undertaken that extends current knowledge of practicality and benefits of apex predator management to reduce cat impacts.	Yes	Yes

DRAFT FOR CONSULTATION

Actions

Table 17 Objective 8. Actions

Objective 8. Reduce the burden of cat predation across all native species, with holistic management of habitat and species interactions over large areas		Priority	Cost	Responsibility	Timelines
Reduce cat impacts					
8.1	Manage rabbits and introduced rodents to reduce cat populations and impacts • Continue broadscale biological control (carried out for agricultural productivity). • Engage with agricultural policy, research and management sector to highlight the biodiversity co-benefits of rabbit control. • At sites of high conservation value, consider additional rabbit control to reduce cat abundance. • Effects of rabbit management on cats, and native species, monitored at representative sites. • Develop approaches for managing rabbits or cat populations to avoid destructive prey-switching events that drive declines in native species. • On islands with both introduced rodents and cats, consider whether rodent eradication should be accompanied by cat eradication, to prevent cats from switching to native prey *Where possible, management should focus on priority areas identified in action 2.5.*	Very High	Low (cost borne by agricultural sector)	Commonwealth, state and territory governments, researchers, pastoralists, farmers	Starting in the period 2023-2028
8.2	Maintain habitat complexity with fire management • Manage fire to avoid extensive, severe fire events that simplify the structure of the ground layer over large areas. • Consider the likely interactions of fire with cats (their density, activity, impacts) in fire management plans. • After extensive and/or severe fire, consider the need for post-fire baiting. • When post-fire baiting occurs, monitor the effect on cats and their impacts. • Monitor the effects of fire management on cats, and native species, at representative sites. *Where possible, management should include priority areas identified in action 2.5.*	Very High	Low (modification of existing fire management funding and practice)	Commonwealth, state and territory governments, NGOs, Indigenous rangers	Starting immediately

DRAFT FOR CONSULTATION

Objective 8. Reduce the burden of cat predation across all native species, with holistic management of habitat and species interactions over large areas		Priority	Cost	Responsibility	Timelines
8.3	Maintain habitat complexity with grazing management • Manage grazing (from livestock and feral herbivores) to maintain structural complexity of the ground layer, particularly in likely refuge areas such as drainage lines, riparian areas, and patches of denser vegetation. • Monitor the effects of grazing management on cats, and native species, at representative sites. *Where possible, management should include priority areas identified in action 2.5.*	High	Low (modification of existing grazing management funding and practice)	Commonwealth, state and territory governments, NGOs, Indigenous rangers, pastoralists	Starting in the period 2023-2028.
Support management					
8.4	Habitat complexity: Develop habitat-specific recommendations for fire patterns to aim for during prescribed burning, and thresholds of introduced herbivore grazing, that will minimise cat impacts. This will be informed by research including: • Population-level and individual-level studies of how fire patterns and grazing influences vulnerability to cats, and impacts of cats, in different biomes, especially those with wetter/more complex vegetation types such as wet forests. • How increasing fire size and severity affects the relative mortality of cats and their prey, and the impacts of predation. • How cat behaviour and impacts are affected by Indigenous cultural fire practices. • Whether baiting soon after fire is an effective way to dampen cat impacts and support native species to recover.	Very High	Medium	Researchers, state and territory governments, State farm organisations, Meat and Livestock Australia (MLA),, National Farmers Federation (NFF), pastoralists, NGOs	Starting immediately
Enhance knowledge					
8.5	Mesopredator control by dingoes: Carry out research to evaluate how dingo management could affect feral cat abundance and impacts and the consequences of such effects on threatened species and ecosystem resilience, and then develop costed options for landholders at regional scale. • With a robust experimental framework, and the collaboration of engaged pastoralists, compare the costs, benefits and other impacts of contrasting management regimes for dingoes in trial areas of rangelands managed for cattle. Parameters to be considered in such trials should include impacts on: (i) mesopredators (cats, foxes), native species, Indigenous cultural values, and ecosystem response more broadly; (ii) productivity, including cattle loss, population size of macropods and predation behaviour of dingoes, impacts on mesopredators (cats, foxes), native species, and ecosystem response more broadly. • With industry representatives, and based on results from trials, develop regional-scale options for dingo management, including consideration of appropriate compensation frameworks for pastoralists, and options for alternative deterrents (virtual fencing, guardian dogs).	Very High	Medium	Researchers, state and territory governments, MLA, NFF, State farm organisations, pastoralists, NGOs	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

Objective 8. Reduce the burden of cat predation across all native species, with holistic management of habitat and species interactions over large areas		Priority	Cost	Responsibility	Timelines
8.6	Mesopredator control by Tasmanian devils: Carry out research to evaluate how devil management could affect cat impacts and benefit threatened species and aid ecosystem resilience, along with potential costs and risks of devil management options.	High	Medium	Researchers, state and territory governments, MLA, pastoralists, NGOs	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

8.9 Objective 9. Reduce density of free-roaming cats around areas of human habitation and infrastructure

Rationale

This objective focuses on controlling the impacts of feral cats living near people, to achieve conservation benefits. The impacts of pet cats, and their management, are most relevant here. This objective relates closely with, and is underpinned by objective 1 (Enhanced regulatory framework), and objective 2 (Plan and implement effective cat management with public support).

Pet and feral cats can reach very high densities around human habitation and infrastructure in cities, towns, farms, remote communities and outstations. Although pet cats are fed by their owners, most still hunt. The diet of both pets and human-associated feral cats includes refuse and a larger proportion of introduced species compared to feral cats in natural environments, but their densities are so high that the predation toll on native species per unit area still grossly exceeds that of feral cats in natural environments. There is consequently a cat 'predation halo' (of unknown width) around most areas of human habitation. As the human population in Australia grows, so do the populations of pet cats and human-associated feral cats. There is also some evidence that the number of remote Indigenous communities with very high densities of resident cats is growing, increasing the frequency of nuclei of high-density cats in natural environments that prey on native species directly, and provide a source of dispersers into the feral population.

Cats (both pet and feral cats) are vectors for many pathogens that can affect other species. Cats living with or around humans impose substantial economic costs to livestock producers, and substantial health detriment and economic costs to humans (>$6 billion annually), through their role as the definitive host for the parasites *Toxoplasma gondii, Sarcocystis* spp. and *Toxocara cati*, and the bacterium *Bartonella henselae*.

Pet cats that are allowed to roam freely experience higher rates of injury (e.g. from vehicle strike, dog attacks), social stress, and illness. They have much shorter lifespans than cats kept indoors or confined to their owner's property. Feral cats living near people are also exposed to high rates of injury, and diseases exacerbated by living at high density, and supplementing their diets with extremely poor-quality food scavenged from refuse.

Reducing the number of roaming pet cats by keeping cats contained will reduce impacts to wildlife, reduce the potential for pet cats to be a source for the feral population, reduce pathogen transmission rates, and improve welfare outcomes for cats. Reducing the numbers of feral cats living near human habitation and infrastructure will similarly reduce wildlife impacts and pathogen transmission rates, and improve welfare for those feral cats.

DRAFT FOR CONSULTATION

Reducing the impacts of cats living with and around humans requires a different suite of actions, compared with managing feral cats in natural environments. The physical environments differ and some control options are usually out of scope (e.g. toxic baits, shooting); the cat population is a mixture of pet and feral yet management actions for these two groups of cats differ; and the legislation framing cat management in these environments is a complex interplay between up to three levels of government. Most importantly, options for managing cats living with or around people are strongly influenced by human attitudes and behaviours, which may vary from place to place. Meeting the objective therefore requires that actions are informed by social science research to understand how the public (which contains diverse interest groups) responds to, and is involved in, the issues of cat impacts and management in and around human habitation and infrastructure. The perspectives and particular practical issues associated with cat management in Indigenous communities are very important. A broad and ongoing engagement program should accompany cat management.

DRAFT FOR CONSULTATION

Figure 7 Objective 9: Reduce cat impacts in around human habitation and infrastructure

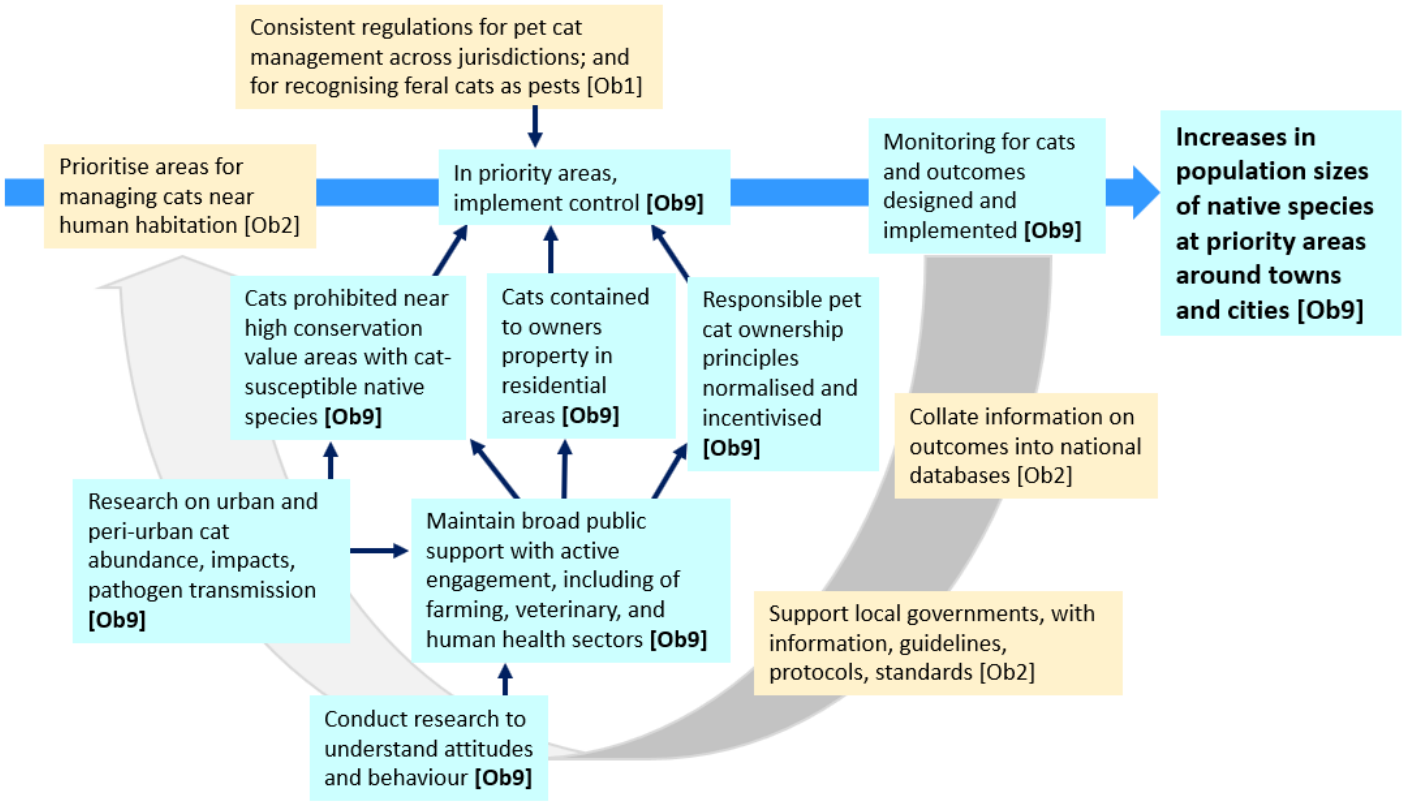


Diagram showing the relationships between the core actions [Ob9] that lead to achieving the outcome under objective 9 [Ob9], and key supporting actions from the cross-linking objectives [Ob1-4].

DRAFT

Performance Criteria

Table 18 Objective 9. Performance Criteria

Objective 9. Performance criteria	By 2028	By 2033
REDUCE CAT IMPACTS – Areas of human habitation and infrastructure do not support high densities of feral cats, leading to reduced impacts on native species, improved welfare outcomes for pet cats, and lower risk of cat-borne pathogen transmission		
Overall population size of feral cats living around human habitation and infrastructure is reduced (as revealed by survey or other monitoring).	No	Yes
Uptake of responsible pet cat ownership increases (as shown by rates, and overall numbers, of desexing, registration, identification and containment).	Yes	Yes
There is a 30% increase in the number of suburbs adjacent to areas of high conservation value (identified in action 2.6) that are designated as '24/7 cat containment zones' or 'pet cat-prohibited zones'.	No	Yes
Existing programs to de-sex pet cats in Indigenous communities and outstations are supported and expanded.	Yes	Yes
ENHANCE KNOWLEDGE – The impacts of cat-borne pathogens on human health, livestock production, and native species, are better understood		
Research programs are designed and implemented to assess the abundance and predation impacts, and the disease status of feral cats and of potentially affected wildlife and people, around human habitation and infrastructure, for a set of representative sites.	Yes	Yes
MAINTAIN PUBLIC SUPPORT – The impacts of cat predation, and cat-borne pathogens, for native species, agriculture and human health are widely understood		
Community, farming, veterinary and health sectors are informed and engaged, and contributing to management outcomes	Yes	Yes

DRAFT FOR CONSULTATION

Actions

Table 19 Objective 9. Actions

Objective 9. Reduce cat impacts around areas of human habitation and infrastructure		Priority	Cost	Responsibility	Timelines
Reduce cat impacts					
9.1	Local governments improve *feral* cat management: • Improving waste management, so feral cat populations are not supported by access to refuse and introduced rodents. • Disseminating information to local residents about the One Health benefits of reducing feral cat populations for improving outcomes for people and livestock production as well as wildlife. • Implementing feral cat control (e.g. via trapping, shooting where feasible) with local government staff; and where feasible, by lending traps to community members. Continue to discourage TNR. *Links to actions 1.2 and 1.3. Such management is especially critical in the priority areas identified in action 2.6*	Very High	Medium	Local governments, DLGA	Starting immediately
9.2	Local governments improve *pet* cat management. • Develop incentive programs for registration, identification and desexing packages, especially in areas of socioeconomic disadvantage. • Contract vets to travel to rural and remote areas and communities (i.e. areas lacking vet services) to carry out free or heavily subsidised desexing programs. • Work with local communities to build support for expanding areas requiring 24/7 cat containment. This is likely to include collaborations with local vets and RSPCA to disseminate information on caring for indoor and contained cats. • Establish cat-free suburbs near areas of high biodiversity value; this is most tractable in new housing developments. • Disseminate information on the conservation, livestock, human health and amenity problems from high roaming cat density, and the benefits of responsible cat ownership, to remote Indigenous communities by the most appropriate messengers. • Design and implement a monitoring program that can report on the efficacy of cat management by local governments. [see objective 1 for regulatory and policy actions to support this management]	Very High	Medium	Local governments; DLGA; AVA and vets	Starting immediately

DRAFT FOR CONSULTATION

Objective 9. Reduce cat impacts around areas of human habitation and infrastructure		Priority	Cost	Responsibility	Timelines
Enhance knowledge					
9.3	Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure. • Assess the impacts of cat predation on the population viability of select native species occurring in areas near human habitation and infrastructure (cross-ref with action 3.2). • Monitor cat densities across a set of sites (cities-towns-remote communities-farms), preferably with contrasting management in place; use to improve estimates for the population size of feral cats living near human habitation and infrastructure; and to describe how far the 'cat halo' (high peri-urban density of cats) extends into natural environments. • Determine the extent to which pet cats and urban feral cats breed with, and maintain the populations of, feral cats living in natural environments (use population genetics). • Monitor prevalence of cat-borne pathogens and disease in wild animals across the urban-rural interface to assess extent to which high densities of cats in urban areas act as a reservoir for disease-causing pathogens that may spread across native species. • Assess impacts of cat predation on the viability of introduced (potential pest) species in developed areas, and develop management responses if it is likely that some pests will increase in prevalence or impact following enhanced cat management.	Very High	Medium	Researchers, Animal Management in Rural and Remote Indigenous Communities (AMRICC) (for communities)	Starting immediately
Maintain public support					
9.4	Maintain and increase broad public support for improved cat management near human habitation and infrastructure, for conservation, cat welfare, human health, and livestock production outcomes. • Identify potential drivers of attitudinal and behavioural change that would support better pet management. • Understand reasons for increasing cat ownership in Indigenous communities, and barriers to reversing that trend. • Understand the level of public acceptance for different control options for feral cats living around human habitation and infrastructure (e.g. Trap-Neuter-Release).	High	Medium	Researchers, AMRRIC (for communities), Royal Society for the Prevention of Cruelty to Animals (RSPCA), Australian Veterinary Association (AVA)	Starting immediately
9.5	Work with the farming industry to leverage their support for cat control in livestock production areas, using a One Health approach. • Disseminate information about the economic costs of cat-borne diseases to livestock production. • Develop best practice guidelines for reducing impacts of cats as disease vectors on livestock production, and as threats to wildlife around farms.	High	Low	National Cat Coordinator, Meat and Livestock Australia (MLA), National Farmers Federation (NFF), State farm organisations, AVA; AMRRIC	Starting immediately

DRAFT FOR CONSULTATION

Objective 9. Reduce cat impacts around areas of human habitation and infrastructure		Priority	Cost	Responsibility	Timelines
	• Engage with grain farmers to understand level of any concerns about the impacts of cat control on introduced rodent populations, and how these concerns could be addressed.				
9.6	Work with the veterinary community to leverage their support for improved pet and feral cat management around towns, in a One Health approach. • Disseminate information to pet cat owners about the welfare, conservation and human health benefits of responsible pet ownership, including containment. • Share information with pet owners on the conservation impacts, economic and human health impacts, and welfare of feral cats living around people. • Share information on the effectiveness of alternative control options (e.g. cat removal, waste management) at reducing those impacts.	High	Low	National Cat Coordinator, MLA, NFF;State farm organisations, AVA, AMRRIC	Starting immediately
9.7	Work with human health services, to determine the incidence of disease from cat-borne pathogens in people living in a range of settings, including in people living in remote communities and island communities. • Include communities living in areas that are cat-free versus communities with high densities of cats. Investigate the best options for reducing the disease burden. • Investigate options for reducing the disease burden.	High	High	National Cat Coordinator, medical researchers	Starting in the period 2023-2028

DRAFT FOR CONSULTATION

9 Duration, cost, implementation, and evaluation of the plan

This threat abatement plan provides a framework for undertaking targeted priority actions over 5 to 10 years. Budgetary and other constraints may affect the achievement of the objectives of this plan, and as knowledge changes, proposed actions may need to be modified over the life of the plan. Australian Government funds may be available to implement key national environmental priorities, such as relevant actions listed in this plan and actions identified in regional natural resource management plans.

9.1 Duration

This threat abatement plan includes objectives and actions to achieve within 5 and 10 years, that will strategically build towards a long-term goal (with a 30-year time horizon) of reducing the impacts of cats sufficiently to ensure the long-term viability of all affected native species. The threat of feral cats will still exist at the end of this plan, and will probably still exist in 30 years, but by undertaking the actions set out in this plan, the likelihood of severe declines and extinctions in native species should be minimised. The plan aims to remove or suppress the impacts of cats in targeted areas where they pose the greatest threat to biodiversity and/or where the likelihood of positive biodiversity outcomes may be most substantial and enduring.

Threat abatement plans have a statutory review point within five years but have a formal life of ten years. Dependent on the degree of implementation and success of that implementation some or many of the objectives and actions in this plan may be valid for the full ten years.

9.2 Implementing and investing in the plan

The Department of Climate Change, Energy, the Environment and Water will collaborate with other Australian Government agencies; local government; state and territory conservation and pest management and research agencies; industry; community groups; non-government organisations; Indigenous rangers; landholders and volunteers; to facilitate the implementation of the plan. The plan includes some actions that require coordination at national or regional scale, and other actions that should be implemented at local scale: the success of the plan will depend on all participants assessing cat impacts and allocating adequate resources to achieve effective on-ground control of feral cats at their local, critical sites.

The Australian Government investment in this plan includes:

- The Commonwealth is committed, via the EPBC Act, to implement the threat abatement plan to the extent to which it applies in Commonwealth areas.
- The Australian Government's Threatened Species Action Plan 2022-2032 includes targets for enhanced cat management, and protection for priority species and places that are adversely affected by cats (see Section 9.3 below).

DRAFT FOR CONSULTATION

- The National Feral Cat Taskforce, convened by the Threatened Species Commissioner, provides a forum for governments, experts and stakeholders to coordinate and collaborate on strategies and actions for cat management.
- The Australian Government invests in priority research to inform cat management through the National Environmental Science Program; and in priority on-ground interventions through funding schemes including the National Landcare Program and the Environment Restoration Fund.

In addition, partnerships (including financial and implementation support) with governments, non-government organisations, Indigenous rangers, community groups and individuals will be key to successfully delivering significant reductions in the threats posed by feral cats, and hence in the achievement of conservation benefits to many of Australia's threatened species.

Outlined below (Table 2) are the cost estimates for each objective in the plan, arranged according to approximate cost categories for the actions in that objective, where a high cost action is categorised as > $1 million over five years; a medium cost action is categorised as $100,000 to $1 million over 5 years; and a low cost action is categorised as < $100,000 over five years. Costs are estimated coarsely this way because the costs of actions will vary depending on many factors. For example, actions in more remote or less accessible locations may be costlier; some actions are contingent on prior actions; actions at prioritised sites cannot be costed until the prioritisation has taken place. Objective 6 is the costliest of the objectives, as it contains the actions to create 10 new fenced areas, and eradicate cats from 10 islands. To date, the costs of fenced area construction and maintenance have been substantially borne by the NGO/philanthropic sector.

DRAFT FOR CONSULTATION

Table 20 Approximate costs for each objective in the plan, and overall, based on the numbers of actions that are categorised as High ($1 million over five years); Medium ($100,000 to $1 million over five years); and LOW (< $100,000 over five years). The midpoint of the ranges for medium and low costs are used here.

Objectives	Numbers of actions in each of three cost categories: High $1 million (>$1 million over 5 years)	Numbers of actions in each of three cost categories: Medium $500,000 ($100,000-$1 million over 5 years)	Numbers of actions in each of three cost categories: Low $50,000 ($0 to 100,000 over 5 years	Totals for each objective over 5 years
1	0	1	10	$1,000,000
2	0	8	8	$4,400,000
3	0	5	0	$2,500,000
4	0	6	5	$3,250,000
5	0	2	3	$1,150,000
6	41	2	1	$42,050,000
7	1	1	0	$1,500,000
8	0	2	3	$1,150,000
9	1	4	2	$3,100,000
Total	**$23,000,000**	**$15,500,000**	**$1,600,000**	**$60,100,000**

9.3 Evaluating implementation of the plan

The plan's implementation can be evaluated using the performance criteria indicated for each of the objectives.

DRAFT FOR CONSULTATION

10 Planning links

This threat abatement plan aligns closely with the targets that relate to feral cats in the 2022-2032 Threatened Species Action Plan:

Target 8. Feral cats and foxes are managed across all important habitats for susceptible priority species using best practice methods.

Target 9. Feral cats and foxes are managed in all priority places where they are a key threat to condition, using best practice methods for the location.

This plan also contributes to the targets relating to places and habitats, priority species, First Peoples, planning and research:

Target 4. All priority places are on track to have improved condition

Target 5. Implementation of priority actions for priority places is tracked and published

Target 12: Five new populations of appropriate species are added across the national safe haven network to improve representation of invasive predator-susceptible threatened species

Target 15. First Nations' knowledges are integrated in conservation assessments, processes and planning for threatened species and ecological communities

Target 16. First Nations-led recovery activities for threatened species and ecological communities are increased

Target 17. Emergency response management and planning for critical biodiversity assets improves across jurisdictions.

Target 19. At least 5 new tools are developed to mitigate the impact of broad-scale threats on threatened species

Target 20. Monitoring standards for all priority species are published and monitoring tools and protocols are created for at least 50 per cent of priority species

This threat abatement plan will complement other planning processes and strategies for threat abatement and threatened species recovery. These will include:

- Other threat abatement plans where there is a clear overlap in issues (for example the Threat abatement plan for predation by the European red fox).
- Recovery plans and conservation advices for threatened species susceptible to cat predation may also describe priorities and actions for management of feral cats.

DRAFT FOR CONSULTATION

- Nine Australian sites listed as World Heritage for present-day natural values, at which cats are present (Budj Bim Cultural Landscapes, Gondwana Rainforests of Australia, Great Barrier Reef, Greater Blue Mountains Area, Kakadu National Park, K'gari (Fraser Island), Purnululu National Park, Tasmanian Wilderness, The Ningaloo Coast, Uluṟu -Kata Tjuṯa National Park, and Wet Tropics of Queensland). Managing cats at these sites will contribute to protecting the natural values for which the sites were recognised.

DRAFT FOR CONSULTATION

11 Guidance for regulators

Species

Assessments of development proposals should consider the potential consequences of any such development for the abundance and impacts of cats on native species that are moderately, highly or extremely cat-susceptible. The types of native species that are most susceptible to cats are:

Mammals: non-flying species; of intermediate body size (around 400 g); whose habitats are more open and arid; and in areas that are not rugged.

Birds: species restricted to islands; of intermediate body size (~60-300 g); that nest or forage on the ground; and whose habitat is not rainforest or wetland.

Reptiles: species with predictable activity (e.g. latrines, burrows); that live in more open habitats (e.g. arid areas) that are not rugged; that are colonial; terrestrial; and have slow reproductive rates.

Appendix 1 lists nationally threatened and migratory species that are known to be preyed upon by cats or for which predation by cats is considered a potential or recognised threat.

Appendix 2 attributes levels of cat-susceptibility to native species, including nationally threatened and migratory species. The threatened species included are those listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as at June 2023. Information for species listed under the EPBC Act is available from the Species Profile and Threats Database.

These lists should not be considered definitive; as more information accumulates, additional species may be found to be cat-susceptible.

Ecological communities

Cat impacts in some threatened ecological communities may be acute, for example, ecological communities that are in arid and semi-arid areas or on islands; that contain keystone animal species that are ground-dwelling and within the prey size range for cats (i.e. <4 kg); where fire heavily changes vegetation structure (like heath); and that are heavily affected by fragmentation.

Critical habitats and World Heritage Areas

Of registered areas of critical habitat, feral cats were a major predator of nesting seabirds on Macquarie Island. Cats were eradicated from there in 2000, resulting in substantial recovery of several seabird species. Feral cats do not threaten other areas of critical habitat (see section 4.6).

Cat predation affects the natural values of nine World Heritage Areas (see section 4.6).

Critically, susceptibility to cats varies depending on context, including the presence of other threats that can amplify cat impacts (see background document).

DRAFT FOR CONSULTATION

Examples of actions that may increase the threat of predation by cats include:

- Increasing the density of roads, tracks, and other linear infrastructure such as pipelines and drill lines through natural environments, as these are known to focus and increase cat activity.
- Fragmenting native vegetation, as cats are known to use habitat edges to travel along, and hunt from.
- Expanding suburban and other built-up areas, as these areas harbour very high densities of feral cats, and pet cats.
- Creating new infrastructure (including culverts, buildings) in otherwise natural environments (e.g. a mine site), as cats may use such infrastructure for shelter and denning.
- Creating sources of abundant food for cats that will support high cat densities in a local area, such as rubbish skips or tips, or intensive farm sites, that are accessible to cats or introduced rodents.
- Reducing the complexity of the ground layer (e.g. by clearing, mowing, frequent fire, heavy grazing), as this is known to increase the impacts from cats by attracting higher cat activity, and by increasing hunting efficiency.

Any such impacts may be especially pronounced at places where a proposed development overlaps with or is near to natural environments that currently support populations of cat-susceptible species. For each example listed above, there may be ways to avoid or mitigate the impacts; for example, access to potential food sources could be prevented, and culverts can be designed to exclude cats. New suburban developments could have cat prohibition as a condition of the approval.

In addition, when considering proposals that could increase the threat of predation by cats, assessors could apply the principles of the mitigation hierarchy, for example:

- Actions that increase the threat of cat predation on native species that are extremely susceptible to cats should be avoided.
- Actions that increase the threat of cat predation on species that are highly or moderately susceptible to cats should be avoided or minimised, and any residual impacts should be offset.
- Actions that increase the threat of cat predation on species of low cat-susceptibility should be minimised, or offset.

Any offsets for increased cat impacts should be designed to support the implementation of this threat abatement plan. For example, development proposals in or near areas designated as high priority for cat management (actions 2.1 to 2.6) could be required to create cat-free safe havens (followed by translocations of cat-susceptible species if necessary) and manage them in perpetuity, or to implement strategic management that reduces cat numbers or their impacts, to support the long-term persistence of cat-susceptible species and therefore offset some of the biodiversity loss caused by the development.

DRAFT FOR CONSULTATION

Furthermore, in some situations there may be scope for designing and implementing cat-related offsets in response to approvals of developments that have detrimental impacts on cat-susceptible species, even if the development itself has no anticipated risk of exacerbating cat impacts (i.e., the offset is not necessarily like for like). For example, if a mine development has potential detrimental impacts on a threatened species known to be cat-susceptible, the potential detriment to the threatened species could be offset with the establishment of a cat management program (consistent with actions in this threat abatement plan) benefitting the threatened species elsewhere.

DRAFT FOR CONSULTATION

12 Continuity and adaptation

This threat abatement plan follows and benefits from three preceding threat abatement plans for predation by feral cats. Much has been achieved because of the implementation of these plans, including a substantially improved conservation outlook for many threatened species. However, the ongoing need for such plans shows that this key threatening process is challenging to abate, and will require long-term investments in research and management, and long-term support from key stakeholders and the public.

Some of the priorities for actions have been largely consistent across these plans. Others have evolved as some issues have been resolved, or new challenges emerge. In Appendix 6, the actions in this plan are counterpointed and linked with those in the preceding (2015) threat abatement plan. There is a considerable degree of continuity across these two plans, with such continuity helping to sustain important actions over the longer time periods required to abate this threat and recover threatened species affected by cats. The greatest points of difference are a series of actions in this plan that relate to enhancing coordination of planning and policy instruments (e.g. linkages between recovery plans and conservation advices and with this plan; regional planning; impact assessment), more inclusion of Indigenous perspectives and priorities, more emphasis on monitoring and reporting in this plan, and a more marked segregation of landscape options (i.e., with different actions and objectives according to the degree of susceptibility of species to cat predation).

DRAFT FOR CONSULTATION

13 Appendices

Some of these appendices comprise databases for which links are provided below.

Appendix 1. Nationally threatened and migratory animal species known to be preyed upon by cats, or for which predation by cats is considered a possible or confirmed threat.

[linked excel file]

Appendix 2. Cat-susceptibility of terrestrial mammals, reptiles, and birds.

[linked excel file]

DRAFT FOR CONSULTATION

Appendix 3. A compilation of the research-focused actions under the strategic themes.

This threat abatement plan recognises that there are some key knowledge gaps that currently constrain management effectiveness, and priority research and monitoring actions that should seek to fill these gaps and report on progress. In this Appendix these research and monitoring actions are drawn out of the tables of actions under each objective, arranged under their strategic theme, and mapped to the research priorities defined by the Western Australian Biodiversity Science Institute (WABSI). Developed over a series of stakeholder meetings with researchers, managers and government agencies, WABSI outlined a series of research issues that it considered were priorities for filling key knowledge gaps in relation to enhancing the management of cats (primarily feral cats) in order to improve biodiversity outcomes (Webber 2020). These WABSI research priorities were aggregated into five focal areas, summarised below.

Table 21 Research-focused actions under the strategic themes

Research, monitoring and related actions within this threat abatement plan, arranged under the strategic action	**WABSI research project priorities, arranged under the focal areas**
Prioritise and plan using evidence	
2.1. Prioritise cat-free islands on which surveillance monitoring for cat incursions should be established	No direct equivalent. Required in the TAP to prioritise investment in on ground actions at the national scale
2.2. Prioritise islands for cat eradication, to protect cat-susceptible species and potentially support island translocations	No direct equivalent. Required in the TAP to prioritise investment in on ground actions at the national scale
2.3. Prioritise subregions (including islands) for new cat-free haven creation, to support translocations of extremely and highly cat-susceptible mammals and potentially species from other groups	No direct equivalent. Required in the TAP to prioritise investment in on ground actions at the national scale
2.4. Prioritise sites for intensive cat control to protect species of moderate to high cat-susceptibility that exist as remnant populations	No direct equivalent. Required in the TAP to prioritise investment in on ground actions at the national scale
2.5. Prioritise areas for intensive, holistic management of fire, grazing, and introduced rabbits, to protect all native species	No direct equivalent. Required in the TAP to prioritise investment in on ground actions at the national scale
2.6. Prioritise areas for managing feral (and pet) cats living near human habitation and infrastructure	No direct equivalent. Required in the TAP to prioritise investment in on ground actions at the national scale
Maintain public support	**1. Social licence and value proposition**
2.15. Engage and communicate with the broader public	Project 1: Improving community understanding and involvement Project 2: Social licence to support existing and novel control
2.16. Maintain and increase broad public support for improved cat management for conservation, cat	Project 1: Improving community understanding and involvement

DRAFT FOR CONSULTATION

Research, monitoring and related actions within this threat abatement plan, arranged under the strategic action	WABSI research project priorities, arranged under the focal areas
welfare, human health, and livestock production outcomes	Project 2: Social licence to support existing and novel control
5.5. Engage with island residents to promote support for maintaining cat-free island status	Project 1: Improving community understanding and involvement Project 2: Social licence to support existing and novel control
6.6. Ensure community support for cat eradications from islands	Project 1: Improving community understanding and involvement Project 2: Social licence to support existing and novel control
9.4. Maintain and increase broad public support for improved cat management near human habitation and infrastructure, for conservation, cat welfare, human health, and livestock production outcomes	Project 1: Improving community understanding and involvement Project 2: Social licence to support existing and novel control
Support management	**2. Improving existing management**
Enhance use of existing control options	
4.1. Improve the use of toxins	Project 3: Economics of cat management and control Project 4: Assessing and prioritising existing control strategies Project 5: Refining lethal technologies, lures and deterrents
4.3. Complete field trials of, and refinements to, Felixer grooming traps	Project 3: Economics of cat management and control Project 4: Assessing and prioritising existing control strategies Project 5: Refining lethal technologies, lures and deterrents
4.4. Explore options for field euthanasia for live-trapped cats that are not based on shooting or lethal injection	Project 3: Economics of cat management and control Project 4: Assessing and prioritising existing control strategies Project 5: Refining lethal technologies, lures and deterrents
4.5. Collaborate with a recreational shooting group to trial the value of sustained shooting programs to reduce cat density	Project 3: Economics of cat management and control Project 4: Assessing and prioritising existing control strategies Project 5: Refining lethal technologies, lures and deterrents
4.6. Continue to explore the potential of new attractants to draw cats to control or monitoring points	Project 3: Economics of cat management and control Project 4: Assessing and prioritising existing control strategies Project 5: Refining lethal technologies, lures and deterrents

DRAFT FOR CONSULTATION

Research, monitoring and related actions within this threat abatement plan, arranged under the strategic action	WABSI research project priorities, arranged under the focal areas
4.7. Carry out trials to establish whether guardian dogs can effectively repel cats, and benefit native species	Project 3: Economics of cat management and control Project 4: Assessing and prioritising existing control strategies Project 5: Refining lethal technologies, lures and deterrents
8.5. Carry out research to evaluate how dingo management could aid ecosystem resilience	Project 7: Integrated introduced predator control
8.6. Carry out research to evaluate how devil management could aid ecosystem resilience	Project 7: Integrated introduced predator control
8.4. Develop habitat-specific recommendations for fire patterns to aim for during prescribed burning, and thresholds of introduced herbivore grazing, that will minimise cat impacts	Project 6: Land management practices, including Indigenous knowledge
Develop novel control options	**4. Developing novel management**
4.10. Develop a detailed plan for progressing gene drive, structured into stages with clear decision points and risk assessments	Project 10: Gene editing: molecular studies on genes of interest
4.9. Continue research on immunocontraception to develop approaches with improved efficacy over sustained periods, and feasible spreading mechanisms	Project 11: Other novel control solutions
4.11. Continue research on exposing extremely and highly cat-susceptible species to managed populations of cats within havens to encourage maintenance and enhancement of predator recognition and appropriate behavioural responses	Project 11: Other novel control solutions
Enhance knowledge	**3. Quantifying impacts**
Impacts	
3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands	Project 6: Land management practices, including Indigenous knowledge
3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and PVAs	Project 8: Cat density impact targets and biodiversity response thresholds
9.3. Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure	Project 8: Cat density impact targets and biodiversity response thresholds
3.4. Investigate impacts of cat-borne diseases to native wildlife, and options for responses	Project 9: Understanding disease prevalence and impacts
Monitoring	**5. Population ecology and behaviour**
2.12. Improve monitoring attached to control programs	Project 14: More effective cat population monitoring

DRAFT FOR CONSULTATION

Research, monitoring and related actions within this threat abatement plan, arranged under the strategic action	WABSI research project priorities, arranged under the focal areas
2.13. Establish and maintain national databases for collating details of cat control programs, monitoring data and outcomes	No equivalent; more relevant for national-scale information collation and analyses
2.14. Establish and maintain national databases on fundamental information about cats	No equivalent; more relevant for national-scale information collation and analyses
5.1 Establish surveillance monitoring on priority cat-free islands with high biodiversity values	No equivalent; more relevant for national-scale information collation and analyses
5.4. Collate information from island surveillance programs into national databases	No equivalent; more relevant for national-scale information collation and analyses
3.3. Design and implement surveillance monitoring that may detect increased cat impacts is established at locations where cat-susceptible species are still abundant	Project 12: Indirect management measures
6.5. Design and implement monitoring programs to report on changes in population, genetic diversity and other relevant attributes of cat-susceptible species in havens	Project 12: Indirect management measures
7.2. Design monitoring programs for species of moderate to high cat-susceptibility, and implement them	Project 12: Indirect management measures
Cat ecology	
3.5. Undertake fundamental research on cat ecology to inform the design and implementation of existing control options	Project 13: Cat behaviour (bait avoidance, social structure, reinvasion)

DRAFT FOR CONSULTATION

Appendix 4. Relevant legislation relating to feral (and pet) cats, and plans and protocols, in Australian states and territories.

Appendix 4a. Relevant legislation relating to cats in Australian states and territories

Table 22 Relevant legislation relating to cats in Australian states and territories.

Jurisdiction	Legislation relating to feral cats	Legislation relating to pet cats	Feral cats defined as a pest?
Australian Capital Territory	*Pest and Animals Act 2005*	*Domestic Animals Act 2000*	No
New South Wales	*Local Land Services Act 2013; Biosecurity Act 2015; Biodiversity Conservation Act 2016; Game & Feral Animal Control Act 2002*	*Companion Animals Act 1998*	No
Northern Territory	*Territory Parks and Wildlife Conservation Act 2006*	None	Yes
Queensland	*Land Protection (Pest and Stock Route Management) Act 2002; Biosecurity Act 2014; Animal Care and Protection Act 2001*	*Animal Management (Cats and Dogs) Act 2008*	Yes
South Australia	*Natural Resource Management Act 2004*	*Dog and Cat Management Act 1995*	Yes (threat to natural resources)
Tasmania	*Biosecurity Act 2019*	*Cat Management Act 2009*	No
Victoria	*Catchment and Land Protection Act 1994; Flora and Fauna Guarantee Act 1988; Wildlife Act 1975; Prevention of Cruelty to Animals Act 1986*	*Domestic Animals Act 1994; Domestic (Feral and Nuisance Animals) Act*	Yes (on some public lands)
Western Australia	*Biosecurity and Agriculture Management Act 2007; Biodiversity Conservation Act 2016*	*Dog and Cat Management Act 1995; Cat Act 2011*	Yes

DRAFT FOR CONSULTATION

Appendix 4b. Other management plans and protocols that focus on, or in part on, feral cats

Australian Capital Territory
ACT Cat Plan 2021-2031: A plan developed under the 2017 ACT Animal Welfare and Management Strategy

New South Wales:
NSW Code of Practice and Standard Operating Procedures for the Effective and Humane Management of Feral Cats (2022). (Sharp *et al.* 2022)

Includes:
NSWCAT SOP1 **Ground shooting of feral cats**
NSWCAT SOP2 **Trapping of feral cats using cage traps**
NSWCAT SOP3 **Trapping of feral cats using padded foot-hold traps**

Tasmania
Tasmanian Cat Management Plan, 2017-2022. (Department of Primary Industries Parks Water and Environment 2017)

pestSMART (Centre for Invasive Species Solutions)
Model code of practice for the humane control of feral cats (Sharp and Saunders 2012)

Includes:
CAT001: Ground shooting of feral cats – PestSmart
CAT002: Trapping of feral cats using cage traps – PestSmart
CAT003: Trapping of feral cats-using soft net traps – PestSmart

Baiting of feral cats with paraaminopropiophenone (PAPP). Standard Operating Procedure CAT004

DRAFT FOR CONSULTATION

Appendix 5. Table showing which control options are possible in which jurisdiction.

Table 23 Summary of the availability of cat control options in each state and territory. The information in the table is based on that available in the Glovebox Guide for Managing Feral Cats, 2020.

State or Territory	Shooting	Dog tracking/detection to enhance shooting	Baiting	Cage trapping	Leghold trapping	Felixer
ACT	Permitted but regulated: On private property, with permission	Prohibited for hunting	Requires permit or authorisation: By authorised person for baits approved by Australian Pet and Veterinary Medicines Authority	Requires permit or authorisation	Requires permit or authorisation	Requires research permit, and can only be used in area approved by the Australian Pet and Veterinary Medicines Authority
Victoria	Requires permit or authorisation: By authorised government staff and contractors on specified crown land	Permitted but regulated	Requires permit or authorisation: PAPP can be used by permitted people on crown lands. 1080 cannot be used	Permitted but regulated Also need permission from landholder	Prohibited without ministerial approval. Approval restricted to sites where eradication is achievable and feral cats are declared	Requires research permit, but note that 1080 cannot be used in Vic
New South Wales	Requires permit or authorisation: On private land, or public land with a permit	Permitted but regulated	Prohibited: Neither 1080 nor PAPP can currently be used to control cats, but process in place to allow Curiosity to be used	Requires permit or authorisation	Requires permit or authorisation.	Requires research permit, and cannot be used with toxins unless approved by Australian Pet and Veterinary Medicines Authority and NSW government
Western Australia	Permitted but regulated: By licenced and authorised person on private land	Permitted but regulated	Requires permit or authorisation: Eradicat (1080) can be used by authorised persons	Requires permit or authorisation	Prohibited without special exemption. Leghold traps are considered inhumane under animal welfare legislation.	Requires research permit, and cannot be used with toxins unless approved by Australian Pet and Veterinary Medicines Authority and WA government

DRAFT FOR CONSULTATION

State or Territory	Shooting	Dog tracking/detection to enhance shooting	Baiting	Cage trapping	Leghold trapping	Felixer
Tasmania	Permitted but regulated: By authorised person on public land and private conservation land; by private landholders with some restrictions	Permitted but regulated	Requires permit or authorisation: Can be used by authorised persons under permit	Permitted but regulated: Need to be over 1 km from human residence	Prohibited without ministerial approval	Requires research permit, and can only be used in area approved by the Australian Pet and Veterinary Medicines Authority
Queensland	Permitted but regulated: By licenced people with landowner permission	Permitted but regulated	Requires permit or authorisation: 1080 can be distributed and used by authorised persons; landholders can seek approval to use 1080 and PAPP products	Permitted but regulated Also need landowner permission	Permitted but regulated Landholder permission required	Requires research permit, and cannot be used with toxins unless approved by Australian Pet and Veterinary Medicines Authority and Qld government
South Australia	Requires permit or authorisation: By permitted people with landowner permission	Permitted but regulated	Requires permit or authorisation: 1080 and PAPP can be used to control cats by authorised persons	Permitted but regulated	Permitted but regulated	Requires research permit, and cannot be used with toxins unless approved by Australian Pet and Veterinary Medicines Authority and SA government
Northern Territory	Requires permit or authorisation: With landowner permission	Permitted but regulated	Requires permit or authorisation: Baiting can be used to control cats by authorised persons	Permitted but regulated	Permitted but regulated	Requires research permit, and cannot be used with toxins unless approved by Australian Pet and Veterinary Medicines Authority and NT government
General notes	Each jurisdiction has firearms and animal welfare legislation that must be adhered to	Where the use of dogs is permitted, they are only to be used to point or flush cats, or retrieve cats, not to kill cats.	All poisons are regulated by Australian Pet and Veterinary Medicines Authority	Regulations lie in relevant animal welfare legislation, or cat management legislation (Tas), or game and feral animal control legislation (NSW)	Regulations lie in relevant animal welfare legislation	None

DRAFT FOR CONSULTATION

Appendix 6. Indicative relationship of actions in this plan with those in the preceding threat abatement plan.

The following cross-tabulation broadly aligns actions described in the previous (2015) threat abatement plan (left column) with comparable actions in this plan (right column). Note that some of these alignments may overlap only partly; and note that actions in this threat abatement plan may appear more than once.

Table 24 Indicative alignment of 2015 threat abatement plan actions to 2023 threat abatement plan actions

2015 TAP	2023 TAP
Objective 1 Effectively control feral cats in different landscapes	
Action 1.1 Ensure broad-scale toxic baits targeting feral cats are developed, registered and available for use across all of Australia, including northern Australia	4.1. Improve the use of toxins 4.2. Seek national registration for Hisstory®
Action 1.2 Develop and register other cat control tools, including devices exploiting cat grooming habits	4.3. Complete field trials of, and refinements to, Felixer grooming traps; then register Felixer grooming traps for use nationally 4.4. Explore options for field euthanasia for live-trapped cats that are not based on shooting or lethal injection
Action 1.3 *Continue research into understanding interactions between feral cats and other predators: (i) in different landscapes; and (ii) any potential beneficial/perverse outcomes if other predator populations are modified*	8.5. Carry out research to evaluate how dingo management could aid ecosystem resilience 8.6. Carry out research to evaluate how devil management could aid ecosystem resilience
Action 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	8.1. Manage rabbits and introduced rodents to reduce cat populations and impacts 8.2. Maintain habitat complexity with fire management 8.3. Maintain habitat complexity with grazing management 8.4. Develop habitat-specific recommendations for fire patterns to aim for during prescribed burning, and thresholds of introduced herbivore grazing, that will minimise cat impacts
Action 1.5 Continue research into the scale, efficiency, cost-effectiveness, sustainability and risks of feral cat control options	3.5. Undertake fundamental research on cat ecology to inform the design and implementation of existing control options 4.5. Collaborate with a recreational shooting group to trial the value of sustained shooting programs to reduce cat density
Action 1.6 Continue development of new or enhanced attractants for cats to improve cat control and monitoring. Ensure availability of any attractants that are developed	4.6. Continue to explore the potential of new attractants to draw cats to control or monitoring points
Action 1.7 Research into other control and monitoring technologies and enhancing available technology	4.7. Carry out trials to establish whether guardian dogs can effectively repel cats, and benefit native species
Action 1.8 Re-investigate diseases and other potential biocontrol agents, biotechnology and	4.8. Develop a risk assessment framework using diseases as part of multiple control options

DRAFT FOR CONSULTATION

2015 TAP	2023 TAP
immunocontraceptive options for cats, and commence research on promising options. Undertake social research on promising options to gauge community support	4.9. Continue research on immunocontraception to develop approaches with improved efficacy over sustained periods, and feasible spreading mechanisms 4.10. Develop a detailed plan for progressing gene drive, structured into stages with clear decision points and risk assessments
Action 1.9 Code of Practice and/or Standard Operating Procedures developed for new tools and agreed by governments	2.11. Maintain, enhance and update as required CoPs/SoPs, coordinated across jurisdictions
Objective 2. Improve effectiveness of existing control options for feral cats	
Action 2.1 Understand motivations and provide incentives for land managers to include feral cat management into standard land management for biodiversity outcomes	1.7. Consider the potential of a 'biodiversity certificate' system for land managers who undertake cat control at sites of high biodiversity value
Action 2.2 Provide information, in various media and through training, on best practice methods and standard operating procedures for controlling and monitoring feral cats	2.7. Maintain the national Feral Cat Taskforce as a primary mechanism to help coordinate the management of feral cats across jurisdictions 2.8. Create a 'practitioner resources and network' for Indigenous groups, community groups, and individual landholders 2.9. Support land managers to plan for and implement effective cat control programs by improving guidance about which cat control option(s) are most appropriate 2.10. Support Indigenous ranger groups to control cats 2.11. Maintain, enhance and update as required CoPs/SoPs, coordinated across jurisdictions 2.12. Improve monitoring attached to control programs 2.13. Establish and maintain national databases for collating details of cat control programs, monitoring data and outcomes 2.14. Establish and maintain national databases on fundamental information about cats 2.15. Engage and communicate with the broader public 2.16. Maintain and increase broad public support for improved cat management for conservation, cat welfare, human health, and livestock production outcomes
Action 2.3 Ensure areas prioritized for feral cat management across to Australia maximize benefits to biodiversity at a local, regional and national level	2.1. Prioritise cat-free islands on which surveillance monitoring for cat incursions should be established 2.2. Prioritise islands for cat eradication, to protect cat-susceptible species and potentially support island translocations 2.3. Prioritise subregions (including islands) for new cat-free haven creation, to support translocations of extremely and highly cat-susceptible mammals and potentially species from other groups 2.4. Prioritise sites for intensive cat control to protect species of moderate to high cat-susceptibility that exist as remnant populations 2.5. Prioritise areas for intensive, holistic management of fire, grazing, and introduced rabbits, to protect all native species 2.6. Prioritise areas for managing feral (and pet) cats living near human habitation and infrastructure

DRAFT FOR CONSULTATION

2015 TAP	2023 TAP
Action 2.4 Governments agree to consistent legislation that identifies feral cats as a pest, has requirements for control, and identifies control techniques that may be used	1.1. Enhance harmonisation across government legislation that identifies feral cats as a pest, requires feral cats to be controlled, and identifies control techniques ... 1.2. Enhance consistency across state and territory legislation for companion animals, including mandating the principles of responsible pet ownership 1.3. Local governments improve regulatory and policy settings to reduce pet cat impacts 1.4. Harmonise relevant legislation or regulations across governments to prevent or reduce the likelihood of the introduction of cats to islands on which they are not currently present
Objective 3. Develop or maintain alternative strategies for threatened species recovery	
Action 3.1 Eradicate, or control, cats on offshore islands of high, or potentially high, biodiversity value	2.2. Prioritise islands for cat eradication, to protect cat-susceptible species and potentially support island translocations 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands 5.4. Collate information from island surveillance programs into national databases 6.3. Eradicate cats from at least 10 islands identified as high priority (in action 2.2), using the best control options given the circumstances 6.6. Ensure community support for cat eradications from islands
Action 3.2 Establish, enhance or maintain biosecurity measures for cat-free offshore islands to prevent incursions	2.1. Prioritise cat-free islands on which surveillance monitoring for cat incursions should be established 5.1 Establish surveillance monitoring on priority cat-free islands with high biodiversity values 5.2. Establish responsibility, capability and protocols for rapid response to eradicate cat incursions from these islands of high biodiversity value 5.3. Prevent accidental cat introductions to islands from boats 5.5. Engage with island residents to promote support for maintaining cat-free island status
Action 3.3 Establish and maintain further fenced reserves (“mainland islands”) for threatened species where it is identified cats cannot be controlled to the level required for threatened species recovery	2.3. Prioritise subregions (including islands) for new cat-free haven creation, to support translocations of extremely and highly cat-susceptible mammals and potentially species from other groups 6.1. Enhance mechanisms to promote coordination and collaboration across cat-free haven sites and managers 6.2. Create sufficient new havens to optimise protection for all the most cat-susceptible species 6.4. Manage havens to maintain their cat-free status and ameliorate the impacts of other threats 6.5. Design and implement monitoring programs to report on changes in population, genetic diversity and other relevant attributes of cat-susceptible species in havens

DRAFT FOR CONSULTATION

2015 TAP	2023 TAP
Action 3.4 Research methods to understand thresholds of cat abundance required to improve survival rates for threatened species heavily preyed upon by feral cats. Research ways in which adaptation by threatened species may improve survival rates	3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and PVAs 3.4. Investigate impacts of cat-borne diseases to native wildlife, and options for responses 3.5. Undertake fundamental research on cat ecology to inform the design and implementation of existing control options 4.11. Continue research on exposing extremely and highly cat-susceptible species to managed populations of cats within havens to encourage maintenance and enhancement of predator recognition and appropriate behavioural responses 7.1. Based on the prioritisation undertaken in action 2.4, at priority sites, implement the most appropriate control option
Action 3.5 Continue research into cat diseases, including Toxoplasma gondii and sarcosporidiosis, their prevalence, ability to transmit to other species (including livestock and humans) their impacts, and ways to mitigate the impacts	3.4. Investigate impacts of cat-borne diseases to native wildlife, and options for responses 9.7. Work with human health services, to determine the incidence of disease from cat-borne pathogens in people living in a range of settings
Objective 4. Increase public support for feral cat management and promote responsible cat ownership	
Action 4.1 Quantify the proportion of the domestic and stray cat population that transitions to the feral cat population	3.5. Undertake fundamental research on cat ecology to inform the design and implementation of existing control options 9.3. Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure
Action 4.2 Promote to and seek engagement of the community in: an understanding of the threat to biodiversity posed by cats and support for their management; an understanding of the transitions between domestic, stray and feral cats, and the need for responsible ownership; and support for the containment of domestic cats where their roaming may impact on identified conservation areas	9.1. Local governments improve feral cat management 9.2. Local governments improve pet cat management 9.4. Maintain and increase broad public support for improved cat management near human habitation and infrastructure, for conservation, cat welfare, human health, and livestock production outcomes 9.5. Work with the farming industry to leverage their support for cat control in livestock production areas, using a One Health approach 9.6. Work with the veterinary community to leverage their support for improved pet and feral cat management around towns, in a One Health approach
Action 4.3 Promote and seek community engagement on the reduction of food and other resources to stray cats	1.3. Local governments improve regulatory and policy settings to reduce pet cat impacts 2.16. Maintain and increase broad public support for improved cat management for conservation, cat welfare, human health, and livestock production outcomes 9.1. Local governments improve feral *cat* management 9.2. Local governments improve pet *cat* management 9.4. Maintain and increase broad public support for improved cat management near human habitation and infrastructure, for conservation, cat welfare, human health, and livestock production outcomes
Action 4.4 Develop specific communication campaigns to accompany the release of new broad-	2.15. Engage and communicate with the broader public

DRAFT FOR CONSULTATION

2015 TAP	2023 TAP
scale cat control techniques and other current/new cat control techniques and management programs	2.16. Maintain and increase broad public support for improved cat management for conservation, cat welfare, human health, and livestock production outcomes 4.10. Develop a detailed plan for progressing gene drive, structured into stages with clear decision points and risk assessments
No close parallel in 2015 TAP	
No close parallel in 2015 TAP	1.5. Continue to disallow importation of new domestic cat hybrids
No close parallel in 2015 TAP	1.6. Ensure the potential consequences for impacts of cats are considered in development impact assessment processes
No close parallel in 2015 TAP	1.8. Align abatement of cat impacts across conservation planning for threatened species
No close parallel in 2015 TAP	1.9. Coordinate cat management across threatened species: Trial a regional approach to cat management
No close parallel in 2015 TAP	1.10. Maintain and enhance linkages of cat threat abatement plan with those for other vertebrate pests, and ensure oversight and coordination of feral pest management through the Australian Pest Animal Strategy, and the Invasive Plants and Animals Committee
No close parallel in 2015 TAP	1.11. Align management plans for Commonwealth land with this threat abatement plan
No close parallel in 2015 TAP	3.3. Design and implement surveillance monitoring that may detect increased cat impacts is established at locations where cat-susceptible species are still abundant
No close parallel in 2015 TAP	7.2. Design monitoring programs for species of moderate to high cat-susceptibility, and implement them

DRAFT FOR CONSULTATION

Appendix 7. Summary of pre-consultation with Indigenous land managers

Figure 8 Summary of pre-consultation with Indigenous groups in northern Australia

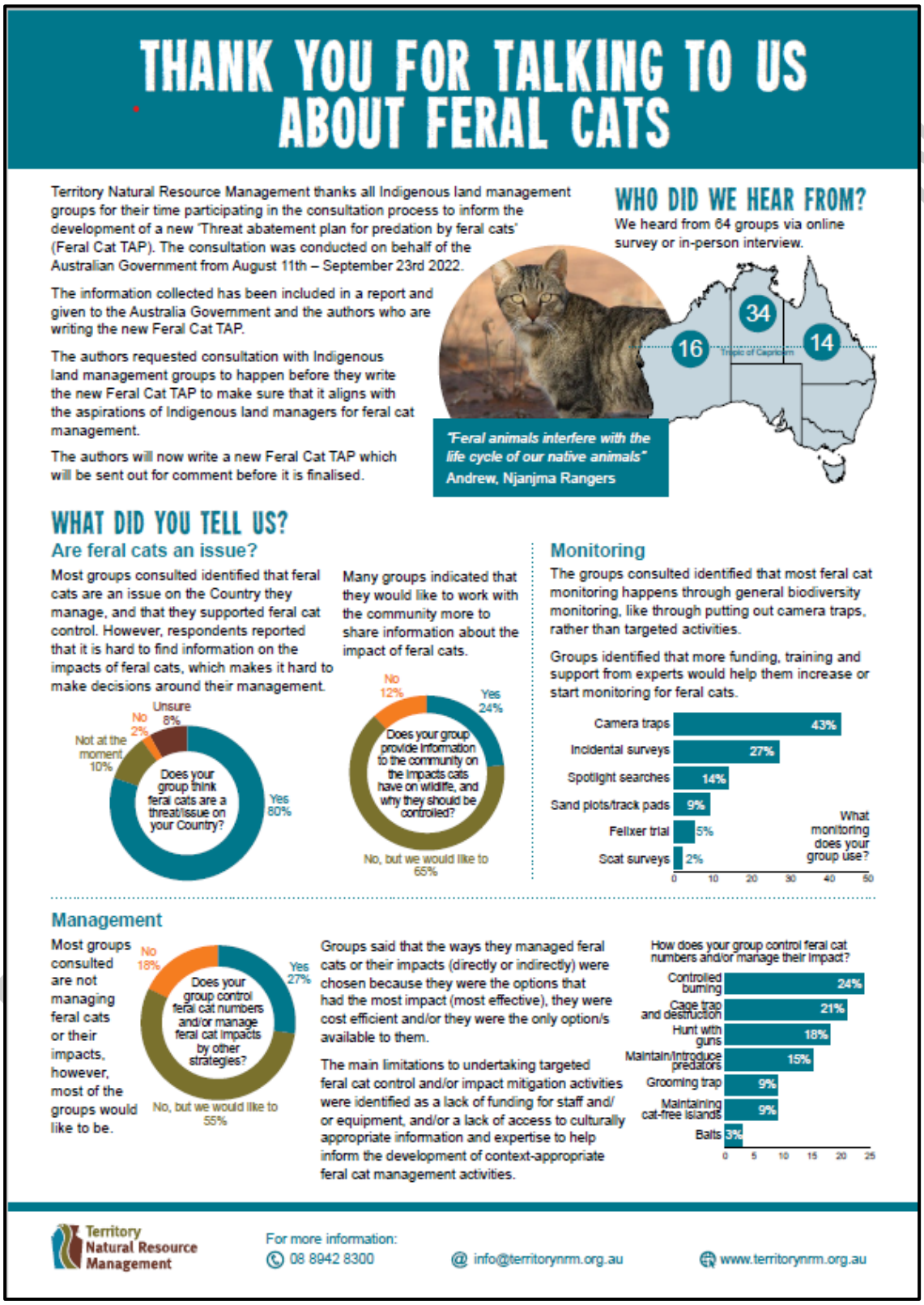


Figure 9 Summary of pre-consultation with Indigenous groups in southern Australia (p. 1)

THANK YOU FOR YARNING WITH US ABOUT FERAL CATS

We would like to thank all Indigenous land management groups for their time in the consultation process to inform the new 'Threat abatement plan for predation by feral cats' (Feral Cat TAP) and 'Threat abatement plan for predation by European foxes' (Fox TAP).

The consultation was conducted on behalf of the Australian Government from May to September 2022. The information collected has been included in a report and given to the Australian Government and the authors who are writing the new Feral Cat and Fox TAPs.

The new TAPs will include actions to address key findings, such as bioregional forums for land managers to share successes and learnings, the importance of supporting Indigenous people to be out on Country to do control and supporting an integrated approach to feral cat and fox control.

The consultation process has now closed, but there will be an opportunity to provide comment on the draft Feral Cat TAP and draft Fox TAP which are due for release in 2023.

Who did we hear from?
We heard from 39 groups via either face-to-face and online meetings or through an online survey.

The scope of this consultation was southern Australia. Territory NRM have consulted with groups in the north on feral cats.

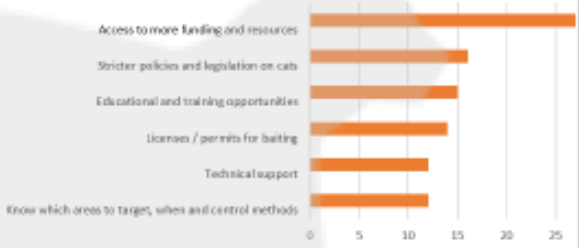
What did you tell us about FERAL CATS?

Overwhelmingly groups stated that they see feral cats as a problem for their Country and that they support feral cat control; however, there are reasons why control of feral cats is not occurring. These reasons include:

- lack of funding, equipment and staff expertise or capacity;
- failure to see change or impact from control efforts which discourages groups from continuing control;
- absence of suitable or humane control options;
- Feral cat control is not part of the groups' remit;
- still researching best control methods;
- and the feral cat control program is still being developed

Methods of control:
Groups identified a number of methods that they use to control feral cats. The main ones are shown below.

Control needs:
Groups identified the greatest needs as more funding and resources, having stricter policies and legislation on feral cats and educational and training opportunities.



Monitoring needs:
Groups identified that more funding, external support, training and more research on species interactions would help them to begin or continue a feral cat monitoring program.

CONSERVATION MANAGEMENT.COM.AU

Figure 10 Summary of pre-consultation with Indigenous groups in southern Australia (p. 2)

THANK YOU FOR YARNING WITH US ABOUT FOXES

What did you tell us about FOXES?

21 groups from the 39 groups involved do not control foxes. The main reasons for not controlling foxes are:

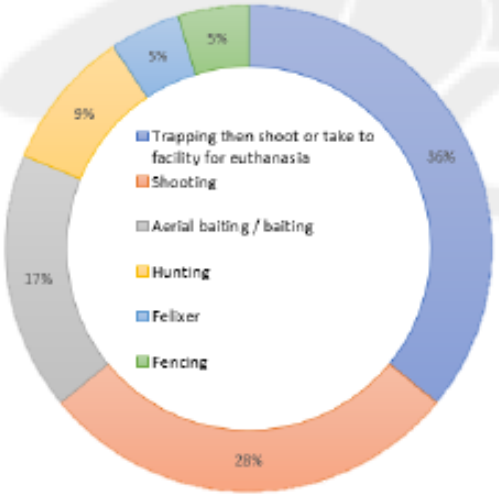
- they are not a problem in the area or are not seen so they are not regarded as a problem;
- the groups lack expertise, staff funding or equipment;
- it is challenging in urban areas;
- fox control is carried out by another organisation;
- lack of community endorsement for baiting;
- and fox control is not part of the group's remit.

Control needs:

The main control needs identified by groups to start or continue a fox control program are shown below. More funding and resources, education and training opportunities and a need for more technical support are required.

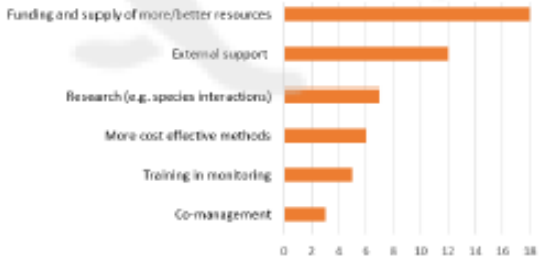
Methods of control:

Groups identified a number of methods that they use to control foxes. The main ones are shown below.



Monitoring needs:

Groups identified that more funding, external support and research would help them to begin or continue a fox monitoring program.



Helpful resources for feral cat and fox control

FeralCatScan
https://www.feralscan.org.au/feralcatscan/default.aspx
PestSmart Toolkit for feral cats
https://pestsmart.org.au/toolkits/feral-cats/
FoxScan
https://www.feralscan.org.au/foxscan/default.aspx
PestSmart Toolkit for foxes
https://pestsmart.org.au/toolkits/european-foxes/
The Facts about 1080 Baiting
https://pestsmart.org.au/domestic-animal-safety/the-facts-of-1080-baiting/

CONSERVATION MANAGEMENT.COM.AU

For more information contact Leah Feuerherdt:
lfeuerherdt@conservationmanagement.com.au

14 Glossary

Table 25 Glossary

Term	Definition
Area of Occupancy	A measure of distributional extent, and a parameter considered in assessing the eligibility of species to be listed as threatened. As defined by the IUCN, this measure is the summed area of 2 km x 2 km grid cells occupied by the species.
Cat susceptibility	A categorisation of the population level susceptibility of a native species to predation by cats, with levels including extreme, high, moderate, low or not: modified from (Radford *et al*. 2018).
Critically Endangered	Under the EPBC Act, a native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
Endangered	Under the EPBC Act, a native species is eligible to be included in the endangered category at a particular time if, at that time, (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Endemic	A species that is restricted to a particular place.
Eradicate	To remove all animals from a population.
Exclosure/exclusion (fencing)	An area that is fenced to protect the native species within and to prevent the entry of introduced predators.
Extent of Occurrence	A measure of distributional extent, and a parameter considered in assessing the eligibility of species to be listed as threatened. As defined by the IUCN, this measure is the total area of a polygon that encompasses all records
Feral	An introduced animal, formerly in domestication, with an established, self-supporting population in the wild.
Feral cat	As defined in section 2, feral cats are individuals of the species Felis catus that are not formally owned, or cared for, by people. They survive by hunting or scavenging for themselves and live in diverse habitats. Most feral cats live in natural environments and have no or few interactions with people. A subset of feral cats is found in and around cities, towns and rural properties; these cats may rely on resources that are inadvertently created by people.
Haven	A place that provides protection for a species that is extremely or highly susceptible to a threat; in this case, a cat-free island or a mainland area in which fencing excludes cats (and foxes); following (Legge *et al*. 2018).
Invasive species	A species occurring as a result of human activities beyond its accepted normal distribution and which threatens valued environmental, agricultural or personal resources by the damage it causes.
Key threatening process	Under the EPBC Act, a process that threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community.
Performance indicator	A criterion or measure that provides information on the extent to which a policy, program or initiative is achieving its outcomes.
Susceptibility	As used here, a measure of the impact of cats on the population viability of a species. Categories are described in Table 1.
Threat abatement plan	Under the EPBC Act, a plan providing for the research, management and any other actions necessary to reduce the impact of a listed key threatening process on affected species and ecological communities.

DRAFT FOR CONSULTATION

Term	Definition
Threatened species	A species under the EPBC Act listed as critically endangered, endangered, vulnerable or conservation dependent.
Vulnerable	Under the EPBC Act, a native species is eligible to be included in the vulnerable category at a particular time if, at that time, (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

.

DRAFT FOR CONSULTATION

15 List of abbreviations used

Table 26 List of abbreviations

Abbreviation	Meaning
ACT	Australian Capital Territory
AG	Australian Government
AMRRIC	Animal Management in Rural and Remote Indigenous Communities
APVMA	Australian Pesticides and Veterinary Medicines Authority
AVA	Australian Veterinary Association
CISS	Centre for Invasive Species Solutions
COP	Code of Practice
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FCT	Feral Cat Taskforce
MLA	Meat and Livestock Australia
NESP RL Hub	Resilient Landscapes Hub of the National Environmental Science Program
NESP TSR Hub	(the former) Threatened Species Recovery Hub of the National Environmental Science Program
NFF	National Farmers Federation
NGO	non-government organisation
NSW	New South Wales
NT	Northern Territory
OTSC	Office of the Threatened Species Commissioner
PAPP	Para-aminopropiophenone, a toxic bait
PVA	Population Viability Analysis
RSPCA	Royal Society for the Prevention of Cruelty to Animals
SA	South Australia
SoE	State of Environment report(ing)
SOP	Standard Operating Procedure
TAP	Threat Abatement Plan
WA	Western Australia

DRAFT FOR CONSULTATION

16 References

Commonwealth of Australia (2015a) 'Threat abatement plan for predation by feral cats '. Commonwealth of Australia, Canberra, Australia.

Commonwealth of Australia (2021) 'Threat abatement plan for predation by feral cats - Review 2021'. Commonwealth of Australia, Canberra, Australia.

Commonwealth of Australia (2015b) 'Threatened Species Strategy'. Commonwealth of Australia, Canberra, Australia.

Commonwealth of Australia (2022) 'Threatened Species Action Plan 2022-2032. Towards Zero Extinctions'. Commonwealth of Australia, Canberra, Australia.

Commonwealth of Australian (2023) 'Background document for the threat abatement plan for predation by feral cats'. Commonwealth of Australia, Canberra, Australia.

Conservation Management Pty Ltd (2022) 'Southern Australia Indigenous Land Manager Consultation for Feral Cat and Fox Threat Abatement Plans. Final report'. Conservation Management Pty Ltd.

Department of Primary Industries Parks Water and Environment (2017) 'Tasmanian Cat Management Plan, 2017-2022'. Tasmanian Government., Hobart.

HoR SCEE (2020) 'Tackling the feral cat pandemic: a plan to save Australian wildlife. Report of the inquiry into the problem of feral and domestic cats in Australia'. Commonwealth of Australia, Canberra, Australia. https://www.aph.gov.au/Parliamentary_Business/Committees/House/Former_Committees/Environment_and_Energy/Feralanddomesticcats/Report

Legge S, Woinarski JCZ, Burbidge AA, Palmer R, Ringma J, Mitchell N, Radford JQ, Bode M, Wintle B, Baseler M, Bentley J, Copley P, Dexter N, Dickman CR, Gillespie GR, Hill B, Johnson CN, Latch P, Letnic M, Manning A, McCreless EE, Menkhorst P, Morris K, Moseby K, Page M, Pannell D, Tuft K (2018) Havens for threatened Australian mammals: the contributions of fenced areas and offshore islands to protecting mammal species that are susceptible to introduced predators. *Wildlife Research* **45**, 627-644. https://www.publish.csiro.au/wr/WR17172

Radford JQ, Woinarski JCZ, Legge S, Baseler M, Bentley J, Burbidge AA, Bode M, Copley P, Dexter N, Dickman CR, Gillespie G, Hill B, Johnson CN, Kanowski J, Latch P, Letnic M, Manning A, Menkhorst PW, Mitchell N, Morris K, Moseby KE, Page M, Ringma J (2018) Degrees of population-level susceptibility of Australian mammal species to predation by the introduced red fox *Vulpes vulpes* and feral cat *Felis catus*. *Wildlife Research* **45**, 645-657. https://www.publish.csiro.au/wr/WR18008

Ringma J, Legge S, Woinarski JCZ, Radford JQ, Wintle B, Bentley J, Burbidge AA, Copley P, Dexter N, Dickman CR, Gillespie GR, Hill B, Johnson CN, Kanowski J, Letnic M, Manning A, Menkhorst PW, Mitchell N, Morris K, Moseby KE, Page M, Palmer R, Bode M (2019) Strategic planning can rapidly close the protection gap in Australian mammal havens. *Conservation Letters* **12.1 (2019)**, e12611. https://conbio.onlinelibrary.wiley.com/doi/10.1111/conl.12611

DRAFT FOR CONSULTATION

Sharp T and Saunders G (2012) 'Model code of practice for the humane control of feral cats'. PestSmart, Canberra.

Sharp TM, Cope H, Saunders G (2022) 'New South Wales Code of Practice and Standard Operating Procedures for the Effective and Humane Management of Feral Cats'. NSW Department of Primary Industries, Orange, NSW.

Territory Natural Resource Management (2022) 'Feral cat consultation report: Indigenous consultation process & findings for Northern Australia.'. Territory Natural Resource Management, Darwin.

Webber BL (2020) 'Increasing knowledge to mitigate cat impacts on biodiversity'. The Western Australian Biodiversity Science Institute, Perth, W.A. https://wabsi.org.au/wp-content/uploads/2020/04/WABSI_Mitigating-cat-impacts_FINAL.pdf

DRAFT FOR CONSULTATION