

Environment Protection and Biodiversity Conservation (Threat Abatement Plan for Predation by Feral Cats 2024) Instrument 2024

I, Tanya Plibersek, the Minister for the Environment and Water, make the Threat abatement plan for predation by feral cats 2024 in the following instrument, jointly with the Northern Territory, South Australia, Tasmania, New South Wales, the Australian Capital Territory, Western Australia and Victoria.

Dated 18.12.24

Tanya Plibersek Minister for the Environment and Water

1 Name

This instrument is the *Environment Protection and Biodiversity Conservation (Threat Abatement Plan for Predation by Feral Cats 2024) Instrument 2024.*

2 Commencement

This instrument commences on the day after it is registered.

3 Authority

This instrument is made under subsection 270B(3) of the *Environment Protection and Biodiversity Conservation Act 1999*.

4 Jointly made threat abatement plan

The Threat abatement plan for predation by feral cats 2024 in this instrument is jointly made with the Northern Territory, South Australia, Tasmania, New South Wales, the Australian Capital Territory, Western Australia and Victoria, as agreed by:

- (a) the following State and Territory Ministers:
 - (i) the Minister for Lands, Planning and Environment (Northern Territory);
 - (ii) the Minister for Climate, Environment and Water (South Australia);
 - (iii) the Minister for the Environment (Tasmania);
 - (iv) the Minister for the Environment (New South Wales);
 - (v) the Minister for Climate Change, Environment and Water (Australian Capital Territory);
 - (vi) the Minister for Environment (Western Australia); and
 - (vii) the Minister for Environment (Victoria).



Australian Government

Department of Climate Change, Energy, the Environment and Water

Threat abatement plan for predation by feral cats 2024



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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.

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This threat abatement plan is jointly made by the following governments.



Australian Government

Department of Climate Change, Energy, the Environment and Water









Government of South Australia







GOVERNMENT OF WESTERN AUSTRALIA

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1 Summary

Predation by feral cats is listed as a key threatening process under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), in recognition of the significant detrimental impact feral cats have 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 successively contributed to:

- major gains in knowledge about cats and their impacts in Australia
- important advances in the efficacy and range of options available to manage them
- significant conservation outcomes, especially for species most susceptible to cat predation
- broad stakeholder recognition of the threat posed by feral cats and the need for actions to reduce that threat.

This plan builds on the foundations established by, and progress made in implementing, these previous plans, and seeks to further advance the effectiveness and coordination of feral cat management across Australia, thereby reducing their impacts on Australian threatened species and other components of biodiversity.

In Australia, landholders and state and territory governments hold primary responsibility for onground management of established invasive species like feral cats, and the latter also make and administer legislation on companion animal management. Local governments can, to the extent relevant state / territory law permits, enact local bylaws to augment that legislation.

The Australian Government supports coordinated national efforts to control invasive species, including through the development of threat abatement plans, like this one, for listed key threatening processes.

These threat abatement plans provide the framework for coordinated and efficient national effort by identifying ambitious new actions and encouraging continued action. In doing so, they take a multi-pronged approach, presenting a comprehensive suite of the actions that, if implemented by the relevant identified parties, are expected to significantly improve threat abatement in the interests of threatened species recovery in Australia.

Furthermore, threat abatement plans present a way for all parties with a role in managing the key threatening process, in this case feral cats, to achieve more significant outcomes by avoiding duplication of effort, facilitating knowledge and resource sharing, building consistency in management approaches, addressing cross-border issues, and collaboratively addressing stakeholder interests and concerns. They are also used by the Australian Government, and others, to guide related investments. Implementing actions and contributing to achievement of this plan's objectives, requires the combined efforts of governments, together with the actions of landholders, communities, cat owners, First Nations peoples, the private sector and non-government organisations (NGO) who deliver biodiversity protection and conservation.

The Commonwealth must implement a threat abatement plan to the extent to which it applies in Commonwealth areas, and Commonwealth legislation allows threat abatement plans to be made jointly with interested states and territories.

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 First Nations people, and be appropriate to local contexts including local cultural values and perspectives.
- 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. Feral cat management should consider a broad ecological context where applicable, including potential consequences on other feral animals, and 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 feral cat control.

This threat abatement plan 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.

Note: 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. Refer to **section 3.1** for further explanation.

This plan seeks to reduce the impacts of cats on biodiversity; many other factors also affect biodiversity such that alleviating the impact of cats will not necessarily lead to recovery and long-term viability of cat-affected species. This threat abatement plan represents one component of a broader conservation challenge and management response. Furthermore, and as described in **section 4.1.3**, some other threats compound the impact of cats, and conservation responses need to recognise such interactions and manage across compounding threats. That said, cats pose the major threat to many native species, and hence the highest priority for management response.

Cat impacts on fauna arise mainly from predation, and potentially also from pathogens and 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 (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 cat impacts 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 9 objectives to organise actions over the next 5 and 10 years (**Figure 1**). The objectives have been developed following review of the previous threat abatement plans, and consultation with experts and stakeholder groups, including First Nations people.

Four are cross-cutting objectives that support the delivery of the on-ground actions covered in the other 5 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; 3 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.



Figure 1 The relationships between the 9 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 8 are hierarchical, with Objective 6 requiring the strongest cat control and management for the most cat-susceptible native species.

This plan primarily addresses the threat of predation by feral cats, given this is the focus of the key threatening process for which this plan is made, but it also acknowledges and considers the role of feral cats as competitors, and as vectors for pathogens causing serious disease in native animal species, livestock and people. Further, it recognises that pet cats also cause predation and disease impacts on native species (including threatened species), and can become a source for the feral cat population, especially around human habitation and infrastructure.

This plan therefore approaches the issue of feral and pet cat management in an integrated way, noting that implementation of specific actions for both feral and pet cat management will vary with the local social, planning, and geographic context.

This plan should be read in conjunction with the background document (*Background document for the threat abatement plan for predation by feral cats 2024*; DCCEEW 2024a). The background document provides relevant key information, evidence and referenced sources (current to the time of its publication) to support the commentary and actions in this plan, including on feral cat ecology, distribution and abundance; impacts on environmental, social and cultural values; current and emerging management practices; and research priorities.

2 Introduction

2.1 Threat abatement plans

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for the identification and listing of key threatening processes to biodiversity. Predation by feral cats (*Felis catus*) was listed under the legislation preceding the EPBC Act, the *Endangered Species Protection Act* 1992, and under the EPBC Act subsequently, in recognition of the significant detrimental impact feral cats have on many Australian threatened species. The national management of feral cats has been coordinated and implemented through successive 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 seeks to build on and extend those gains.

The Australian Government develops threat abatement plans with input from other levels of government, natural resource managers, scientific experts, First Nations people and other relevant stakeholders and it then facilitates their implementation through partnerships and co-investments.

Threat abatement plans for invasive species like feral cats not only strive for better technical solutions, but also include 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
- integrating interests relating to biodiversity conservation with biosecurity and agricultural production, and human health and amenity considerations.

Recovery plans and conservation advices for threatened species that are susceptible to predation by cats may also outline priorities for cat management and research. In some cases, management relevant to this threat abatement plan will also be relevant to other threat abatement plans (such as those for predation by the European red fox *Vulpes vulpes*), and *vice versa*, and coordination and complementarity of such plans should contribute to the effective and efficient delivery of multiple objectives.

The national coordination of pest animal management activities occurs under the *Australian Pest Animal Strategy 2017-2027*. The Environment and Invasives Committee, comprising representatives from all Commonwealth, 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.

2.2 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 (Department of the Environment 2015a) was reviewed in 2021 by the (then) Australian Government 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 (Department of the Environment 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. The *Threat abatement plan for predation by feral cats -Review 2021* (DCCEEW 2024c) is available at: DCCEEW Website.

In addition, in 2020 the House of Representatives Standing Committee on the Environment and Energy 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 ...'

2.3 This threat abatement plan

This plan updates the previous threat abatement plan published in 2015 (Department of the Environment 2015a). 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.

This plan builds on the foundations established in the previous plans, and the progress made in their implementation. It consolidates and extends the national framework provided by the 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. It also 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.

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 also addresses these impacts given these factors are interlinked with, and compound, the predation impacts of cats. 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 (including threatened species) and can become a source for the feral cat population, especially around human habitation and infrastructure. Given the links between the pet and feral cat populations, addressing the impacts of feral cats must include improved management of pet cats.

The *Threat abatement plan for predation by feral cats 2024* is supported by, and supports, the Australian Government's *Threatened Species Action Plan 2022-2032* (DCCEEW 2022). The *Threatened Species Action Plan 2022-2032* outlines an action-based approach to protecting and recovering Australia's threatened plants and animals, as well as priority places. Feral cat management is the explicit subject of two targets, and relevant to many other targets, in the *Threatened Species Action Plan 2022-2032* because feral 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.
- 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 *Threatened Species Action Plan 2022-2032* align with the objectives and actions in this threat abatement plan.

Australian biodiversity is under pressure from many threats, including (but not limited to) habitat loss and degradation, climate change, other invasive species, and changes to fire regimes and hydrological regimes (see Murphy and van Leeuwen 2021 for further information). Reducing impacts from cats on native fauna is one of many approaches needed to prevent further declines and extinctions. Furthermore, many of these other threatening factors have direct or indirect effects on the abundance and impacts of feral cats, or contribute to the overall threat load on cat-susceptible native wildlife. This broader interactive context is considered in management actions proposed in this plan (e.g. **section 4.1.3 and Objective 8**).

This plan should be read in conjunction with the background document (*Background document for the threat abatement plan for predation by feral cats 2024*; DCCEEW 2024a). The background document provides relevant key information, evidence and referenced sources (current to the time of its publication) to support the commentary and actions in this plan, including on: feral cat ecology, distribution and abundance; impacts on environmental, social and cultural values; current and emerging management practices; and, research priorities. There are cross-references throughout this plan to the relevant supporting evidence and key references in the background document.

2.4 Consultation to inform development of this threat abatement plan

Engagement with the national Feral Cat Taskforce and First Nations organisations and rangers

Development of this plan has been informed by 2 early engagement efforts.

One involved discussions 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 focus of this engagement was on the findings of the review of the previous threat abatement plan, advances in cat management options, evidence of cat impacts based on recent studies and the key themes to be addressed in this threat abatement plan.

The second early engagement focus was with First Nations ranger groups and organisations across the country. This occurred between July and September 2022 and involved virtual and face-to-face interviews, and online surveys, with people from 100 groups and organisations, and an additional 10 organisations that work very closely with First Nations partners (Conservation Management Pty Ltd 2022; Territory Natural Resource Management 2022). Many interviews occurred specifically at women's fora, to obtain diversity of voice. This early engagement sought to understand: whether First Nations 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 this engagement are available in **Appendix 7**.

This engagement explicitly addresses section 271(3)(e) 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'. It sought to provide a longer, tailored and culturally appropriate approach to enable First Nations' contributions to the plan and to help consider opportunities for First Nations' involvement in the plan's implementation.

Statutory public consultation

As required by section 275 of the EPBC Act, a 3-month statutory public consultation period was conducted between 7 September and 11 December 2023. The opportunity to provide feedback was widely advertised and the department received more than 1,600 responses through both the online consultation hub and by email, as well as a large volume of related correspondence. The common themes and technical information provided in this feedback were thoroughly considered in finalising this threat abatement plan. Some feedback provided ideas about how best to deliver on the actions and objectives identified in this plan. Where relevant, these have been noted for implementation. A summary of the common themes from the feedback, which informed the finalisation of this threat abatement plan, was prepared (*Draft updated Threat abatement plan for predation by feral cats - Public consultation summary report*; DCCEEW 2024b), and is available at: DCCEEW Website.

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, to support the material provided here.

3.1 Cat definitions

Domestic cats were derived from African wildcats *Felis lybica*, about 4,000 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. This transition from pet to feral can occur during a cat's lifetime. For any species, the term 'feral' applies specifically to populations of introduced species that have established in a region or country to which they are not native from captivity or domestication, whether that establishment was deliberate or accidental.

Cats have a complex relationship with people – while they are treasured pets to some, they are widely known and seen to be a serious environmental concern. This, and the different ways in which people interact with cats, has led to many approaches to defining cats, including ones 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, are open to interpretation, 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.

There is currently no nationally consistent classification of cats, and the legal frameworks and associated definitions are different across the jurisdictions. While consistency would be beneficial, achieving consensus across jurisdictions, cat management organisations and stakeholder cohorts may not be feasible.

For the purposes of this threat abatement plan, a categorisation of 'feral' cats and 'pet' cats has been used. This corresponds with the differences in the management focus required to address the impacts of cats on native wildlife, and the actions most likely to be in-scope having regard to the management context and location. This is not a prescribed categorisation, rather an organising framework for the information in this plan; it does not override the legal categorisations that apply in jurisdictions across Australia. The actions outlined in this plan will need to be implemented in accordance with the legislative, planning and policy frameworks that exist in the jurisdiction within which the management is being undertaken. The actions identified under **Objective 1** of this plan seek legislative, regulatory and planning harmonisation across jurisdictions, where this is possible and it makes sense to do so. These kinds of improvements would better enable landscape-scale management approaches, which may involve multiple jurisdictions, and would better support conservation organisations who work across multiple jurisdictions to protect native wildlife from the impacts of cats.

Feral cats, as discussed in this plan, are those that are not formally owned by people. Typically, 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 indirectly (e.g. rubbish tips or abundant rodent populations), or deliberately and periodically, provided by people (e.g. placing food out for cats). These cats are sometimes called 'stray cats'.

- In this plan, management approaches, actions and objectives for feral cats seek to reduce their impacts on wildlife, particularly the most susceptible native species. This can be done through reducing cat abundance or changing their hunting behaviours.
- Some actions for feral cats living in and around human infrastructure (refer to **Objective 9**), and which sometimes have a higher degree of interaction with humans, differ from those in scope in more natural environments. In these scenarios, management actions are tailored to the context whereby these cats either become responsibly owned pet cats through socialisation and adoption where possible, or they are humanely controlled where ownership is not feasible or is unrealistic.

Pet cats, as discussed in this plan, are owned by a person or people and their needs (food, shelter, veterinary care) may be wholly supplied by their owners. Some pet cats are contained indoors, but others roam.

• In this plan, management approaches, actions and objectives for pet cats seek to promote and increase the uptake of responsible cat ownership practices, reduce the likelihood of pet cats supplementing the feral cat population, reduce pet cat predation on native species, and reduce pet cats' contributions to pathogen transmission.

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. For further information and referenced sources, refer to **section 2 of the background document**.

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 reflecting spatio-temporal changes in the abundance of prey 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 feral cats are flexible, and depend mainly on resource availability. Female feral cats usually occupy mostly non-overlapping ranges of around 5-10 km² in size (but potentially much larger if resources are scant), with male ranges overlaying those of more than one female. Feral cats will leave their home ranges to take advantage of temporary or seasonal food bounties elsewhere. If resources are extremely limiting, feral 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 feral 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 feral 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 6 months of age. Female cats usually produce 1 to 2 litters, each of 3 to 5 kittens, per year; but more litters, and larger litters, are possible.

For further information and referenced sources, refer to section 3.3 of the background document.

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.

The population of pet cats in Australia is relatively easily monitored and is reported regularly. Populations of feral cats are not so straightforward to estimate or monitor. However, as a result of a large body of research guided by previous threat abatement plans, Australia has one of the most robust estimates for the cat population size compared to other countries in the world. Using 91 independent estimates of feral cat densities from around the country, a model for spatial variation in density indicates that the feral cat population fluctuates from 1.4 million (95% confidence intervals 1.0 to 2.2 million) when rainfall in the arid and semi-arid zones is low to 5.6 million (95% confidence intervals 2.5 to 10.9 million) when rainfall in those zones is high, and prey populations are therefore also high. In addition, there are over 0.7 million feral cats in heavily modified habitats, and 5.3 million pet cats (2022 estimate).

For further information and referenced sources, refer to section 3.2 of the background document.

4 Cat impacts

Section 4 provides a brief overview of impacts of cats, and which native species are most adversely affected. Refer to **section 4 of the background document and relevant appendices** for 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 have been the primary or a major cause of 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 3 of 9 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 9 are also listed as threatened) (**Appendix 1**).

With many decades of research, there is now more information on the diet of feral (and pet) cats in Australia than for any other country. Many recent analyses have compiled and analysed such information from tens of thousands of cat dietary samples. These studies have found that 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 320 million native vertebrate animals each year in Australia. Although their overall toll is lower than that imposed by feral cats, because pet cats live at high density, their 'local' impacts can be much higher than that of feral cats.

Refer to section 4.1 of the background document for further information and referenced sources.

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

The predation toll (impact via predation) from cats falls unevenly across species – small- to mediumsized (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 mammals could not, 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, 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 and management 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 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 killed or consumed by a cat. The list of mammal, reptile, land bird and 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. Note that there may be species (such as some invertebrates) for which the available evidence is insufficient to assess population-level susceptibility to cat predation.

Overall, 9 species of mammals, 1 species of land-bird and 9 species of seabird are extremely susceptible to cat predation; and 338 mammal, 3 land-bird, 3 seabird, and 4 reptile species are highly susceptible to cat predation. Removing cat impacts is crucial for preventing declines and extinctions in these species.

Many of the 21 mammal species identified as priorities in the *Threatened Species Action Plan 2022-2032* 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, 2 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*.

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

Category of susceptibility	Susceptibility of native animal species to cat predation	Mammals (Number of species)	Land birds (Number of species)	Reptiles (Number of species)	Seabirds (Number of species)
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	9
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 (more than 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	3
Moderate	Population likely to persist with cats, but with moderate reduction (less than 50%) in its population size and viability.	24 (27 counting subspecies)	11 (12 counting subspecies)	10	18 (19 counting subspecies)
Low / Not (levels combined)	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. Not: Viability is unaffected by introduced predators.	231 (235 counting subspecies)	606 (624 counting subspecies	988	81

Where subspecies exist, they are tallied with the new total shown in brackets. Vagrants and introduced species have been excluded from the tallies. Number of species tallies have been combined for 'low' and 'not' susceptibility categories.

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 and water cycling, seed spread and germination, plant recruitment patterns and fire regimes. The ecological consequences of loss or reduction in the services provided by cat-susceptible mammal species have probably had, and continue 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; occur in arid and semi-arid areas or on islands; contain keystone animal species that are ground-dwelling and within the preferred prey size range for cats (i.e. less than 4 kg); have vegetation structure which is heavily transformed by fire; and are heavily affected by fragmentation.

4.1.3 Factors that amplify cat predation impacts

The threat and impact of cat predation is moderated or compounded by other factors, including cooccurring threats. Some examples are briefly listed here.

Abundant populations of 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 by cats 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. This is partly because cats are drawn to hunt in, or along the edges of, recently burnt areas (especially if those areas contained high native prey density before the fire), and because the success of hunting attempts by cats increases in open areas.

Habitat clearing and fragmentation may increase predation risk, because cat density can be higher in the modified habitats surrounding the fragmented remnant vegetation, and cats may target the fragments, or their edges, for hunting. Because of these interactions, the level of cat control and management needed to protect native species will vary, depending on the context.

Cat density, activity / behaviour or impacts may be affected by the presence and density of larger mammalian predators, dingoes and foxes. The relationships are complex, probably variable, and contested (refer also to **section 8.8** of this document). However, most researchers and managers agree that control of introduced predators, and their introduced prey, should be integrated.

Refer to **sections 4.1.4 and 6.7 of the background document** for further information on the examples listed in this section, additional examples of interactions between cats and other threats, and referenced sources.

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 caves, 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 areas with the highest or best food resources.

Refer to section 4.3 of the background document for further information and referenced sources.

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 and causes the disease toxoplasmosis. *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 (e.g. eastern quoll, water rat (rakali) *Hydromys chrysogaster*), 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 5 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 no symptoms, mild to severe flu-like symptoms, eye disease, and inflammation of the brain and heart. Women who first 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 3 pathogens that affect people, and also by 2 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 which leads to lost income from livestock production.

In a recent analysis, the economic costs of the human health and livestock impacts from catdependent pathogens in Australia were estimated to exceed \$6 billion per year. Thus, reducing feral cat density in order to reduce the incidence of disease caused by cat-dependent pathogens could achieve a One Health outcome of economic and well-being benefits to people, livestock, and wildlife.

Refer to section 4.4 of the background document for further information and referenced sources.

Note: One Health is an integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals and ecosystems. By linking humans, animals and the environment, One Health can help to address the full spectrum of disease control – from prevention to detection, preparedness, response and management. See One Health for further information.

4.4 Public amenity

In urban and peri-urban 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. Depending on jurisdictional requirements, local governments may also control (or assist others to control) feral cats living in towns and cities. Furthermore, local governments of remote and very remote areas face some unique challenges compared to those in metropolitan areas.

A 2021 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.

However, local government 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 cat 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.

Refer to section 4.5 of the background document for further information and referenced sources.

4.5 First Nations cultural values

Feral cats have had, and continue to have, a range of detrimental impacts on First Nations cultural values. Many of the native animal species that have become extinct or severely depleted because of feral cat predation have cultural significance. Many were / are 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 stewardship of Country. The culturally appropriate return to Country of animal species that have become regionally extinct due to feral 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 First Nations people for food and bush medicine. Cats are also kept in many First Nations 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 and can serve as a recruitment source for the local feral cat population.

The early engagement with First Nations land managers carried out to inform this plan (see **section 2.4**) showed that most rangers and other land management groups consider that feral 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 feral cats, most groups do not have targeted feral cat control programs in place, and views on the best methods to achieve feral cat control vary. Overall, trapping and shooting were the most common methods mentioned by groups in southern Australia, whilst managing fire was mentioned as the main control method more than trapping and shooting in the northern groups, probably in part reflecting the higher fire frequencies in northern deserts and savanna ecosystems. Many groups noted that the funding, equipment, regulatory approvals, information, or training required for lethal control of feral cats can be challenging for them to acquire. There were also some concerns about risks for non-target species (e.g. poison baits potentially being consumed by other animals, including dingoes), or that killing an animal without eating it was 'wasteful'. Instead, many groups preferred a whole-of-ecosystem management approach for controlling feral cats. For example, managing fire was cited as a way of reducing the predation impacts from feral cats (see **Objective 8, Action 8.2**).

Many consulted groups noted that views about cats in the broader community were more mixed, because community members may not have access to the 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. The key results of the early engagement were similar across the surveys carried out in northern and southern Australia (see **Appendix 7**).

Refer to **section 4.6 of the background document** for further information and referenced sources, and summaries of the First Nations engagement are available in **Appendix 7**.

4.6 Critical habitat, World Heritage properties and National Heritage places

The *Environment Protection and Biodiversity Conservation Regulations 2000* (Part 7) stipulate that a threat abatement plan must state, among other things, areas of habitat listed in the register of critical habitat kept under section 207A of the EPBC Act that may be affected by the key threatening process concerned.

Critical habitat is registered for 5 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, ACT). 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, and control measures for feral cats are not a priority for the listed critical habitat 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 World Heritage properties listed for present-day natural values, cats have been eradicated from the Lord Howe Island Group and Macquarie Island; have never occupied Heard Island and McDonald Islands; 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 World Heritage properties (including Budj Bim Cultural Landscape, the Gondwana Rainforests of Australia, Great Barrier Reef, the Greater Blue Mountains Area, Kakadu National Park, K'gari (Fraser Island), Purnululu National Park, Tasmanian Wilderness, The Ningaloo Coast, Uluru-Kata Tjuta National Park, and the Wet Tropics of Queensland). At some of these properties, cats are having some impact on the natural values for which the properties were recognised. The natural values of many National Heritage listed places are also being impacted by cats.

Refer to **sections 4.7 and 4.8 of the background document** for further information and referenced sources.

5 Cat management

Section 5 provides a brief overview of cat management. More information is available under the objectives in **section 8**, and **sections 6 and 7 of the background document** contains further information and referenced sources.

Cats are challenging to manage, 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 feral cat numbers by:
 - Exclusion or eradication from islands and purpose-built fenced areas on the mainland.
 - Poisoning (e.g. using baits deployed from the ground or air, and Felixer[™] grooming traps).
 - Trapping and shooting.
- Indirectly reducing cat numbers or impacts by:
 - Managing fire and grazing to maintain a complex ground vegetation layer (to reduce cats' hunting success).
 - Manipulating species interactions, for example by reducing rabbit and introduced rodent populations.

Depending on location and context, and subject to further research, harnessing any control or moderating influence that dingoes or Tasmanian devils have over mesopredators (smaller predators, including feral cats) might be a relevant indirect control option. This is further discussed in **section 8.8** (Objective 8).

While actions like exclusion using fencing and retaining a complex ground layer in peri-urban bushland apply to managing pet cat impacts, generally pet cats are best-managed through responsible cat ownership practices, including containing the cat to the owner's property, identification, registering and desexing. These pet ownership practices (refer also to **section 8.9, and section 6.9 of the background document**) can be more difficult to accomplish in remote, rural and regional areas, for example where access to veterinary services is limited or absent.

Each control or management option has limitations, risks or suboptimalities, such as:

- Some can only be used at very small scales relative to the overall distribution of cats (e.g. catexclusion fencing; Felixer[™] grooming traps; 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 other potentially affected species.
- Some may have impacts on non-target species (e.g. poison-baiting).

- Some are subject to regulations that prevent or constrain implementation in all or parts of a potential control area.
- Some are subject to regulation and training pre-requisites that can be a barrier to uptake, especially to non-government land managers, including First Nations ranger groups.
- Most options are short-term or need sustained input and potentially substantial ongoing investment to achieve and maintain effectiveness.
- Most are only applicable in some geographic areas and are generally not coordinated across sites, agencies/organisations and jurisdictions.
- Many are cost-prohibitive at scale and therefore only achieve limited spatial coverage.

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 early engagement process showed that low effectiveness, concerns about feral cat welfare and impacts on non-target species, regulatory and training barriers, and funding constraints, were key constraints for the control of feral cats by First Nations ranger groups.

Despite these limitations, the current feral 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 feral cat control aim to increase target specificity, increase efficacy, improve humaneness, or offer longer-term solutions, when compared to existing options. For example:

- New toxin formulations and delivery systems aim to improve welfare outcomes and target specificity.
- Technologies such as network connected camera trap arrays linked to AI software and remote trap monitoring systems are vastly improving the efficiencies of monitoring and control at landscape-scales.
- Guardian dogs could potentially repel introduced predators from sites without requiring lethal feral cat control.
- Synthetic biology such as immunocontraception and using gene drives to engineer cat genomes could potentially increase the scale at which feral cat populations can be effectively managed.

Although eradicating feral cats from the continent remains infeasible in the short- to medium- term, increasing the scale and effectiveness of control, including increasing the number and extent of cat-free areas and islands, 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 in some areas, and foxes may reduce the abundance of cats. Cat management should be integrated with concurrent management for foxes, rabbits and introduced rodents, to optimise overall conservation benefits and to reduce the likelihood of unintended outcomes.

5.1 Public support for cat management

A majority of the Australian public recognises that cats have a negative effect on wildlife, and supports the management of cats to reduce that impact (refer to **section 6 of the background document**). 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 further growing awareness of cat impacts and support for ongoing cat management, as well as for promoting and increasing the uptake of responsible cat ownership practices.

In addition, the early engagement 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 First Nations communities. Currently, the mainstream platforms with information about cat impacts and control are almost universally not used by First Nations rangers, and there is little culturally appropriate information available to community members more broadly.

6 Guiding principles for plan development and implementation

The threat abatement plan has been developed, and should be implemented, in accordance with the following guiding 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. 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. The management of feral cats should incorporate and support the management objectives and expertise of First Nations people, and be appropriate to local contexts including local cultural values and perspectives.

The introduction of cats has diminished, and continues to diminish, cultural and ecological values for First Nations people, changing the nature of Country for which they hold cultural and spiritual responsibility. In some regions, as feral cats supplanted native species, they became a food source and bush medicine. The knowledge of First Nations people can help guide the management of feral cats. First Nations people 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. Supporting First Nations people to manage cats can provide social and cultural co-benefits, as well as environmental benefits. This principle aligns with Target 16 in the *Threatened Species Action Plan* 2022-2032 ("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 likely produce the most, and most 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 feral cats by lethal means (e.g. shooting, toxic baiting); indirectly lower feral cat density (e.g. reduce rabbit populations to lower the cat population); reduce the access of feral cats to food subsidies (e.g. refuse around towns, farms and settlements and tourist sites in remote / regional areas); 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 feral cat impacts will or may involve killing individual feral 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, particularly threatened 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 feral cat impacts)?
 - If there are risks of perverse outcomes for native species from feral cat control, such as meso-predator release, are these manageable and / or acceptably low (i.e. the benefits outweigh the risks and the native species are ultimately better off)?
- The overall humaneness of the action(s), to:
 - Individual cats (including the benefits to pet cats that arise from containment).
 - 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 feral cat densities, and/or pet cat roaming, were reduced.
- The sustainability of the action:
 - Actions that result in enduring benefits (e.g. eradicating feral 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.

Feral cat control programs should be designed based on the best evidence available at the time, and the effectiveness of cat management should be rigorously monitored, with the outputs from monitoring made publicly available and used to refine ongoing management.

Although much is known of cat ecology, impacts and feral cat control, there remain some key knowledge gaps that constrain understanding of cat impacts, and the effectiveness of feral cat control options. Cat management can and should be improved with research that adds to an even more robust and comprehensive evidence base.

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

Feral cats are a component of dynamic ecological systems, and have strong links with many other species, including some other pest species. Feral cat management should be integrated with concurrent management for introduced rodents, foxes and rabbits, to optimise overall conservation benefits. For example:

- Where possible, feral cat control should be combined with fox control, to seek an overall reduction in the pressure imposed by introduced predators.
- Feral cat control planning and operations should consider consequences for other pest species, including rabbits and introduced rodents, and aim to avoid or 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 feral 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. The significance of this threat is further recognised in the *Threatened Species Action Plan 2022-2023* which includes 2 targets explicitly relating to the management of feral 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' (section 271(3)(b)). This requirement is addressed in this plan through the 'relative priority' rankings given to the actions in **section 8** of this plan.

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'* (section 271(3)(c)); and
- *'meeting Australia's obligations under international agreements between Australia and one or more countries ...'* (section 271(3)(d)). This requirement may be especially relevant 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.
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' (section 271(1)). Within that given context, the *Threat abatement plan for predation by feral cats 2024* 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 competition, or pathogens 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 cat impacts 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, 3 of the objectives of the *Threatened Species Action Plan 2022-2032*:

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, this plan has 9 objectives to organise 70 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 First Nations groups (see **Appendix 7**). Under each objective, the actions are grouped under 6 strategic themes: Improve legislation, regulation and planning frameworks; Prioritise and plan using evidence; Support management; Reduce cat impacts; Enhance knowledge; Maintain public support.

8 Objectives, performance criteria, and actions

As described earlier, and in the EPBC Act (section 271), threat abatement plans 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. Accordingly, this threat abatement plan identifies a suite of comprehensive, and complementary, objectives and actions that consider not only the necessary on-ground actions, but also the facilitatory settings, planning and implementation approaches, research and tools required to address the threat that cats pose to native wildlife. The implementation of these abatement actions will necessarily vary across landscapes and across jurisdictions, including with respect to the legislative and regulatory frameworks that govern cat management across Australia. However, as a national-level plan, it seeks to be comprehensive and appropriately ambitious, commensurate with the significance of the threat it addresses, and scale of action required from all stakeholders.

There are 9 objectives in this plan (**Figure 2**). Four are cross-cutting objectives that support the delivery of the on-ground actions covered in the other 5 objectives:

Cross cutting:

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

Objective 2 – Plan and implement cat management programs 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 existing tools and their use, and develop new tools, for directly controlling feral cats.

On-ground action:

Objectives 5 to 9 focus on reducing cat impacts using and refining 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 feral 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 (to help maintain or restore ecological function) species. Objective 8 recognises the importance of efforts in the broader landscape, beyond cat-free islands and fenced havens, and for species other than those currently threatened.

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.

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 using integrated 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 free-roaming 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. Any plan to reduce predation impacts from cats must also consider how to reduce predation by pet cats, and how to stop pet cats from being an ongoing source for the feral cat population. This plan therefore approaches the issue of feral and pet cat management in an integrated way, noting that specific actions for both feral and pet cat management will vary with the local social, planning, and geographic context. **Note:** Consistent with Principle 2, the management objectives, expertise and knowledge of First Nations people are important in guiding the management of feral cats, and management needs to be appropriate to local contexts including local cultural values and perspectives. This is why actions involving First Nations people feature across the objectives of this 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 and management 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.

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 of the on-ground objectives (Objectives 5-9) a diagrammatic representation is used to indicate the linkages between interrelated main actions.

Detail is provided for each objective, including the rationale behind them and the performance criteria to be used to evaluate progress at 5 years (2029) and 10 years (2034), then a table outlining the actions required to meet the objective, as well as information about the relative priority, cost category, most likely stakeholder group(s) responsible for delivery, and timeframes the apply to each action.

Relative priority

Each action is assigned a relative priority (categorised as 'very high, 'high', or 'medium'). Note that some actions support or extend existing research, management and communications, and reinforce the importance of continuing, expanding, refining or adapting those existing efforts. Many actions in this threat abatement plan are rated as very high or high priority, reflecting the significance of the impacts of cats on biodiversity and the urgency of tackling the threat from multiple angles.

Cost category

The EPBC Act (at section 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** provides indicative national costings of some conservation actions relevant to this plan; and we apply this information to categorise the actions as of very high, high, medium and low cost, with these classes nominally and indicatively defined as: very high (\$5 million over a 5 year period), medium (\$500,000 over a 5 year period) and low (\$50,000 over a 5 year period).

Responsibility

The action tables provided for each of the 9 objectives (see **sections 8.1 to 8.9**) identify the most likely and appropriate sector(s) to deliver each action, having regard to those who are best placed or have the necessary expertise to contribute towards those actions. Where applicable, these are reflective of the responsibilities that different levels of government have for pest animal and companion animal legislation and management. 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 objectives are collated in a listing of key knowledge gaps at **Appendix 3**.

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. This objective seeks that legislative, regulatory and planning frameworks are appropriately facilitative of best practice feral cat control and pet cat management.

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, to the extent possible. 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 *Threatened Species Action Plan 2022-2032* commits to maintaining this coordination: 'Promote best practice management through the National Feral Cat Taskforce to coordinate 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**); for regulatory mechanisms to be faster and more responsive, so that control approaches can be adapted quickly in response to changed conditions; and for control options to be more accessible to all management groups, including First Nations 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, and which need to direct limited resources towards community-identified priorities which may not include cat management. 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 feral 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 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. See **section 11** for further discussion.

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 2017-2027*. The Environment and Invasives Committee, comprising representatives from all Commonwealth, 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. savannah 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 cat. Some designer hybrids may also be more able to cross water barriers to reach islands if they can swim, and to access native species currently protected within havens if they are able to scale higher fences than existing feral cats can. There is also the risk of hybrid cats interbreeding with feral *Felis catus* - if hybrid cat genes enter the feral cat population, the problem will continue to get worse.

Performance Criteria

Table 2 Objective 1. Performance Criteria

Objective 1. Performance criteria	Evaluate progress
Legislation, regulation frameworks are enhanced and coordinated	
Commonwealth, state and territory legislation identifies feral cats as a pest and provides the context and foundation to support improved feral cat control.	2029 and 2034
State and territory legislation relating to pet cat management is more aligned and improved, and supports actions by local government.	2029 and 2034
There is increased consistency across jurisdictions in what feral cat control options are permissible, with such regulation informed by appropriate levels of risk assessment, that also allows for more rapid adaptation in control methods when conditions change.	2029 and 2034
There is no exemption allowing the import of Bengal cats from 1 March 2025. From 1 March 2026, no hybrid cats are permitted to be imported into Australia without an environmental impact assessment and inclusion on the Live Import List.	2029 and 2034
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.	2029
Such linkages to this feral cat threat abatement plan are established for all relevant existing threat abatement plans, recovery plans and conservation advices.	2034
At least one regional planning trial has been established that coordinates and prioritises cat management to benefit multiple threatened species and at priority sites.	2029 and 2034
At least one trial is established for enhanced management of cats as a biodiversity offset, as part of development impact assessment processes.	2029 and 2034
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.	2029 and 2034

Actions

Table 3Objective 1. Actions

Objec	tive 1. Coordinate and enhance legislative, regulatory and planning frameworks	Relative priority	Cost	Responsibility	Timelines	
Legisl	ation, regulation frameworks					
1.1	Enhance harmonisation across government legislation that identifies feral cats as a pest, requires feral cats to be controlled across different land tenures, and identifies control techniques that may be used, based on evidence of efficacy and risks, informed by guidance from on-ground land management agencies and relevant research.	Very High	/ery High Low	Very High Low	Commonwealth, state and territory governments;	Starting immediately
	 With due regard to ensuring appropriate risk assessment, consider mechanisms to accelerate regulatory assessments when abrupt changes in environmental conditions or knowledge require rapid management adaptation. For example, this includes upscaling toxic bait application after extensive, severe fire, or emergency toxic bait delivery after heavy rain in arid areas that leads to population booms in cat prey. 					relevant regulatory bodies (e.g. Australian Pesticides and
	• Support land and conservation managers to be informed, compliant and knowledgeable about feral cat management legislative requirements and control tool availability and use requirements by ensuring public information on feral cat control options is clear, consistent and readily accessible through government channels.			Medicines Authority, ethics committees)		
1.2	Enhance consistency across state and territory legislation for companion animals, including mandating the principles of responsible pet cat ownership, and enabling local governments to more easily set additional bylaws appropriate to their circumstances e.g. that allow them to designate cat-free suburbs.	High	Low	State, territory and local governments	Starting immediately	
1.3	Improve regulatory and policy settings to reduce pet cat impacts (see also Objective 9 for management actions):	Very High I	Medium	State, territory	Starting immediately	
	• Where there are gaps in state/territory legislation, by introducing bylaws to require responsible pet cat ownership (registration, identification, desexing, household caps, containment).			and local governments		
	• By applying conditions of cat prohibition in suburbs near areas with high biodiversity value.					
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, territory, and local governments	Starting immediately	
1.5	Amend policy that allows import of Bengal cats so as to disallow further importation without an application being made to amend the Live Import List and the conduct of an assessment of the potential impacts on the environment.	Very High	Low	Commonwealth	Starting immediately	
	Ensure that any requests to amend the Live Import List to include hybrid cats are subject to an assessment of the potential impacts on the environment.					

Objec	tive 1. Coordinate and enhance legislative, regulatory and planning frameworks	Relative priority	Cost	Responsibility	Timelines
1.6	Ensure the potential consequences for impacts of cats are considered in development impact assessment processes, and that the potential benefits of feral cat control programs and pet cat management are considered in offset designs.	Medium	Low	Commonwealth	Starting in the period 2024- 2029
1.7	Consider the opportunities of environmental markets for land managers who undertake feral cat control at sites of high biodiversity value. This could be achieved, through the Nature Repair Market when a suitable method has been developed, or other schemes.	Medium	Low	Commonwealth; landholders	Starting in the period 2024- 2029
	This aligns with Target 22 of the <i>Threatened Species Action Plan 2022-2032</i> (Community groups lead or participate in recovery activities for all accessible priority species and places, including through citizen science).				
Plann	ing frameworks				
1.8	Align abatement of cat impacts across conservation planning for threatened species.	High	Low	Commonwealth	Starting
	• 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.				immediately
	• The compilation of a database of cat-susceptible threatened species (Appendix 2) is routinely updated to include newly listed cat-susceptible threatened species, and is publicly accessible along with this threat abatement plan.				
	 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.				
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.)	High	Medium	Commonwealth, state and territory governments	Starting in the period 2024- 2029
1.10	Maintain and enhance linkages between this feral cat threat abatement plan and those for other vertebrate pests (e.g. foxes), and ensure oversight and coordination of feral pest management through the Australian Pest Animal Strategy.	Medium	Low	Commonwealth	Starting in the period 2024- 2029
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 2024- 2029

8.2 Objective 2. Plan and implement cat management programs within an evidencebased 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;
- actions are evidence-based and justified (effective, humane, sustainable); and,
- 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 places emphasis on measuring success in terms of outcomes for species recovery, guided by overall humaneness, rather than on extent of activities or numbers of feral cats controlled, and the management priorities are guided by the threat feral cats represent to biodiversity values rather than just their abundance / distribution in the landscape. 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 this plan's development 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 feral cat control. Such prioritisation is consistent with the *Threatened Species Action Plan 2022-2032*, 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.

Performance Criteria

Table 4 Objective 2. Performance Criteria

Objective 2. Performance criteria	Evaluate progress
PRIORITISE AND PLAN USING EVIDENCE - Cat management across Australia optimises benefits across those native species most affected by cat predation by prioritisa	ations of:
Islands for which feral cat eradication would be most feasible, cost-effective, likely to be supported by stakeholders, and result in the greatest conservation dividend.	2029 and 2034
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.	2029 and 2034
Sites where native species with moderate to high cat-susceptibility can be protected by intensive feral cat control.	2029 and 2034
Topographical or other refuge areas where holistic management of ecosystems and other threats that interact with cats could most benefit native species.	2029 and 2034
Peri-urban and urban areas where feral and pet cat management will benefit native species.	2029 and 2034
SUPPORT MANAGEMENT - Managers (across the spectrum of community groups, NGOs, state agencies, First Nations groups and other land managers) have access to they need, and are supported to deliver effective cat management.	the information
Feral Cat Taskforce meets regularly, functions constructively, and makes available the information about feral cat management and outcomes available to diverse stakeholder groups.	2029 and 2034
Practitioner network designed, established, widely used and productive.	2029 and 2034
Information to guide managers on options for feral cat control, including a complete set of relevant Codes of Practice and Standard Operating Procedures, are available and accessible to diverse stakeholder groups.	2029 and 2034
Standards for monitoring outcomes of feral cat management are developed, accessible for diverse stakeholder groups, and widely applied.	2029 and 2034
Standardised protocols for monitoring changes in feral cat activity and density, accessible for diverse stakeholder groups, exist and are widely used.	2029 and 2034
ENHANCE KNOWLEDGE/SUPPORT MANAGEMENT - Information about the operation and outcomes of feral cat control programs is collated, and coordinated reportir to all relevant stakeholders.	ıg is made available
National databases recording cat management programs and their outcomes exist and are used to inform reporting (e.g. related to this threat abatement plan, the <i>Threatened Species Action Plan 2022-2032</i> , and the State of the Environment Report).	2029 and 2034
National databases collating data on cat density and diet are maintained and curated, with an increase of at least 50% more records by 2034.	2034

Objective 2. Performance criteria	Evaluate progress
Monitoring for the effectiveness of feral cat control, including the potential for perverse outcomes, is undertaken, with results collated and used to refine management.	2029 and 2034
MAINTAIN PUBLIC SUPPORT – Information about cat impacts and management outcomes is transparent and accessible.	
Public awareness of cat impacts, the benefits for native species of eradicating / controlling feral cats, and support for feral and pet cat management that reduces impacts on Australian biodiversity, is maintained or increased.	2029 and 2034

Actions

Table 5 Objective 2. Actions

Objeo	tive 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support	Relative priority	Cost	Responsibility	Timelines
Priori	tise 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 Kimberley Islands Safe Haven group could offer a suitable pilot study for regional surveillance prioritisation for cat-free islands. 	High	Medium	Researchers; Commonwealth, state and territory governments; Traditional Owners.	Starting immediately
2.2	 Prioritise islands for feral cat eradication, to protect cat-susceptible species and potentially support island translocations. Prioritisation should include islands where feral cat eradication is already being considered or has been initiated. 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 First Nations people 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 feral cat eradication; costs; stakeholder support; and, the feasibility of a rapid response to remove the cat(s) should they re-invade. 	Very High	Medium	Researchers; Commonwealth, state and territory governments; non- government organisations (NGOs); Traditional Owners	Starting immediately

Objec	tive 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support	Relative priority	Cost	Responsibility	Timelines
	 Prioritisation should also consider the potential use of the island as a haven for mammal translocations and/or restoration of seabird breeding populations. Such translocations would be subject to risk assessment (including risks to the biodiversity and other values already present on island) and an approval process, and should first secure support from Traditional Owner groups. 				
	(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 it immediately.)				
2.3	 Prioritise sub-regions 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. potential increased abundance 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 feral 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 the site; the cultural value of the species and site; the effectiveness and feasibility of sustaining control in the long term; cost; non-target impacts; and, 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 <i>Threatened Species Action Plan 2022-2032</i> 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 rabbits, to protect all native species through reduction in impacts of feral cat predation and interactive impacts. (Note links to Objective 8 .) Prioritisation should consider:	Very High	Medium	Researchers; Commonwealth, state and territory	Starting immediately

Objec	tive 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support	Relative priority	Cost	Responsibility	Timelines		
	 Current and future climate. Refuge areas where feral cat impacts are low because of topographical or climatic factors that limit feral cat density and (anthoir burting officiency). 			governments; NGOs; Traditional Owners			
	 Refuge areas to which native species populations retract during some circumstances (e.g. riparian strips, paleo- drainage lines, and other relatively mesic areas in the arid zone, during runs of dry years). 						
	• Refuge areas for feral cats (such as riparian areas that may sustain feral cat populations during periods of low rainfall).						
2.6	Prioritise areas for managing feral (and pet) cats living near human habitation and infrastructure including remote tourism sites, mining camps and new residential developments. (Note links to Objective 9 .)	High	Medium	Researchers; companion animal management	Starting immediately		
	 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. 			organisations (e.g. Animal Management in Rural and Remote Indigenous Communities (AMRRIC))			
Supp	ort management						
2.7	Maintain the national Feral Cat Taskforce as a primary mechanism to help coordinate the management of feral cats across jurisdictions and share information about efforts that contribute to the objectives and actions of this threat abatement plan.	Very High	h Low	Very High Low	Commonwealth; Feral Cat Taskforce members (see membership list:	Starting immediately	
	(Note that Action 6.1 details a specific network to promote coordination and collaboration across cat-free haven sites and managers and Action 9.1 details a group to coordinate and improve best practice management of pet cats and feral cats living around human habitation and infrastructure.)			Feral Cat Taskforce)			
2.8	Create a practitioner network, or regional networks, for First Nations groups, regional natural resource management organisations, community groups, individual landholders, agencies and researchers, 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:	Very High	Very High	Very High	Medium Commonweal and territory governments; First Nations a	Commonwealth, state and territory governments; NGOs; First Nations groups (e.g.	Starting immediately
	 share practical knowledge about cat control and management options 			AMRRIC); regional			
	learn about processes for obtaining permits and training		natural resource management	management			
	find guidance for choosing feral cat control options and monitoring options			organisations; National			
	suggest avenues for accessing scientific support			Feral Cat and Fox			
	make connections with other land managers			Coordinator; Centre for			

Objec	tive 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support	Relative priority	Cost	Responsibility	Timelines	
	share approaches for enhancing community support and engagement in pet and feral cat management.			Invasive Species		
	The network could potentially also establish a library of equipment such as various traps and monitoring gear, for temporary loan.		Solutions (CISS); Natio Environmental Scienc	Solutions (CISS); National Environmental Science		
	Such a network was a key recommendation from the early engagement process with First Nations land management groups. The network(s) could adapt and build on aspects of the information-sharing model developed by the Western Australian Feral Cat Working Group, and provide links to other information sources (e.g. PestSmart).			Program Resilient Landscapes Hub (NESP RL Hub); other researchers		
2.9	Support land managers to plan for and implement effective feral cat control programs by improving guidance (informed by on-ground experience) about which feral cat control option(s) are most appropriate for their particular context and conservation objectives, based on:	Very High	High Medium	NESP RL Hub/CISS; National Feral Cat and Fox Management	Starting immediately	
	• The current or potential importance of sites for cat-susceptible threatened species.			Coordinator; other		
	• The extent to which feral cat impacts must be reduced to protect native species at those sites.		researcners	researchers		
	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.					
2.10	(In addition to Action 2.9) support First Nations ranger groups to control feral cats:	High	Medium First Nations groups	First Nations groups /	Starting	
	• Support ranger exchanges for peer-peer skill-sharing about using tracking and other techniques to hunt and control feral cats near sites with threatened native species.			Responsibility Invasive Species Solutions (CISS); National Environmental Science Program Resilient Landscapes Hub (NESP RL Hub); other researchers NESP RL Hub/CISS; National Feral Cat and Fox Management Coordinator; other researchers First Nations groups / organisations (e.g. Indigenous Desert Alliance, regional land councils); state and territory governments; National Feral Cat and Fox Management Coordinator	immediately	
	• Ensure rangers can access the full suite of feral cat control options available for their area, by providing training and administrative support (e.g. to acquire permits) if needed.		Alliance council territor Nation Fox Ma Coordi	Alliance, regional la councils); state and territory governmen National Feral Cat a Fox Management Coordinator	Alliance, regional land councils); state and territory governments:	
	• Consider payment systems that are structured to encourage effective control (hunting) of feral cats (and hence reduction in impacts on wildlife) in designated areas and in specific circumstances (e.g. this has proven successful for reducing feral cat density and impacts around bilby sites in the Kiwirrkurra Indigenous Protected Area – see section 6.4 in the background document).				National Feral Cat and Fox Management Coordinator	
	• Where feasible, feral cat control programs should include monitoring for cat density/activity and outcomes for native species.					

Objec	tive 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support	Relative priority	Cost	Responsibility	Timelines							
2.11	Maintain, enhance and update as required Codes of Practice (CoPs) and Standard Operating Procedures (SoPs), coordinated across jurisdictions, assessed using an updated relative humaneness index, and presented in a variety of formats to maximise accessibility to diverse stakeholder groups.	High	Low	Commonwealth, state and territory governments; National Feral Cat and Fox Management Coordinator	Starting in the period 2024-2029							
Enhan	ce knowledge/ Support management											
2.12	Improve monitoring attached to feral cat control programs:	Very High	Low	Terrestrial Ecosystem	Starting							
	 Develop national framework/standards for monitoring feral 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 Threatened Species Recovery Hub; should be regularly updated; and be accessible to the practitioner network (Action 2.8). 				(TERN); Commonwealth, state and territory governments	(TERN); Commonwealth state and territory governments	mineulatery					
	 Continue to explore ways to improve existing methods (e.g. lures for camera and other traps; improved statistical approaches for estimating density when cats are difficult to identify individually) and incorporate new methods like eDNA sampling, artificial intelligence linked to camera arrays, into monitoring. 											
	• Evaluate the effectiveness of feral cat control or cat prevention programs on private land, particularly the use of regulatory mechanisms (e.g. conservation covenants which generally prohibit the presence of domestic cats).											
	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).											
2.13	Establish and maintain national databases for collating details of feral cat control programs, monitoring data and outcomes. Use these databases to:	Very High	High Low Commonwealth, state and territory governments	ligh Low	High Low	gh Low	n Low	Low	Low	Low	Commonwealth, state and territory	Starting in the period
	• Summarise information on the extent, benefits and any detriment of specific control options, including toxins, to ensure ongoing use is transparent and remains justified and effective design of control programs.	xins,		governments	2024-2029							
	• Document the extent of recovery of native species for which feral 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 feral cat management and its outcomes, to table at Feral Cat Taskforce meetings, and to feed into relevant reporting such as for the <i>Threatened Species Action Plan 2022-2032</i> , State of the Environment reports, and this threat abatement plan and its 5-year review.											

Objec	tive 2. Plan cat management within an evidence-based framework, with broad stakeholder and community support	Relative priority	Cost	Responsibility	Timelines
	Develop adaptive management responses to monitoring outcomes.				
	This action builds on the progress achieved by the FeralCatScan app.				
2.14	 Establish and maintain national databases on fundamental information about feral cats, including: density estimates from site studies. diet, and records of native species being preyed on by cats. 	High	Low	Commonwealth	Starting immediately
	 presence/absence on islands (including information gained from Action 3.1). This action builds on the databases created by the NESP Threatened Species Recovery Hub. 				
Maint	ain public support				
2.15	Engage and communicate with the broader public.	Very High	Medium	Commonwealth, state	Starting
	 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 (including different cultural and language groups). 			and territory governments; Feral Cat Taskforce; NGOs; First	immediately, links to and underpins all
	 Make available information on the multiple benefits of habitat and pest animal management in accessible formats, to diverse land manager groups, including by engaging well-recognised and trusted messengers (e.g. veterinarians for pet owners). 			primary producer organisations; veterinary organisations; state and	other actions
	 Develop engaging materials illustrating the impacts of cats on Australian fauna, and management options, as teaching resource packs for use in school education programs. 			territory education departments; National	
	• Undertake research to understand whether the engagement is changing attitudes and behaviours.			Feral Cat and Fox Management Coordinator	
2.16	Maintain and increase broad public support for improved cat management for conservation, cat welfare, human and wildlife health, and livestock production outcomes.	Very High	Medium	Researchers; companion animal management	Starting in the period
	 Understand the level of public acceptance for different control options for feral cats in natural environments (including poison-baiting and shooting), and what might change those views. 			organisations; First Nations groups	2024-2029
	• Understand the complexities in how First Nations 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.				

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 Western Australian Feral Cat Working Group (see **Appendix 3**). 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-susceptible 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 feral 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 feral 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.

Note that some actions support or extend existing research and reinforce the importance of continuing, expanding, refining or adapting those existing efforts.

Performance Criteria

Table 6 Objective 3. Performance Criteria

Objective 3. Performance criteria	Evaluate progress
ENHANCE KNOWLEDGE - Key priorities for further expansion of the evidence base are addressed	
For all islands more than 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).	2029 and 2034
Surveillance monitoring for increased cat impacts is established in at least 5 locations where cat-susceptible species are still abundant.	2029 and 2034
The prevalence of the Toxoplasma gondii parasite and other cat-borne disease-causing pathogens in cats, and in native species, is documented across Australia, and the susceptibility of native species to the disease is better understood.	2029 and 2034
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.	2034

Actions

Table 7Objective 3 Actions

Objective objective	Objective 3. Undertake research on cat ecology and impacts to inform management undertaken across multiple objectives		Cost	Responsibility	Timelines
Enhance	knowledge				
3.1	 Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands (informs Objectives 5 and 6): Survey of islands, focusing on those more than 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	Very High	Researchers; Commonwealth, state and territory governments; Traditional Owners	Starting immediately
3.2	Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses (inform Objectives 5-9):	High	High	Researchers	Starting in the period 2024-2029

Object objecti	jective 3. Undertake research on cat ecology and impacts to inform management undertaken across multiple jectives		Cost	Responsibility	Timelines
	 Continue to refine and update the evidence base and assessments of 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-reference 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 (informs Objectives 7, 8, 9):	Medium	High	Researchers; Commonwealth, state	Starting immediately
	 Monitor cat activity or density (and ideally, their prey and other species that cats may interact with, such as potential competitors) at locations where cat-susceptible species are still abundant even though cats are present (e.g. Tasmania, rugged areas of the northwest Kimberley, southwest Western Australia, Groote Eylandt, wet forests and rainforests of the east coast), to ensure any increases in cat activity and/or 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. 			and territory governments; NGOs	
	This will complement the Threatened Species Action Plan 2022-2032 Targets 8 and 9, to manage cats in all areas of important habitat for cat-susceptible priority species, and in all priority places where the condition of those places is threatened by cats.				
3.4	Investigate prevalence and impacts of cat-borne disease-causing pathogens in cats and native wildlife, and options for responses.	Medium	Medium	Researchers	Starting in the period 2024-2029
3.5	Undertake fundamental research on cat ecology to inform the design and implementation of existing feral cat control options such as toxin-baiting and grooming traps, shooting and trapping; and to inform the potential use of novel control options such as genetic technology (informs Objective 4).	High	High	Researchers	Starting in the period 2024-2029
	 Describe, across a range of habitats, the feral cat's mating system, population demographics, dispersal behaviour and spacing patterns, recruitment, and prey-switching, 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, and thus whether there is scope to develop cat-deterrents (e.g. olfactory, auditory) that are useful in some situations. 				

8.4 Objective 4. Refine existing tools and their use, and develop new tools, for directly controlling feral cats

Rationale

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

Existing (and potential future) feral 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**, removing all cats from within fenced areas or from islands may require the use of one or more of the control options detailed here in Objective 4. Indirect methods of reducing feral cats or their impacts, including by manipulating ecological interactions (e.g. reducing densities of introduced prey species) are covered in **Objective 8**. Ensuring that feral cat control tools are accessible to all managers is addressed in **Objective 2**.

Further information about each feral cat control option is given in **section 6 of the background document**. Here, we brief information on each option that provides context for the actions under this objective. In all the management options listed here, consideration should be given to relevant factors including humaneness, social licence, cost-effectiveness, impacts on non-target species, location and the magnitude, extent and duration of potential benefits. It should also be noted that the extent to which the tools listed here are permitted for use to control feral cats on all land tenures varies considerably across the country – refer to **Appendix 5**.

Control methods in built-up areas are obviously more constrained by legislation, non-target risks (including for pet cats), and other social factors. Most control options for roaming cats in urban situations are based on cage-trapping. **Section 8.9** provides more discussion about control of roaming cats in urban areas and around population centres.

Toxic baits that target feral cats

The use of toxic baits in Australia is nationally authorised and regulated, up to – and including – the point of sale, by the Australian Pesticides and Veterinary Medicines Authority (APVMA) following careful scrutiny of evidence relating to effectiveness, non-target impacts and other risks. State and territory government agencies further regulate the use of the toxic bait, storage and disposal requirements. Toxic baiting of feral cats 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, northern quoll, and bridled nailtail wallabies, and to eradicate feral cats from islands (e.g. Dirk Hartog Island). New presentations of 1080 are being trialled (Hisstory[®]), and a bait (Curiosity[®]) using an alternative toxin (para-aminopropiophenone (PAPP)) has recently been registered for use across Australia. 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 yield different results in different situations, and thus sharpen protocols. Information about the features, benefits and limitations of the available toxic baits is detailed in **section 6.2 of the background document**.

Many First Nations communities are concerned about non-target effects on dingoes and introducing toxin into ecosystems where they actively hunt for food (refer to **section 4.5**), and the broader public is concerned about humaneness and the use of poison generally. Continued use of toxic baits on feral cats is essential for preventing population declines and extinctions of some native species, so, given the complex issues involved in their use, toxic baiting programs should be justified based on the expected conservation benefit and a thorough assessment of risks. Programs should be accompanied by robust monitoring to quantify the potential non-target impacts, to confirm that reductions in feral 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 analysis of the effectiveness of different management approaches (see **Objective 2**). These steps will help maintain public support and confidence that control programs using poison baits to control feral cats are justified and appropriately regulated.

Refer to section 6.2 of the background document for further information and referenced sources.

Other toxin delivery systems

Alternative ways of delivering toxin to feral cats may increase target specificity and reduce the opportunity for learned avoidance or inherited bait shyness. These include Felixer[™] grooming traps (that squirt a toxin onto a feral cat when it moves past a sensor), toxic implants (in prey) and toxic collars (useful for targeting particular individual feral 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.

Refer to section 6.3 of the background document for further information and referenced sources.

Trapping, shooting and tracking

Trapping, shooting and tracking can be useful feral cat control options for small areas, and when control effort can be maintained fairly intensively over time. Cage trapping, shooting and tracking are the most feasible direct feral cat control options for many land managers, including First Nations 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 can 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**). Novel trap monitoring systems in trapping programs are now being applied to cage and soft-jaw traps; these systems enhance efficiency and improve welfare outcomes for trapped cats.

Shooting can be substantially enhanced by using thermal imagery (via scopes, binoculars, or potentially drone-mounted) or through use of trained detection/scenting dogs to locate feral cats. Shooting is used by some rural landholders, agencies and recreational shooters for reducing feral cat density; however, often the benefits are limited 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 feral cats effectively, and the focus of the related action in this plan is on trialling the value of sustained shooting programs with improved program design and outcome monitoring, and developing guidelines for programs to reduce feral cat impacts on native species.

In parts of the Tanami, Gibson and Great Sandy Deserts, First Nations people hunt feral cats by following cat tracks by car and on foot to where the feral cats are hiding under vegetation or in burrows. The feral cats are hunted for bush tucker and medicine, as cat meat is considered to give strength and health. Hunting of feral cats has been encouraged in areas supporting cat-susceptible threatened species (*Ninu* (bilby), *Tjalapa* (great desert skink), by formalising the action in Indigenous Protection Area management plans, and by offering payments to encourage hunting to control feral cats near threatened species, with those payments structured so hunting is encouraged even as feral cat density diminishes. 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, payment). The hunting is inspiring for other First Nations ranger groups with aspirations to manage feral cats on their own Country, even if other techniques are more suitable for their area.

Refer to section 6.4 of the background document for further information and referenced sources.

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. little penguins, gannets, eastern barred bandicoots) from foxes. It is unclear whether guardian dogs can also successfully repel feral cats, and if so at what scale and under which circumstances they are effective. In addition, introducing large canids into ecosystems could have its own adverse impacts, for example if the dogs actively or passively repel some native species.

Refer to section 6.7.3 of the background document for further information and referenced sources.

Novel control options

Novel options for feral cat control aim to increase target specificity and efficacy, improve humaneness, or offer longer-term solutions, when compared to existing feral cat control options. The options include using immunocontraception and gene drives to reduce feral 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 disease is unlikely to lead to eradication of feral cats from the Australian mainland because the large size of the continent means the probability that disease-resistant individuals occur somewhere, survive the disease and breed disease-resistant offspring, is high. Disease could be used to reduce feral cat population size but 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 feral 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 feral 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 more than 20 years and a multidisciplinary effort to reach the point of release, with impacts on the feral cat population size evident only after many cat generations. 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 (South Australia) and Wild Deserts (New South Wales (NSW)), with a related trial carried out in the Australian Capital Territory (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 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 *Threatened Species Action Plan 2022-2032*: 'At least 5 new tools are developed to mitigate the impact of broad-scale threats on threatened species'.

Refer to section 6.8 of the background document for further information and referenced sources.

Performance Criteria

Table 8 Objective 4. Performance Criteria

Objective 4. Performance criteria	Evaluate progress				
SUPPORT MANAGEMENT/ ENHANCE KNOWLEDGE - Control options are available, and their use is optimised such that feral cats can be more effectively suppressed i landscape and region					
Toxic baits (Eradicat [®] , Curiosity [®] , Hisstory [®]) and alternative toxin presentations (e.g. Felixer [™]) are registered and available for use in parts of Australia where their use is justified based on the biodiversity benefit, overall humaneness (to cats, non-target animals, and the prey that cats may kill) and sustainability.	2029 and 2034				
The biodiversity benefits, and attendant risks, of shooting, trapping, and tracking for controlling feral cats, in different contexts (environments, climate conditions, predator and prey assemblages), are better quantified.	2029 and 2034				
The use of guardian dogs to repel cats from sites supporting populations of cat-susceptible species has been trialled and evaluated.	2029				
The potential to develop synthetic biology (e.g. immunocontraception, gene drives) to reduce populations of feral cats is explored.	2029 and 2034				
Improved understanding of the extent to which cat recognition and avoidance by native prey species can be encouraged via managed selection.	2029 and 2034				

Actions

Table 9Objective 4. Actions

Objectiv	e 4. Refine the use of existing tools for directly controlling feral cats, and develop new tools	Relative 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	CISS; NESP RL Hub; state and territory governments	Starting immediately

Objectiv	4. Refine the use of existing tools for directly controlling feral cats, and develop new tools	Relative priority	Cost	Responsibility	Timelines
	• Improve understanding of broad-scale environmental impacts of the 2 toxins used for feral 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 baits with longer-lasting palatability.				
4.2	Seek national registration for Hisstory [®] , and complete non-target species trials and seek broader registration for Eradicat [®] .	High	Medium	Commonwealth; relevant state and territory government agencies; researchers	Starting immediately
4.3	Continue to refine and adapt Felixer™ grooming traps; facilitate their availability in all states and territories; complete field trials and refinements and gain approval for using PAPP in the Felixer™ grooming traps, in addition to 1080.	Very High	Medium	APVMA; NGO (Thylation)	Starting immediately
4.4	Evaluate other euthanasia options for live-trapped feral cats that may increase overall humaneness. The purpose is to guide land managers (Indigenous and non-Indigenous) to humanely kill captured feral cats. Note that this action must include adequate provisions for testing cat identification to ensure that trapped pet cats are not inadvertently killed.	High	Low	CISS; Commonwealth, state and territory governments	Starting immediately
Feral cat	shooting and trapping				
4.5	Collaborate with recreational shooting groups to trial the value of sustained shooting programs to reduce feral cat impacts on native species:	Medium	n Medium Recreational shooting groups; researchers; CISS; Royal Melbourne Institute of Technology (RMIT)	Starting in the period 2024-	
	 The trials must be predicated on the likelihood of producing biodiversity benefits and minimising risks. They should include monitoring for feral cat density/activity and outcomes for native species (as per Objective 2) and would need to consider shooter training, animal welfare, costs and benefits and legislation restrictions relating to the use of firearms. 			CISS; Royal Melbourne Institute of Technology (RMIT)	2029
	• The information should be used to develop guidelines to support other shooting groups to design and implement effective feral cat control, coupled with appropriate monitoring.				
4.6	Continue researching the potential of new attractants to draw cats to control or monitoring points:	High	Low	Researchers	Starting in the period 2024- 2029
	 'Mata Hari Judas' technique (using female cats with induced oestrus to attract remaining cats in closed populations). 				
	• Synthetic production of <i>Alcalypha indica</i> root.				

Objective	e 4. Refine the use of existing tools for directly controlling feral cats, and develop new tools	Relative priority	Cost	Responsibility	Timelines
Guardiar	n dogs				
4.7	Carry out trials to establish whether guardian dogs can effectively repel cats, benefit native species, whether there are adverse effects, and at which scale this is effective.	High	Medium	Researchers; NGOs; state and territory governments	Starting in the period 2024- 2029
Future co	ontrol 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	Long-term Starting in the period 2024- 2029
4.9	Immunocontraception: Continue research to develop approaches with improved efficacy over sustained periods, and feasible spreading mechanisms.	Medium	High	Researchers	Long-term Starting in the period 2024- 2029
4.10	Synthetic biology: Develop a detailed plan for progressing the use of gene drives to control feral 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 building on work related to other invasive vertebrates; 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 develop- ment only)	Commonwealth, state and territory governments	Starting in the period 2024- 2029
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	High	Researchers; state and territory governments; NGOs	Starting immediately

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, requiring costly eradication programs. Note that **Action 1.9** links to this objective. Note also that this objective is consistent with and complementary to existing biosecurity arrangements coordinated under the Northern Australian Quarantine Strategy (NAQS).

Figure 3 Objective 5: Prevent cats from spreading further



Diagram showing the relationships between the core actions of Objective 5 (Ob5) and actions from the cross-cutting objectives (Ob1-4) that lead to achieving the outcome under Objective 5 (Ob5). Note: actions from cross-cutting objectives comprise those that directly underpin the actions and outcomes of Objective 5, and those that provide overarching support.

Performance Criteria

Table 10 Objective 5. Performance Criteria

Objective 5. Performance criteria	Evaluate progress
REDUCE CAT IMPACTS – Cats do not establish on any islands that currently do not have them	
No islands have been newly colonised by cats.	2029 and 2034
SUPPORT MANAGEMENT – Island land managers are supported to keep islands cat-free	
First Nations groups whose traditional lands include islands are supported to develop planning, surveillance, and response approaches to keep their islands cat-free.	2029 and 2034
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).	2029 and 2034
ENHANCE KNOWLEDGE – Outcomes are being used to inform ongoing management	
Information from island surveillance programs is flowing to national collations. (Objective 2)	2029 and 2034
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.	2029 and 2034

Actions

Table 11 Objective 5. Actions

Objec	tive 5. Prevent cats from spreading further, to islands that are currently without cats	Relative priority	Cost	Responsibility	Timelines
Supp	ort management				
5.1	Establish surveillance monitoring on priority cat-free islands with high biodiversity values, to facilitate a rapid response should cats reach them.	High	High	Commonwealth, state and Northern Territory	Starting in the period
	 Traditional Owners to be consulted about this monitoring, and where they consent to it and wish to be involved, supported to do so. 			governments; Traditional Owners	2024-2029
	• Easily accessible islands could be monitored through, for example, regular survey using camera traps and track monitoring. 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 .				
5.2	Establish responsibility, capability, and protocols for rapid response to eradicate cat incursions from these islands of high biodiversity value.	High Medium	Medium Commonwealth, state and Northern Territory governments; Traditional Owners	Starting in the period 2024-2029	
	• Where islands are the responsibility of First Nations groups, these groups should be supported to respond.				
5.3	Prevent accidental cat introductions to islands from boats.	Very High Medium	Medium	Commonwealth, state	Starting immediately
	• 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.			and Northern Territory governments; boating associations; Traditional Owners	
	 Install signs at boat landing spots to the same effect. 				
	• Support Traditional Owner groups to establish formal access arrangements for visitors to their islands.				
Enha	nce knowledge				
5.4	Collate information from island surveillance programs into national databases. (Objective 2)	High	Low	Commonwealth, state and Northern Territory governments; Traditional Owners	Starting in the period 2024-2029

Objective 5. Prevent cats from spreading further, to islands that are currently without cats		Relative priority	Cost	Responsibility	Timelines
Maintain public support					
5.5	Engage with island residents to promote support for maintaining cat-free island status.	High	Medium	Commonwealth, state	Starting
	 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. 	;		and Northern Territory governments; Traditional Owners	immediately
	• 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.				

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 and section 8 of the background document**). Fifteen of these taxa are also priority species in the *Threatened Species Action Plan 2022-2032* (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 First Nations 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 within cat-free areas. This analysis could be refined, with additional field data on cat impacts, and using a structured expert elicitation. Note that the benefits of cat-free havens may be subverted if those places also support populations of foxes; where this is so, fox eradication is also required to achieve and maintain the benefits arising from eradicating or excluding cats.

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 this 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 (**Action 6.1** and as outlined in the *Threatened Species Action Plan 2022-2032*).

The management and recovery of native species that are, or could be, 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)
- minimise the potential detrimental consequences of creating barriers to dispersal (to some species at fenced havens)
- minimise the risk of genetic bottlenecks
- minimise the risk of losing predator recognition and response behaviours in the cat-free populations
- 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 (Action 6.1), but interim targets used in this plan (5 to 10 year timeframe), as explained in section 8.3 of the background document, are:

- Extremely cat-susceptible species should be represented in at least 3 cat-free havens, with an overall population size across havens of at least 2,000, with that population stable or increasing.
- Highly cat-susceptible species should be represented in at least one cat-free haven, or an area with sustained, very intensive feral cat control, and with an overall population size of at least 2,000 that is stable or increasing.

Current extent of protection gap:

As of May 2024, there are 26 cat-free fenced areas and 120 cat-free islands that are already 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 **section 8.3 of the background document**.
The immediate priorities for new haven creation are:

- Complete the eradication of feral cats and effective population control of pet cats underway on Christmas Island.
- Establish 9 to 11 haven populations for 7 to 8 mammal species (pending outcome of the recent northern bettong translocation, and more information about the island populations of brush-tailed rabbit-rats).

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

- Two new havens for the central rock-rat it is currently only in one recently-created haven and is a priority species in the *Threatened Species Action Plan 2022-2032*.
- One to 2 new havens for the brush-tailed rabbit-rat it may exist on 2 cat-free islands, but the population sizes are unknown.
- One new haven for the mala it has a total population of less than 2,000, although recently introduced populations at Newhaven and Dirk Hartog Island are expected to increase total population.
- One new haven for the Gilbert's potoroo it has a total population of much less than 2,000, and is a priority species in the *Threatened Species Action Plan 2022-2032*.

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

- northern hopping-mouse (a priority species in the *Threatened Species Action Plan 2022-2032*)
- broad-toothed rat
- Carpentarian rock-rat
- northern bettong (but note the Mt Zero-Taravale haven was completed 2023; success to be determined).

There are no other existing fenced areas suitable for these species, but existing cat-free islands may be suitable for 4 species (northern hopping mouse, brush-tailed rabbit-rat, central rock-rat, mala).

Reptiles:

No reptile species is a priority for a haven.

Birds:

The feral 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 taxa.

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

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.

Action: Convene a national 'Safe Haven Network' working group to build collaboration, coordination and focus effort on improving species representativeness in Australia's safe havens.



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

Diagram showing the relationships between the core actions of Objective 6 (Ob6) and actions from the cross-cutting objectives (Ob2-4) that lead to achieving the outcome under Objective 6 (Ob6). Note: actions from cross-cutting objectives comprise those that directly underpin the actions and outcomes of Objective 6, and those that provide overarching support.

Performance Criteria

Table 12 Objective 6. Performance Criteria

Objective 6. Performance criteria	Evaluate progress
SUPPORT MANAGEMENT – Mechanisms to promote coordination and collaboration are in place.	
'Safe Haven Network Working Group' established and functional.	2029 and 2034
First Nations groups whose traditional lands include islands are supported to eradicate feral cats if that is identified by them as a priority.	2029 and 2034
REDUCE CAT IMPACTS – All extremely and highly cat-susceptible species are represented in cat-free havens, situated mostly across their previous range, and managed long-term viability.	to maximise their
Enough cat-free havens (islands or fenced areas) are created (or planned) in strategic locations (identified in Action 2.3) so that:	2034
All extremely cat-susceptible species are represented (through translocations or in situ populations) in at least 3 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 feral cat eradication and pet cat management work on Christmas Island and establishing 10 new haven populations for 8 mammal species.	
Haven populations should be situated mostly across their historic range, and managed to maximise their long-term viability.	
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 5 of the highest priority islands.	2029 and 2034
Cats are eradicated from at least 10 of the highest priority islands.	2034
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.	2029 and 2034
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).	2029 and 2034

Actions

Table 13 Objective 6. Actions

Objeo free f	ctive 6. Protect the most cat-susceptible species: Remove and exclude cats from an expanded network of cat- fenced and island havens, and manage those havens to maintain or enhance their conservation values.	Relative priority	Cost	Responsibility	Timelines
Supp	ort management				
6.1 Redu	 Enhance mechanisms to promote coordination and collaboration across cat-free haven sites and managers. For example: Create a 'Safe Haven Network Working Group' (an action in the <i>Threatened Species Action Plan 2022-2032</i>): A coordinated network of relevant government, non-government, First Nations 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; National Feral Cat and Fox Management Coordinator	Starting immediately
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 2034 are noted in the rationale for Objective 6.	Very High	Very High (approx. \$2 million for each of 10 haven projects)	Commonwealth, state and territory governments; Traditional Owners; NGOs; other landholders	Starting in the period 2024- 2029
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	Very High (approx. \$20 million)	Commonwealth, state and territory governments; local governments; Traditional Owners; other landholders	Starting in the period 2024- 2029
6.4	Manage havens to maintain their cat-free status and ameliorate the impacts of other threats:	High	Very High	Commonwealth, state	Starting

Manage havens to maintain their cat-free status and ameliorate the impacts of other threats:	High	Very High	Commonwealth, state	Starting
• Continue management and biosecurity arrangements that ensures the exclusion of cats (and foxes) from		(\$1 million for	and territory	immediately
havens.		each of 10	governments;	
		new havens;	Traditional Owners;	

Objec free f	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.		jective 6. Protect the most cat-susceptible species: Remove and exclude cats from an expanded network of cat- e fenced and island havens, and manage those havens to maintain or enhance their conservation values.		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, high density of one or more translocated populations).		note existing havens not included)	NGOs; other landholders			
Enhar	ce knowledge						
6.5	Design and implement monitoring programs to report on changes in population, genetic diversity, and other relevant attributes (e.g. body condition, disease, breeding parameters) of cat-susceptible species in havens, and of broader ecological ramifications of haven, design establishment and management.	High	High	Commonwealth, state, territory governments; Traditional Owners; NGOs; other landholders	Starting immediately		
Main	ain public support						
6.6	Ensure community support for cat eradications from islands:	High	Medium	Commonwealth, state	Starting		
	 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 including using culturally and contextually appropriate educational resources in campaigns. 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. 	bers ces s; t cat		and territory governments; local governments; Traditional Owners; community groups, companion animal management organisations (including AMRRIC for	immediately		
	 Island communities may need support from local/state governments, and vet services, to carry out these actions. 			(including AMRRIC for remote First Nations community cat management)			

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 and in section 8 of the background document**). 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**, and to a lesser extent, **Objective 8**.

In open settings (i.e. where cat immigration is possible), the options for feral cat control differ in terms of their efficacy (or our knowledge of the efficacy of different options varies), where they can be used, the scale at which they can be applied (e.g. several square kilometres for intensive trapping, to hundreds of square kilometres 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 feral 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 feral cats are causing most of the impacts, then targeting those feral 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 or management 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 and management 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 may be 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 and management 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 *Threatened Species Action Plan 2022-2032*:

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





Diagram showing the relationships between the core actions of Objective 7 (Ob7) and actions from the cross-cutting objectives (Ob1-4) that lead to achieving the outcome under Objective 7 (Ob7). Note: actions from cross-cutting objectives comprise those that directly underpin the actions and outcomes of Objective 7, and those that provide overarching support.

Performance Criteria

Table 14 Objective 7. Performance Criteria

Objective 7. Performance criteria	Evaluate progress
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 specific situation.	st-suited to the
Cats are being managed effectively at all priority sites ('important habitat' for priority species) identified in Objective 2 .	2029 and 2034
Populations of cat-susceptible priority species (including species considered priorities for First Nations people) at these sites are persisting or increasing in abundance.	2034
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).	2029 and 2034

Actions

Table 15 Objective 7. Actions

Obje popu	Objective 7. Protect species with moderate to high susceptibility to cats: Suppress feral cat density in and near prioritised populations of these species.		Cost	Responsibility	Timelines
7.1	 Based on the prioritisation undertaken in Action 2.4, at priority sites, implement the most appropriate cat control and management option(s). Priority sites will include important habitat for the <i>Threatened Species Action Plan 2022-2032</i> 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). First Nations groups 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- 	Very High	Very High (\$500,000 for each of 30 sites)	Land managers including government agencies; Traditional Owners; NGOs	Starting immediately
	 susceptible species, and other conservation outcomes. 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 targeted removal of those most problematic individual 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 (i.e. at least 96 of the 128 species) (linked to Action 2.13).	Very High	Very High (\$5 million, recognising some monitoring is already in place)	Researchers; land managers; government agencies; First Nations groups; NGOs	Starting immediately

8.8 Objective 8. Reduce the burden of cat predation across all native species using integrated 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 and section 8 of the background document**). This objective mostly focuses on reducing the impacts of feral cats, but could also reduce impacts from pet cats that roam into neighbouring bushland.

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 First Nations people approach managing Country.

Reduce rabbit and introduced rodent populations

Rabbits can be significant 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. Introduced rodent populations on some islands support high cat densities. In the arid zone, high rainfall can drive rabbit and introduced rodent irruptions, as well as native rodent irruptions, that in turn support high feral cat densities. Reducing rabbit and introduced 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 feral 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 threatened species, conservation, agricultural productivity and other values. Where irruptions in native species are supporting increased cat populations, feral cat control is likely to be most effective when prey populations begin to decline.

Managing predator interactions – dingoes

If, to what extent and in what circumstances dingoes control mesopredators (such as feral cats) and / or moderate their impacts is still unresolved. For example, the reduction or loss from ecosystems of apex predators, like dingoes, 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. Dingoes may possibly exert control over mesopredators, in some biomes more than others, and their interactions may be affected by prey densities, their own densities, and the occurrence and density of the mesopredators (foxes, feral cats).

Accordingly, this plan includes a research action that seeks to improve our understanding of predator interactions, and what cascade of changes might occur in an ecosystem as a result of different dingo population scenarios, across multiple biomes.

In regions where dingoes are extant and uncontrolled, feral cat management should avoid preferencing control options that also kill dingoes or should use the tools in ways that reduce risk to dingoes. There may be circumstances where a well-designed program that includes monitoring can demonstrate that removing both predators does not result in unintended or unwanted consequences. Feral cat control programs that also include other predators must give consideration to the wishes of the local Traditional Owners in relation to dingoes given the high cultural significance of this species.

Managing predator interactions - Tasmanian devils

There is some evidence that the recent rapid and severe decline of Tasmanian devils has produced cascading ecological impacts including increases in the activity of feral cats and consequent reduced activity 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 4,000 years ago. Such proposals are contentious, as the devils themselves may exert predation pressure on native wildlife species and on some livestock. As such, this plan's consideration of devil – cat interactions is focused on research, including to evaluate if / how devil management in Tasmania affects cat impacts and any potential benefits for threatened species and aiding ecosystem resilience.

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 shown to moderate feral cat impacts in the tropical savannas of northern Australia, and to some extent in temperate southeastern Australia. The same effect is inferred in forest and 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 *Threatened Species Action Plan 2022-2032*:

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

Figure 6 Objective 8: Reduce predation burden across all species



Diagram showing the relationships between the core actions of Objective 8 (Ob8) and actions from the cross-cutting objectives (Ob1-3) that lead to achieving the outcome under Objective 8 (Ob8). Note: actions from cross-cutting objectives comprise those that directly underpin the actions and outcomes of Objective 8, and those that provide overarching support.

Performance Criteria

Table 16 Objective 8. Performance Criteria

Objective 8. Performance criteria	Evaluate progress
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).	2029 and 2034
Populations of native species that are preyed upon by cats increase in abundance at priority sites, as a result of improved holistic management practices. Note that, in some cases, progress towards this performance criterion may be influenced by the extent of complementary control of other threats that may also be affecting those native species.	2034
Rabbit populations continue to be suppressed.	2029 and 2034
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.	2029 and 2034
Feral cat (and other pest animal) impacts factored into fire management planning, and into post-fire response plans.	2029 and 2034
The outcomes of feral cat control after fire (on cat populations and cat-susceptible species) are monitored.	2029 and 2034
Land managers, including First Nations rangers, understand more about the potential (whether positive, neutral, or negative) for habitat management to reduce cat impacts, and the associated conservation and economic outcomes (positive and negative).	2029 and 2034
ENHANCE KNOWLEDGE	
Research undertaken that extends current knowledge about apex predator management to reduce cat impacts, and evaluates the practicalities and any other potential costs and benefits.	2029 and 2034

Actions

Table 17 Objective 8. Actions

Obje habit	ctive 8. Reduce the burden of cat predation across all native species, with holistic management of at and species interactions over large areas.	Relative priority	Cost	Responsibility	Timelines
Redu	ce cat impacts				
8.1	Manage rabbits and introduced rodents to reduce cat populations and impacts.	Very High	Medium (cost	Commonwealth, state	Starting in
	 Continue broadscale biological control (predominantly carried out for agricultural productivity). 		agricultural sector) governments;	il sector) governments; researchers; pastoralists; farmers	2024-2029
	 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; the support for this may vary among First Nations groups who hunt rabbits for food. 				
	• 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, and where rodent eradication is planned, consider whether rodent eradication should be accompanied by feral cat eradication, to prevent feral cats from switching to native prey.				
	Where possible, management should focus on priority areas identified in Action 2.5.				
8.2	Maintain habitat complexity with appropriate fire management.	Very High	Low (modification	Commonwealth, state	Starting immediately
	• Manage fire to avoid extensive, severe fire events that simplify the structure of the ground layer over large areas.		of existing fire management	and territory governments; NGOs,	
	• Consider the likely interactions of fire with cats (their density, activity, impacts) in fire management plans.		practice)	and First Nations	
	• After extensive and/or severe fire, consider the need for post-fire feral cat control (such as baiting, shooting).		langer groups	0-0	
	• When post-fire feral cat baiting occurs, monitor the effect on feral 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.				

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Obje habi	ctive 8. Reduce the burden of cat predation across all native species, with holistic management of tat and species interactions over large areas.	Relative priority	Cost	Responsibility	Timelines
8.3	 Manage grazing pressure to retain habitat complexity. 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, Traditional Owners and First Nations ranger groups; pastoralists	Starting in the period 2024-2029.
Supp	port 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 (Objective 3) including:	Very High	Medium	dium Researchers; state and territory governments; state	Starting immediately
	 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 where there has been less research on this issue (e.g. deserts, wetter/more complex vegetation types such as wet forests). 	and nationa organisatio applicable research ar developme corporation Meat and L		and national farm organisations; applicable rural research and	
	 How increasing fire size and severity, and fire frequency, affects the relative mortality of cats and their prey, and the impacts of predation. 			development corporations (e.g. Meat and Livestock	

- How cat behaviour and impacts are affected by First Nations cultural fire practices.
- Whether baiting/shooting soon after fire is an effective way to dampen feral cat impacts and support native species to recover.

Enhance knowledge

8.5 Further refine understanding of apex predator management - dingoes: Carry out further research to evaluate if / how dingo management affects feral cat abundance and impacts, and the potential consequences of such effects on threatened species and ecosystem resilience, and, where relevant, develop costed options for landholders at regional scale.	very High	Very High	Researchers; state and territory governments; applicable rural research and development corporations (e.g. Meat and Livestock	Starting in the period 2024-2029
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Australia);

pastoralists; NGOs;

Traditional Owners

and First Nations ranger groups

Obje habi	ctive 8. Reduce the burden of cat predation across all native species, with holistic management of at and species interactions over large areas.	Relative priority	Cost	Responsibility	Timelines
	• Will require a robust experimental framework, collaboration with engaged pastoralists, comparison of contrasting management regimes in trial areas, and consideration of impacts on: mesopredators (cats, foxes), native species, First Nations cultural values, ecosystem responses more broadly, and productivity (e.g. cattle loss, population size of macropods and predation behaviour of dingoes).	1		Australia (MLA)); state and national farm organisations; pastoralists, NGOs; Traditional Owners	
8.6	Further refine understanding of apex predator management - Tasmanian devils: Carry out research to evaluate if / how devil management affects cat impacts and any potential benefits for threatened species and ecosystem resilience, along with potential costs and risks of devil management options, where relevant.	High	High	Researchers; state and territory governments; applicable rural research and development corporations (e.g. MLA); pastoralists; NGOs	Starting in the period 2024-2029

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 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 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 First Nations 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 an ongoing 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 (more than \$6 billion annually), through their role as the definitive host for the parasites *Toxoplasma gondii*, some *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, cat-on-cat fights, 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. For further information and referenced sources, refer to **section 6.9 of the background document**.

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. Reducing the densities of cats that roam freely around human habited areas could therefore have One Health benefits to people, cats, livestock, and wildlife.

Reducing the impacts of cats living with and around humans requires a different suite of preventative and control actions, compared with managing feral cats in natural environments. The physical environments differ and some control options are generally out of scope (e.g. toxic baits, shooting); the impacts of free-roaming pet and feral cats on humans can be more direct and thus a source of community concern; the cat population is a mixture of pet and feral yet management actions for these 2 groups of cats differ; and, the legislation framing cat management in these environments is a complex interplay between up to 3 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 First Nations communities are very important. A broad and ongoing engagement program should accompany cat management.

The ideal goal for pet cat management is that all cats are safely contained at home, desexed (unless they are registered breeders), registered and identified. The ideal goal for feral cat management around human habitation and infrastructure is that all are removed from areas in or near sites of high conservation value, and their density is markedly reduced elsewhere. This could be partly achieved with improved waste management, and sustained, intensive trapping programs at strategic locations. Pounds, animal shelters and rescue and homing/re-homing groups play a role in receiving, treating and finding homes for cats that are suitable for homing/re-homing, and educating their new owners to be responsible pet cat owners. However, many 'stray' cats will not be of a suitable temperament, or in sufficient health, to be socialised or adopted. In addition, the number of feral cats far exceeds the capacity of rescue organisations and shelters to house them and facilitate their adoption; and far exceeds the number of people willing to adopt a cat. Trap-neuter-release (TNR) programs, that capture feral cats, desex them, then release them back to their origin, do not stop individual cats from hunting wildlife or spreading disease, nor do they improve the welfare of released cats, and may not lead to overall reduction in the cat population or impacts. In general, TNR is therefore not recommended. For further information and referenced sources, refer to **section 6.9 of the background document**. Figure 7 Objective 9: Reduce cat impacts in around human habitation and infrastructure



Diagram showing the relationships between the core actions of Objective 9 (Ob9) and actions from the cross-cutting objectives (Ob1-2) that lead to achieving the outcome under Objective 9 (Ob9). Note: actions from cross-cutting objectives comprise those that directly underpin the actions and outcomes of Objective 9, and those that provide overarching support.

Performance Criteria

Table 18 Objective 9. Performance Criteria

Objective 9. Performance criteria	Evaluate progress
SUPPORT MANAGMEENT – Managers are supported to deliver improved management of pet cats and feral cats living around human habitation and infrastructure.	
National taskforce to improve biodiversity outcomes from best practice management of pet cats and feral cats living around human habitation and infrastructure meets regularly and functions constructively, demonstrating clear progress on key actions.	2029 and 2034
REDUCE CAT IMPACTS – Areas of human habitation and infrastructure do not support high densities of feral cats, leading to reduced impacts on native species, impl for pet cats, and lower risk of cat-borne pathogen transmission.	roved welfare outcomes
Overall population size of feral cats living around human habitation and infrastructure is reduced (as revealed by survey or other monitoring).	2034
Uptake of responsible pet cat ownership increases (as shown by rates, and overall numbers, of desexing, registration, identification and containment).	2029 and 2034
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'.	2034
Existing programs to desex pet cats in First Nations communities and outstations are supported and expanded.	2029 and 2034
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.	2029 and 2034
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.	2029 and 2034

Actions

Table 19 Objective 9. Actions

Obje	ective 9. Reduce cat impacts around areas of human habitation and infrastructure	Relative priority	Cost	Responsibility	Timelines		
Sup	Support management						
9.1	Stakeholder-led national taskforce convened as a primary mechanism to coordinate and improve best practice management of pet cats and feral cats living around human habitation and infrastructure. The taskforce would:	Very High	Low	State, territory and local governments;	Starting immediately		
	• Support implementation of the relevant objectives and actions of this threat abatement plan and advance best practice management with co-benefits for wildlife and cats.		companion a managemen organisation rescue/(re)h organisation	companion animal management			
	 Be comprised of experts in companion animal management, and those with the associated policy and legislative responsibilities and mandates. 			rescue/(re)homi organisations: w	rescue/(re)homing organisations: wildlife		
	• Collaborate on common issues, and share progress and relevant information, with the Feral Cat Taskforce.			rescue organisations; veterinary sector.			

Reduce cat impacts

9.2	 Support local governments to improve <i>feral</i> cat management where it is within their legislative scope: 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 and other methods appropriate to the location) 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; state and territory departments with remit for local government matters; Wildlife Health Australia; AMRRIC (for remote First Nations community cat management)	Starting immediately
9.3	 Support local governments to improve <i>pet</i> 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 ou free or heavily subsidised desexing programs. There may be opportunities to work with the veterinary education sector to increase practical placements in remote areas where access to vet services for desexing i limited. 		Very High (Low for each local government area)	Local governments; state ad territory departments with remit for local government matters; veterinary sector; companion animal management organisations (including	Starting immediately

Objective 9. Reduce cat impacts around areas of human habitation and infrastructure			Cost Responsibility	Responsibility	Timelines
•	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 rescue organisations and shelters to disseminate information on caring for indoor and contained cats. New collaborations such as with the pet industry (e.g. pet product retailers), should also be explored.			AMRRIC for remote First Nations community cat management)	
•	Establish cat-free suburbs near areas of high biodiversity value; this is most tractable in new housing developments, and the concept could be more actively promoted.				
•	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 First Nations communities by the most appropriate messengers.	:			
•	Design and implement a monitoring program that can assist local governments to assess and report on the efficacy of cat management.				
(See	e Objective 1 for regulatory and policy actions to support this management)				
Enhance	knowledge				

9.4	Imp	prove the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure. Very High Very High	Researchers; AMRRIC	Starting immediately
	•	Assess the impacts of predation by feral and pet cats on the population viability of select native species occurring in areas near human habitation and infrastructure (see Action 3.2).	(for remote First Nations community cat	
	•	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.	management)	
	•	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.		

Obj	ective 9. Reduce cat impacts around areas of human habitation and infrastructure	Relative priority	Cost	Responsibility	Timelines					
Mai	Maintain public support									
9.5	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.	High	High	Researchers; AMRRIC (for First Nations communities); veterinary sector (peak bodies and practices); animal shelters and rescue/(re)homing groups	Starting immediately					
	• Identify potential drivers of attitudinal and behavioural change that would support better pet management.									
	• Understand reasons for increasing cat ownership in First Nations 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.									
	• Raise community awareness about the features and benefits (to cats and wildlife) of responsible pet ownership practices; and of the limitations of TNR.									
9.6	Work with the farming industry to leverage their support for cat control and management in livestock production areas, using a One Health approach.	High	Medium	National Feral Cat and Fox Management Coordinator; applicable rural research and	Starting immediately					
	• Disseminate information about the economic costs of cat-borne pathogens and their 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.			corporations (e.g. MLA); state and national farm						
	 Engage with grain farmers to understand level of any concerns about the impacts of cat control and management on introduced rodent populations, and how these concerns could be addressed. 			organisations; veterinary sector; AMRRIC; Wildlife Health Australia						
9.7	Work with the veterinary community to leverage their support for improved pet and feral cat management around towns, in a One Health approach.	High	Medium	ium Applicable rural research and development corporations (e.g. MLA);	Starting immediately					
	• Disseminate information to pet cat owners about the welfare, conservation and human health benefits of responsible pet ownership, including containment.		development corporations (e.g. state and national organisations; veterinary sector; AMRRIC; Wildlife Australia							
	• Share information with pet owners on the conservation impacts, economic and human health impacts, and welfare of feral cats living around people.			organisations; veterinary sector:						
	• Share information on the effectiveness of alternative control options (e.g. cat removal, waste management) at reducing those impacts.			veterinary sector; AMRRIC; Wildlife Heal Australia	AMRRIC; Wildlife Health Australia	h				

Objective 9. Reduce cat impacts around areas of human habitation and infrastructure			Cost	Responsibility	Timelines
9.8	 Work with human health services (e.g. new Australian Centre for Disease Control), 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 overall disease burden, within a One Health context. 	High	Very High	Medical researchers and human health services; AMRRIC (for remote First Nations community cat management)	Starting in the period 2024-2029

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 5 years of a plan being made or varied. This threat abatement plan is estimated to have a life of approximately 10 years, subject to the outcome of the 5-year review. 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 entire life of the plan. Recognising the 5-year statutory review point, costs in section 9.2 are estimated over 5 years, with implementation progress and changing circumstances to be accounted for in revising cost estimates for remaining actions at the time of that review.

9.2 Implementing and investing in 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 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; First Nations people; landholders and volunteers; to facilitate implementation of the plan and collaborative reporting of progress against its actions. Given the wide 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 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 feral cat management, and protection for priority species and places that are adversely affected by cats (see **section 9.3**).
- 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 feral 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 Saving Native Species program and the Natural Heritage Trust.

In addition, partnerships (including financial and implementation support) with governments, nongovernment organisations, First Nations organisations, community groups and individuals, and nontraditional parties (e.g. pet product retailers, private sector organisations seeking to invest in environmental management) 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 in **Table 20** are the cost estimates for each objective in the plan, arranged according to approximate cost categories for the actions in that objective, where a very high cost is set as \$5 million over 5 years; a high cost is set as \$1 million over 5 years; a medium cost action is set as \$500,000 over 5 years; and a low cost action is set as \$50,000 over 5 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. Note that existing costs, such as the maintenance of cat-free fenced exclosures and islands, are not included. Where an action involves the refinement or redirection of government legislation, policy or effort, costs are similarly kept low. 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.

Table 20 Approximate national costs for each objective in the plan, and overall, based on the numbers of actions that are categorised as very high (\$5 million over 5 years); high (\$1 million over 5 years); medium (\$500,000 over 5 years); and low (\$50,000 over 5 years)

Objectives	Very high \$5 million	High \$1 million	Medium \$500,000	Low \$50,000	Totals for each objective over 5 years
1	0	0	2	9	\$1,450,000
2	0	0	11	5	\$5,750,000
3	1	3	1	0	\$8,500,000
4	0	2	6	3	\$5,150,000
5	0	1	3	1	\$2,550,000
6	10*	1	1	1	\$51,550,000
7	4*	0	0	0	\$20,000,000
8	1	1	2	2	\$7,100,000
9	3	1	3	1	\$17,550,000
Total (rounded u	up to nearest millic	on)			\$120,000,000

*Note: Objectives 6 and 7 have actions in the very high cost category involving multiple sites (e.g. fenced areas, islands) so these combined total \$50 million and \$20 million, respectively.

9.3 Evaluating implementation of the plan

The threat abatement plan needs to be reviewed at intervals of no greater than 5 years as specified by the EPBC Act. The review will examine implementation of actions under the plan and assess what progress has been made towards meeting its objectives. The review will also consider the plan's implementation success, specifically whether activity under the plan has resulted in a reduction in the impact of feral cats on threatened species, threatened ecological communities, ecosystems and cultural heritage.

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

In the years prior to the review, implementation of actions under the threat abatement plan can be tracked through key national groups, including the national Feral Cat Taskforce and the Terrestrial Vertebrates Working Group of the Environment and Invasives Committee. This information may be summarised and shared publicly in the form of periodic updates on the action being taken against the threat abatement plan's actions and objectives. Where possible, this should include action being taken by all 3 levels of government and, to the extent possible, by other key groups including First Nations ranger groups and non-government organisations and the private sector who deliver biodiversity protection and conservation.

This progress, and the review's recommendations will form the basis of a revised plan, if required.

10 Planning links

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

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 five 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 aligns with the objective and target that relate to invasive species in *Australia's Strategy for Nature 2024-2030*:

Objective 7. Reduce threats and risks to nature and build resilience

Target: Eradicate or control invasive species in priority landscapes and further minimise their introduction by 2030.

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.
- 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, Uluru-Kata Tjuta 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.

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: Terrestrial marsupials and rodents; 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 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. less than 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 9 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).

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, and could heighten the level of cat / wildlife interactions.
- 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.

Furthermore, in some situations there may be scope for designing and implementing an indirect offset to compensate for residual significant impacts on a cat-impacted species from a development that does not cause additional or exacerbate cat-related impacts. 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 if it can be demonstrated that the program would achieve a better conservation outcome for the protected matter.

12 Continuity and adaptation

This threat abatement plan follows and benefits from 3 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 2 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 First Nations 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).

13 Appendices

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

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

Available at: DCCEEW Website

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

Available at: DCCEEW Website
Appendix 3. A compilation of the research-focused actions under the strategic themes

This threat abatement plan (TAP) 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 5 focal areas, summarised in Table 21. Note that, for brevity, the statement of individual actions is condensed.

Research, monitoring and related actions within this threat abatement plan, arranged under the strategic action themes	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 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 welfare,	Project 1: Improving community understanding and involvement		

Table 21 Research-focused actions under the strategic themes

Research, monitoring and related actions within this threat abatement plan, arranged under the strategic action themes	WABSI research project priorities, arranged under the focal areas		
human and wildlife 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		
9.5. Maintain and increase broad public support for improved cat management near human habitation and	Project 1: Improving community understanding and involvement		
infrastructure, for conservation, cat welfare, human health, and livestock production outcomes	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. Continue to refine and adapt Felixer™ grooming traps;	Project 3: Economics of cat management and control		
facilitate their availability in all states and territories; complete field trials and refinements and gain approval for	Project 4: Assessing and prioritising existing control strategies		
using PAPP in the Felixer™ grooming traps, in addition to 1080	Project 5: Refining lethal technologies, lures and deterrents		
4.4. Evaluate other euthanasia options for live-trapped feral	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	Project 3: Economics of cat management and control		
the value of sustained shooting programs to reduce feral cat impacts on native species	Project 4: Assessing and prioritising existing control strategies		
	Project 5: Refining lethal technologies, lures and deterrents		
4.6. Continue research to explore the potential of new	Project 3: Economics of cat management and control		
attractants to draw cats to control or monitoring points	Project 4: Assessing and prioritising existing control strategies		
	Project 5: Refining lethal technologies, lures and deterrents		
4.7. Carry out trials to establish whether guardian dogs can	Project 3: Economics of cat management and control		
effectively repel cats, and benefit native species	Project 4: Assessing and prioritising existing control strategies		
	Project 5: Refining lethal technologies, lures and deterrents		

abatement plan, arranged under the strategic action themes	WABSI research project priorities, arranged under the focal areas
8.5. Carry out research to evaluate if/ how dingo management affects feral cat abundance and impacts and could aid ecosystem resilience	Project 7: Integrated introduced predator control
8.6. Carry out research to evaluate if/ how devil management affects cat impacts and 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	Project 11: Other novel control solutions
responses	
Enhance knowledge	3. Quantifying impacts
Enhance knowledge Impacts	3. Quantifying impacts
Enhance knowledge Impacts 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands	3. Quantifying impacts Project 6: Land management practices, including Indigenous knowledge
Tesponses Enhance knowledge Impacts 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands 3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses	3. Quantifying impacts Project 6: Land management practices, including Indigenous knowledge Project 8: Cat density impact targets and biodiversity response thresholds
Tesponses Enhance knowledge Impacts 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands 3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses 9.4. Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure	3. Quantifying impacts Project 6: Land management practices, including Indigenous knowledge Project 8: Cat density impact targets and biodiversity response thresholds Project 8: Cat density impact targets and biodiversity response thresholds
Tesponses Enhance knowledge Impacts 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands 3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses 9.4. Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure 3.4. Investigate impacts and prevalence of cat-borne diseases in native wildlife, and options for responses	3. Quantifying impacts Project 6: Land management practices, including Indigenous knowledge Project 8: Cat density impact targets and biodiversity response thresholds Project 8: Cat density impact targets and biodiversity response thresholds Project 9: Understanding disease prevalence and impacts
Tesponses Enhance knowledge Impacts 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands 3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses 9.4. Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure 3.4. Investigate impacts and prevalence of cat-borne diseases in native wildlife, and options for responses Monitoring	3. Quantifying impacts Project 6: Land management practices, including Indigenous knowledge Project 8: Cat density impact targets and biodiversity response thresholds Project 8: Cat density impact targets and biodiversity response thresholds Project 9: Understanding disease prevalence and impacts 5. Population ecology and behaviour
Tesponses Enhance knowledge Impacts 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands 3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses 9.4. Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure 3.4. Investigate impacts and prevalence of cat-borne diseases in native wildlife, and options for responses Monitoring 2.12. Improve monitoring attached to control programs	3. Quantifying impacts 9. Quantifying impacts Project 6: Land management practices, including Indigenous knowledge Project 8: Cat density impact targets and biodiversity response thresholds Project 8: Cat density impact targets and biodiversity response thresholds Project 9: Understanding disease prevalence and impacts 5. Population ecology and behaviour Project 14: More effective cat population monitoring
Tesponses Enhance knowledge Impacts 3.1. Improve knowledge of the biodiversity value of islands; and the occurrence of cats on islands 3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses 9.4. Improve the evidence base on the biodiversity impacts of feral cats living near human habitation and infrastructure 3.4. Investigate impacts and prevalence of cat-borne diseases in native wildlife, and options for responses Monitoring 2.12. Improve monitoring attached to control programs 2.13. Establish and maintain national databases for collating details of feral cat control programs, monitoring data and outcomes	3. Quantifying impacts Project 6: Land management practices, including Indigenous knowledge Project 8: Cat density impact targets and biodiversity response thresholds Project 8: Cat density impact targets and biodiversity response thresholds Project 9: Understanding disease prevalence and impacts 5. Population ecology and behaviour Project 14: More effective cat population monitoring No equivalent; more relevant for national-scale information collation and analyses

Research, monitoring and related actions within this threat abatement plan, arranged under the strategic action themes	WABSI research project priorities, arranged under the focal areas
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 feral cat control options	Project 13: Cat behaviour (bait avoidance, social structure, reinvasion)

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 22Relevant legislation relating to cats in Australian states and territories. Note that
additional legislation which has less direct relevance to cat management (e.g. in
relation to use of poisons, firearms, biosecurity, activities allowed in conservation
reserves) may not be specifically tabulated here.

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; Animal Welfare Act 1992	Domestic Animals Act 2000	No	
New South Wales	Local Land Services Act 2013; Biosecurity Act 2015; Biodiversity Conservation Act 2016; Game and Feral Animal Control Act 2002; Prevention of Cruelty to Animals Act 1979	Companion Animals Act 1998	No	
Northern Territory	Territory Parks and Wildlife Conservation Act 1976; Animal Protection Act 2018	None	Yes	
Queensland	Biosecurity Act 2014; Nature Conservation Act 1992; Animal Care and Protection Act 2001	Animal Management (Cats and Dogs) Act 2008	Yes	
South Australia	Landscape South Australia Act 2019; Animal Welfare Act 1985	Dog and Cat Management Act 1995	Yes	
Tasmania	Biosecurity Act 2019; Cat Management Act 2009; Nature Conservation Act 2002; Animal Welfare Act 1993	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	Yes (on some public lands)	
Western Australia	Biosecurity and Agriculture Management Act 2007; Biodiversity Conservation Act 2016; Conservation and Land Management Act 1984; Animal Welfare Act 2002	Cat Act 2011	Yes	

Appendix 4b. Other management plans and protocols that focus on, or partly on, feral cats, in Australian states and territories

Australian Capital Territory

ACT Cat Plan 2021-2031: A plan developed under the 2017 ACT Animal Welfare and Management Strategy (ACT Government 2021)

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)

Western Australia

Western Australian Feral Cat Strategy 2023-2028 (Department of Biodiversity, Conservation and Attractions 2023)

PestSMART (Centre for Invasive Species Solutions)

National code of practice for the humane control of feral cats (Sharp and Saunders 2012)

Includes:

Feral cat control methods humaneness matrix

National Standard Operating Procedures:

NATSOP-CAT001:	National Standard Operating Procedure: Ground shooting of feral cats (2017)
NATSOP-CAT002:	National Standard Operating Procedure: Trapping of feral cats using cage traps (2017)
NATSOP-CAT003:	National Standard Operating Procedure: Trapping of feral cats using padded-jaw traps (2017)
NATSOP-CAT004:	National Standard Operating Procedure: Baiting of feral cats with para- aminopropiophenone (PAPP) (2018)
NATSOP-GEN003:	National Standard Operating Procedure: Trapping using soft net traps (2012)

Appendix 5. Feral cat control options in each jurisdiction

Table 23Summary of the availability of feral 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. Note that it is summarised information only and the availability of
each control option, and any associated legal and regulatory requirements, may vary between persons (e.g. authorised, landholder,
primary producer) and across land tenures. To understand the current and specific requirements of each control option, information
and advice should be sought from relevant state and territory government agencies, local councils and other relevant regulatory
bodies.

State or Territory	Shooting	Dog tracking/detection to enhance shooting	Baiting	Cage trapping	Soft-jaw trapping	Felixer™
ACT	Permitted but regulated: - on private land.	Prohibited for hunting.	Requires permit or authorisation: Curiosity [®] PAPP requires approval. Eradicat [®] 1080 cannot be used.	Requires permit or authorisation: - for commercial trapping Permitted but regulated: - on private land.	Requires permit or authorisation.	Requires permit or authorisation.
Victoria	Permitted but regulated: - on specified land tenure.	Permitted but regulated.	Requires permit or authorisation: Curiosity® PAPP requires approval. Eradicat® 1080 cannot be used.	Permitted but regulated.	Prohibited without ministerial approval.	Prohibited: Felixer™ with 1080 cannot be used.
New South Wales	Permitted but regulated.	Permitted but regulated.	Prohibited: Curiosity® PAPP and Eradicat® 1080 baits cannot be used.	Permitted but regulated.	Permitted but regulated.	Requires permit or authorisation.
Western Australia	Permitted but regulated. A permit or authorisation may be required for some activities on public lands.	Permitted but regulated.	Requires permit or authorisation: Curiosity® PAPP requires approval for restricted use. Eradicat® (1080) requires approval.	Permitted but regulated.	Prohibited without special exemption.	Requires permit or authorisation.

State or Territory	Shooting	Dog tracking/detection to enhance shooting	Baiting	Cage trapping	Soft-jaw trapping	Felixer™
South Australia	Permitted but regulated. A permit or authorisation may be required for some activities on public lands.	Permitted but regulated. A permit or authorisation may be required for some activities on public lands.	Requires permit or authorisation: Curiosity® PAPP requires approval. Eradicat® 1080 requires approval for restricted use at specified locations.	Permitted but regulated.	Permitted but regulated for restricted use.	Requires permit or authorisation.
Tasmania	Permitted but regulated.	Permitted but regulated.	Requires permit or authorisation: Curiosity [®] PAPP requires approval for restricted use at specified locations. Eradicat [®] 1080 cannot be used.	Permitted but regulated.	Prohibited without ministerial approval.	Requires permit or authorisation: For restricted use at specified locations.
Queensland	Permitted but regulated.	Permitted but regulated.	Requires permit or authorisation: Curiosity® PAPP requires approval. Eradicat® 1080 requires approval for restricted use at specified locations.	Permitted but regulated.	Permitted but regulated.	Requires permit or authorisation.
Northern Territory	Permitted but regulated.	Permitted but regulated.	Requires permit or authorisation: Curiosity [®] PAPP cannot be used. Eradicat [®] 1080 requires approval for restricted use at specified locations.	Permitted but regulated.	Permitted but regulated.	Requires permit or authorisation.
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 feral cats, or retrieve feral cats, not to kill feral cats.	All poisons are regulated by APVMA.	Regulations lie in relevant animal welfare legislation, or cat management legislation (Tasmania), or game and feral animal control legislation (NSW).	Regulations lie in relevant animal welfare legislation.	None.

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

The cross-tabulation (**Table 24**) broadly aligns actions described in the previous (2015) threat abatement plan (2015 TAP) (left column) with comparable actions in this plan (2024 TAP) (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 2024 threatabatement plan actions

2015 TAP	2024 TAP (condensed wording of actions)		
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[®], and complete non-target species trials and seek broader registration for Eradicat[®] 		
Action 1.2 Develop and register other cat control tools, including devices exploiting cat grooming habits	4.3. Continue to refine and adapt Felixer[™] grooming traps4.4. Evaluate other euthanasia options for live-trapped feral cats that may increase overall humaneness		
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 if/ how dingo management affects feral cat abundance and impacts and could aid ecosystem resilience8.6. Carry out research to evaluate if/ how devil management affects cat impacts and 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 appropriate fire management 8.3. Manage grazing pressure to retain habitat complexity 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 feral cat control options 4.5. Collaborate with a recreational shooting group to trial the value of sustained shooting programs to reduce feral cat impacts on native species 		
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 research 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		

2015 ТАР	2024 TAP (condensed wording of actions)	
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	
immunocontraceptive options for cats, and commence research on promising options Undertake social research on promising options to	4.9. Continue research on immunocontraception to develop approaches with improved efficacy over sustained periods, and feasible spreading mechanisms	
gauge community support	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	ol 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 opportunities of environmental markets for land managers who undertake feral 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	2.7. Maintain the national Feral Cat Taskforce as a primary mechanism to help coordinate the management of feral cats across jurisdictions	
monitoring feral cats	2.8. Create a 'practitioner network', or regional networks, for First Nations groups, regional natural resource management organisations, community groups, individual landholders, agencies and researchers	
	2.9. Support land managers to plan for and implement effective feral cat control programs by improving guidance about which control option(s) are most appropriate	
	2.10. Support First Nations ranger groups to control feral cats	
	2.11. Maintain, enhance and update as required CoPs/SoPs, coordinated across jurisdictions	
	2.12. Improve monitoring attached to feral cat control programs	
	2.13. Establish and maintain national databases for collating details of feral cat control programs, monitoring data and outcomes	
	2.14. Establish and maintain national databases on fundamental information about feral 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 and wildlife health, and livestock production outcomes	
Action 2.3 Ensure areas prioritized for feral cat management across to Australia maximize benefits	2.1. Prioritise cat-free islands on which surveillance monitoring for cat incursions should be established	
to biodiversity at a local, regional and national level	2.2. Prioritise islands for feral 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 rabbits, to protect all native species	
	2.6. Prioritise areas for managing feral (and pet) cats living near human habitation and infrastructure	

2015 ТАР	2024 TAP (condensed wording of actions)
Action 2.4 Governments agree to consistent legislation that identifies feral cats as a pest, has requirements for control, and identifies control	1.1. Enhance harmonisation across government legislation that identifies feral cats as a pest, requires feral cats to be controlled, and identifies control techniques
techniques that may be used	1.2. Enhance consistency across state and territory legislation for companion animals, including mandating the principles of responsible pet cat ownership
	1.3. 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 strateg	ies 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 feral 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	2.1. Prioritise cat-free islands on which surveillance monitoring for cat incursions should be established
prevent incursions	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

2015 TAP	2024 TAP (condensed wording of actions)
Action 3.4 Research methods to understand thresholds of cat abundance required to improve survival rates for threatened species heavily preyed	3.2. Improve understanding of cat impacts, with a combination of autecological studies of cat-susceptible species, expert elicitation and population viability analyses
upon by feral cats. Research ways in which adaptation by threatened species may improve survival rates	3.4. Investigate prevalence and impacts of cat-borne disease- causing pathogens in cats and native wildlife, and options for responses.
	3.5. Undertake fundamental research on cat ecology to inform the design and implementation of existing feral cat 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 / management option
Action 3.5 Continue research into cat diseases, including Toxoplasma gondii and sarcosporidiosis, their prevalence, ability to transmit to other species	3.4. Investigate prevalence and impacts of cat-borne disease- causing pathogens in cats and native wildlife, and options for responses
(including livestock and humans) their impacts, and ways to mitigate the impacts	9.8. 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 ma	nagement 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 feral cat control options 9.4. 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	9.1. Stakeholder-led national taskforce formed to coordinate and improve best practice management of pet cats and feral cats living around human habitation and infrastructure
management; an understanding of the transitions	9.2. Support local governments to improve feral cat management
need for responsible ownership; and support for the	9.3. Support local governments to improve pet cat management
containment of domestic cats where their roaming may impact on identified conservation areas	9.5. 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
	9.6. Work with the farming industry to leverage their support for cat control and management in livestock production areas, using a One Health approach
	9.7. 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	1.3. Improve regulatory and policy settings to reduce pet cat impacts
resources to stray cats	2.16. Maintain and increase broad public support for improved cat management for conservation, cat welfare, human and wildlife health, and livestock production outcomes
	9.2. Support local governments to improve feral <i>cat</i> management
	9.3. Support local governments to improve pet <i>cat</i> management
	9.5. Maintain and increase broad public support for improved cat management near human habitation and infrastructure, for

2015 TAP	2024 TAP (condensed wording of actions)
	conservation, cat welfare, human health, and livestock production outcomes
Action 4.4 Develop specific communication campaigns to accompany the release of new broad- scale cat control techniques and other current/new cat control techniques and management programs	 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 and wildlife 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. Subject any proposals to import domestic cat hybrids to an assessment (as required to amend the Live Import List to include a new specimen) of the potential impacts on the environment
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 between this feral cat threat abatement plan and those for other vertebrate pests (e.g. foxes), and ensure oversight and coordination of feral pest management through the Australian Pest Animal Strategy
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

2024 TAP (condensed wording of actions)

Appendix 7. Summary of early engagement with First **Nations** groups

Figure 8 Summary of early engagement with First Nations groups in northern Australia. Source: Territory Natural Resource Management (2022).

TO US

Territory Natural Resource Management thanks all Indigenous land management groups for their time participating in the consultation process to inform a review of the 'Threat abatement plan for predation by feral cats' (Feral Cat TAP). The consultation was conducted on behalf of the Australian Government from August 11th - September 23rd 2022

The information collected has been included in a report and given to the Australia Government and the authors who are writing the new Feral Cat TAP.

The authors requested consultation with Indigenous land management groups to happen before they wrote the reviewed Feral Cat TAP to make sure that it aligns with the aspirations of Indigenous land managers for feral cat management.

The TAP authors will now write a reviewed plan which will be sent out for comment before it is finalised.

WHAT DID YOU TELL US?

Are feral cats an issue?

Most groups consulted identified that feral cats are an issue on the Country they manage, and that they supported feral cat control. However, respondents reported that it is hard to find information on the impacts of feral cats, which makes it hard to make decisions around their management.

Many groups indicated that they would like to work with the community more to share information about the impact of feral cats.

"Feral animals interfere with the life cycle of our native animals' Andrew, Njanjma Rangers

Monitoring

The groups consulted identified that most feral cat monitoring happens through general biodiversity monitoring, like through putting out camera traps, rather than targeted activities

Groups identified that more funding, training and support from experts would help them increase or start monitoring for feral cats.



Management

Most groups No consulted are not managing feral cats or their impacts, however. most of the

like to be.

Does your group control feral cat numbers and/or manage feral cat impacts by other strategies? groups would No, but we would like to

Yes

Groups said that the ways they managed feral cats or their impacts (directly or indirectly) were chosen because they were the options that had the most impact (most effective), they were cost efficient and/or they were the only option/s available to them

The main limitations to undertaking targeted feral cat control and/or impact mitigation activities were identified as a lack of funding for staff and/ or equipment, and/or a lack of access to culturally appropriate information and expertise to help inform the development of context-appropriate feral cat management activities

How does your group control feral cat numbers and/or manage their impact?

WHO DID WE HEAR FROM?

34

14

We heard from 64 groups via online

survey or in-person interview.

16



Figure 9 Summary of early engagement with First Nations groups in southern Australia (page 1). Source: Conservation Management Pty Ltd (2022).

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.

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.



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.





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.



Figure 10 Summary of early engagement with First Nations groups in southern Australia

(page 2) Note: First Nations engagement on feral cats and foxes was conducted simultaneously. For completeness, the summary from this engagement is included here in its entirety. Source: Conservation Management Pty Ltd (2022).



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.
Autecology/autecological	The study of individual organisms or species and their interaction with the environment.
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.
Extant	A term used to describe a species or taxa that are still in existence (living).
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
Extirpate/extirpation	A species is removed from a particular geographical location. Also referred to as local extinction.
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.

Term	Definition
Performance criteria	A criterion or measure that provides information on the extent to which a policy, program or initiative is achieving its outcomes.
Rodent irruption	An event where rodent species experience significant population growth in response to environmental changes, such as an increase in food resources following rainfall.
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.
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.

15 List of acronyms

Table 26 List of acronyms

Acronym	Meaning
ACT	Australian Capital Territory
AMRRIC	Animal Management in Rural and Remote Indigenous Communities
APVMA	Australian Pesticides and Veterinary Medicines Authority
CISS	Centre for Invasive Species Solutions
СоР	Code of Practice
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
MLA	Meat and Livestock Australia
NESP RL Hub	Resilient Landscapes Hub of the National Environmental Science Program
NGO	non-government organisation
NRM	natural resource management
NSW	New South Wales
РАРР	Para-aminopropiophenone, a toxic bait
SoP	Standard Operating Procedure
ТАР	Threat Abatement Plan
TNR	Trap-neuter-release programs

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